



GOLDER

REPORT

Assessment of Corrective Measures

*Georgia Power Company - Plant Branch Ash Ponds B, C and D,
Putnam County, Georgia*

Submitted to:



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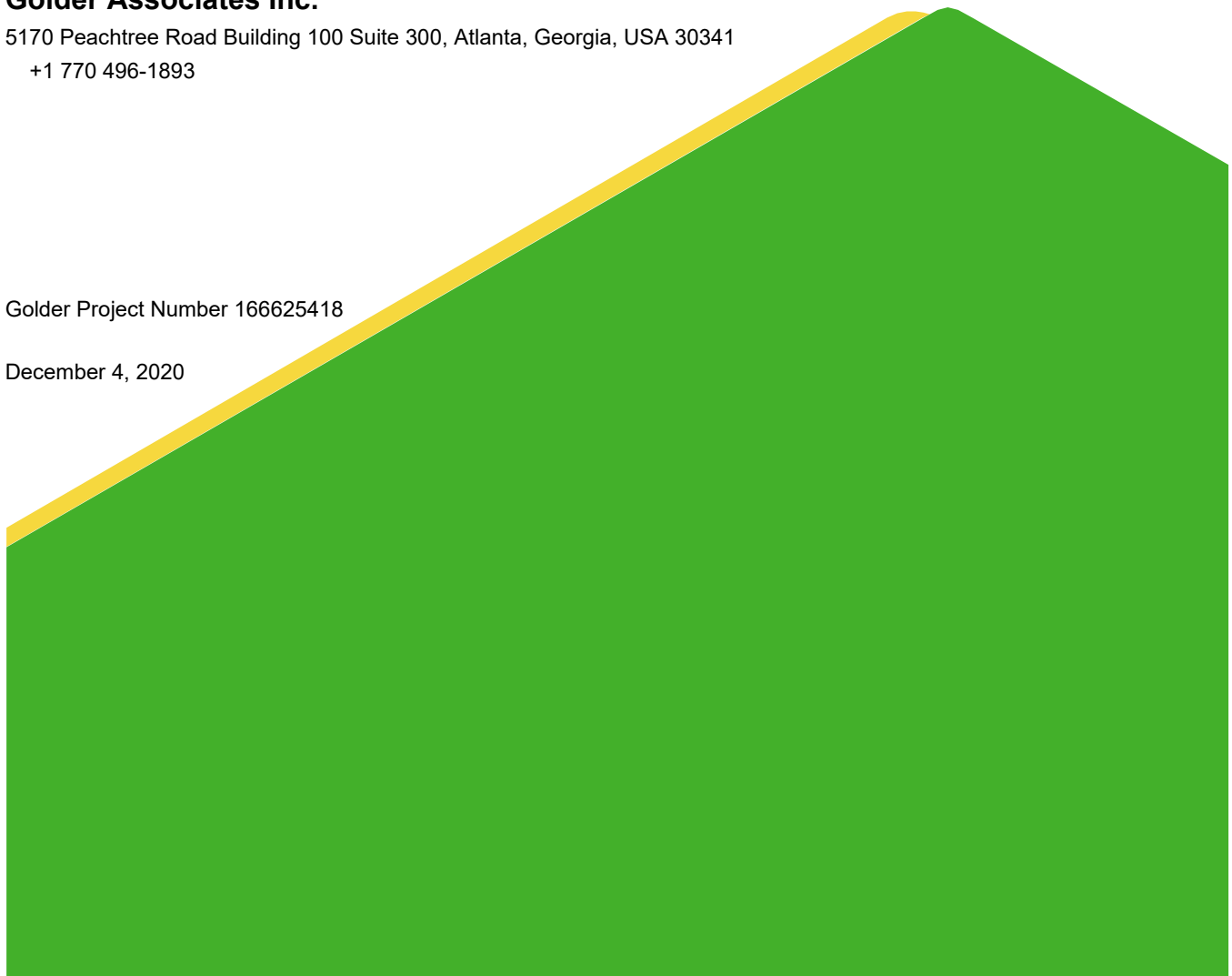


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1.0 INTRODUCTION

This Assessment of Corrective Measures (ACM) has been prepared in accordance with the Georgia (GA) Environmental Protection Division (EPD) Rule 391-3-4-.10(6), to evaluate potential groundwater corrective measures at Plant Branch Ash Ponds, B, C, and D, together referred to as a multi-unit AP-BCD (AP-BCD, Site). For ease of reference, we have included citations for the applicable portions of the Code of Federal Regulations (i.e., 40 CFR 257.97-98) as they are included by reference in the GA EPD rule. The ACM was initiated on July 9, 2020, within 90 days of identifying SSLs. A 60-day extension until December 4, 2020 for completion of the ACM was documented on October 7, 2020. Based on the results of the ACM, further evaluation may be performed, site-specific studies completed, and a corrective action plan developed and implemented in accordance with 40 CFR 257.97-98 and GA EPD's CCR Rule 391-3-10.

This ACM evaluates potential corrective measures to address statistically significant levels (SSLs) of cobalt and cadmium in groundwater at AP-BCD identified on May 8, 2020.

Based on the results of the ACM, further evaluation may be performed, site-specific studies completed, and a final long-term corrective action plan developed and implemented pursuant to 40 CFR 257.97-98 and 391-3-4-.10(6). As part of the ACM, the nature and extent evaluation of target constituents, cobalt and cadmium, in groundwater is complete. Due to the proximity of Lake Sinclair in the downgradient direction of the well showing SSLs of cobalt and cadmium (i.e., BRGWC-50), installation of additional wells to horizontally characterize this area is infeasible. Georgia Power proactively collected surface water samples from Lake Sinclair downgradient of AP-BCD on October 22, 2020. The results from surface water samples collected from Lake Sinclair indicate that cobalt and cadmium are not detected and no impacts to surface water have been identified.

Based on data collected to date, horizontal and vertical delineation of groundwater constituents showing SSLs at AP-BCD at Plant Branch is considered complete. Ongoing ACM evaluations will be provided in subsequent semi-annual remedy selection progress reports. These progress reports will be included as attachments to the *Semi-Annual Groundwater Monitoring and Corrective Action Reports*. The next semi-annual report is planned for February 2021.

Georgia Power conducted a human health and ecological risk evaluation to evaluate constituents that exhibit SSLs in groundwater, cobalt and cadmium, at AP-BCD. The risk evaluation used a conservative, health-protective approach that is consistent with United States Environmental Protection Agency (USEPA) risk assessment guidance, GA EPD regulations and guidance, and standard practice for risk assessment in the State of Georgia. As part of the risk evaluation, a well survey of potential groundwater wells within a three-mile radius of AP-BCD was conducted and consisted of reviewing federal, state, and county records and online sources, in addition to conducting a windshield survey of the area. The risk evaluation relied on groundwater data collected by Georgia Power from March 2018 to March 2020 in compliance with the state CCR rules. Based upon this risk evaluation, which included multiple conservative assumptions, concentrations of cobalt and cadmium detected in groundwater at AP-BCD are not expected to pose a risk to human health or the environment. The *Risk Evaluation Report* (Wood/Geosyntec, 2020) and associated well survey are provided as Appendix A.

1.1 Purpose

The purpose of this ACM is to identify potential corrective measure(s) for groundwater at AP-BCD. This process is typically iterative and may be composed of multiple steps to analyze the effectiveness of corrective measures to address the potential migration of CCR constituents in groundwater at AP-BCD.

Once potential corrective measures are identified, they will be further evaluated using the criteria outlined in 40 CFR 257.97-98 and GA EPD's CCR Rule 391-3-10(6), which states that corrective measures assessment should include an analysis of the following:

- Performance
- Reliability
- Ease of implementation
- Potential impacts
- The time required to begin and complete the remedy
- Any institutional requirements that could affect implementation of the remedy.

These evaluation criteria, discussed in more detail in the following sections, were considered for each potential remedy.

1.2 Site Location and Description

Plant Branch is located in Putnam County, GA, approximately 8 miles north of Milledgeville. The plant is primarily surrounded by agricultural, residential, and light commercial land use. The property occupies approximately 3,200 acres and is bounded on the south and east by Lake Sinclair, which is an approximate 15,330-acre hydroelectric reservoir that was created in 1953 by the impoundment of the Oconee River. A site location map and a detailed site map are included as Figure 1. The physical address of the plant is 1100 Milledgeville Road, Milledgeville, GA 31061.

Plant Branch formerly operated as a coal-fired power plant since the 1960s until its retirement in 2015. Plant Branch is no longer active and is currently decommissioned. During its operation, five ash ponds were used for management of the CCR on the plant property. These ponds are identified as Ponds A, B, C, D, and E. Ash Pond A, the first ash pond constructed at the Site, was taken out of service in the late 1960s and was closed in April 2016 by the removal and relocation of its stored CCR to Ash Pond E. Ponds B, C, D, and E are currently inactive, and will be closed by removal by relocation of the stored CCR material to a proposed lined landfill located on the plant property. This report documents the assessment of corrective measures at the multi-unit AP-BCD.

Plant Branch ceased producing electricity prior to April 2015. Therefore, Ash Ponds B, C, and D are not subject to the USEPA CCR Rule.

1.3 Pond Closure and Source Control

Georgia Power retired Plant Branch in 2015 and began a dewatering process which is necessary to facilitate permanent closure of the ash ponds. Plant Branch will remove all four ash ponds (Ponds B, C, D, and E) and consolidate the ash in a new, lined onsite landfill. The closure of the AP-BCD in the manner described above provides a source control measure that reduces the potential for migration of CCR constituents to groundwater. Corrective measures discussed in this ACM are being evaluated to address SSLs in groundwater at the waste boundary.

2.0 CONCEPTUAL SITE MODEL

The following section summarizes the geologic and hydrogeologic conditions at Plant Branch as described in the November 2020 *Hydrogeologic Assessment Report, Revision 1* (Geosyntec, 2020).

2.1 Regional and Hydrogeologic Setting

The following section and subsections include a general description of regional geologic and hydrogeologic characteristics of formations that occur beneath the site. Figure 2 presents a series of subsurface profiles for the site. Subsurface geologic profiles are included as Figures 3 and 4 present a summary of the geologic and hydrogeologic information for Plant Branch. Sections A-A' and B-B' (Figures 3 and 4) depict the geologic profile and hydrogeologic conditions both in the direction of groundwater flow and perpendicular through the detection groundwater network.

The Site is located in the Piedmont/Blue Ridge geologic province, which contains some of the oldest rock formations in the southeastern US. These late Precambrian to late Paleozoic rocks have undergone repeated cycles of igneous intrusions and extrusions, metamorphism, folding, faulting, shearing, and silicification. Based on site-specific mapping, bedrock beneath is primarily characterized by poorly-jointed, feldspathic biotite gneiss with a localized zone of highly concentrated layers of amphibolite/hornblende gneiss interlayered with the biotite gneiss. Isolated diabase intrusive masses are also present on site.

Residual soils, micaceous, locally saprolitic soils, consisting primarily of clay, silty clay, silt, and sandy clay occur as a variably-thick blanket of residuum overlying bedrock across most of the site. These thickness of residual saprolitic soils along with saprolitic transitionally or partially weathered rock, collectively the overburden, range between approximately 11 to 139 feet in thickness across the site, with an average thickness of approximately 41 feet. Saprolitic rock is considered to be transitionally weathered rock (TWR) or partially weathered rock (PWR). PWR is defined by Standard Penetration Test (SPT) blow counts that exceed 50 blows/six inches.

A regional, unconfined surficial aquifer system is present at the site, existing within the overburden soils and weathered and fractured upper bedrock (e.g., approximately the first 30 feet), depending on topographic location. Recharge primarily occurs through precipitation and subsequent infiltration. Generally, groundwater flow occurs through intergranular pore spaces in the overburden and is controlled by topography and top of rock variations. However, a relatively higher transmissive zone is interpreted to occur at the base of the overburden, at the interface of weathered bedrock and competent bedrock and is believed to be the primary groundwater flow path. The overburden has an average horizontal hydraulic conductivity of 10^{-4} centimeters per second (cm/s) and is interpreted to flow south-southeast.

A limited and localized bedrock aquifer system also occurs beneath the site. The upper bedrock is fractured and weathered, connected hydraulically with groundwater in the overburden soils, and is considered part of the uppermost surficial aquifer. The silt/clay-rich soils of the overburden may act to retard recharge into the aquifer system. Deeper bedrock (i.e., approximately greater than 30 feet into the bedrock) is unweathered with few discontinuities (e.g., fractures) available to store groundwater.

2.2 Uppermost Groundwater Aquifer

Boring logs and monitoring well/piezometer installation logs were used to evaluate the hydrostratigraphy of the Site. Piezometers at the Site have been used for water level measurements and enhance the understanding of local hydrogeology. Material types identified included residual soils, saprolitic soils, saprolitic rock (TWR or PWR)

if blow counts were available), and competent bedrock. Based on review of the logs, the screen/filter pack interval for most of the piezometers and monitoring wells installed on site provides connection to overburden that is saturated, indicating that the site is underlain by a regional groundwater aquifer that occurs within the overburden.

Localized groundwater flow directions within this aquifer are influenced by topographic and top of rock variations on site. Potentiometric maps for the site are presented as Figure 5A and 5B, Potentiometric Surface Elevation Contour Map Pond BCD – March 2, 2020, and Potentiometric Surface Elevation Contour Map Pond BCD – September 14, 2020. As illustrated on the Potentiometric Surfaces shown on Figure 5A and Figure 5B are a subdued reflection of topography at the site, with groundwater generally flowing east, southeast, and southwest toward Lake Sinclair.

2.3 Groundwater Flow Conditions

Relatively thick silt/clay-rich overburden is present across most of the site which may retard recharge from the uppermost aquifer into the underlying bedrock aquifer systems. Additionally, boring logs indicate that some areas, particularly topographic highs, correlate with bedrock that is resistant to weathering and massive (i.e., few discontinuities); consequently, bedrock aquifer systems are likely not well-developed and/or interconnected in these areas. Preferential groundwater flow in bedrock is anticipated along lineaments and discontinuities.

It is expected that a significant amount of groundwater flow occurs in the residual soils, saprolite, and TWR/PWR (i.e., overburden). This is typical of the Piedmont, as discussed in Fetter (Fetter, 1988). The significance of groundwater flow between the overburden and upper fractured bedrock is dependent on the degree of hydraulic connectivity between the units. Generally, the majority of groundwater flow across the site occurs laterally in the TWR zone. Because the site is underlain by clay-rich residual soils and relatively massive bedrock, groundwater is expected to move laterally more than vertically within the TWR, which is considered to have a higher hydraulic conductivity relative to the overlying clay-rich and underlying massive bedrock material.

The vertical hydraulic gradient is dependent on topographic location. Vertical gradient calculations show that the flow component is variable in both topographically high and low areas. In typical Piedmont settings, an upward vertical gradient would be expected in topographically low areas, as observed in well pairs PZ-51I/PZ-51S. Groundwater in the underlying bedrock is isolated within secondary porosity features, limited in extent (i.e., not laterally continuous). Recharge to the uppermost aquifer is primarily through precipitation and this aquifer is considered to be hydraulically unconfined.

Based on review of the potentiometric contours (Figures 5A and 5B), horizontal hydraulic gradient is also variable and reflects topography at the site. The horizontal gradient appears to be steeper around the downgradient perimeter of the ponds, particularly along embankments where groundwater flow lines are influenced by the constructed slopes for the dams. Hydraulic gradient is calculated as the difference in groundwater elevation (in feet) divided by the distance between two piezometers or wells (in feet). Overall average hydraulic gradients for the Site derived using these horizontal gradients are 0.0235 foot/foot (ft/ft) and 0.0075 ft/ft, respectively.

3.0 NATURE AND EXTENT OF APPENDIX IV CONSTITUENTS

The following sections describe Site assessment activities performed through October 2020 in support of 1) delineating the nature and extent of SSLs in groundwater and 2) evaluating potential corrective measures to address them.

3.1 Groundwater Monitoring and Constituents of Concern

3.1.1 Groundwater Monitoring Program

A groundwater monitoring well network was installed, which (1) consists of a sufficient number of wells, (2) is installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer, and (3) represents the groundwater quality both upgradient of the unit (i.e., background conditions) and passing the waste boundary for unit AP-BCD at Plant Branch. The general locations, spacing, and depths of these wells were selected based on the characterization of site-specific hydrogeologic conditions and justification for placement is presented in the October 2020 *Hydrogeologic Assessment Report Revision 1* submitted to EPD (Geosyntec, 2020). The certified compliance monitoring well network consists of a total of seventeen (17) monitoring wells [i.e., eight (8) upgradient wells and nine (9) downgradient wells]. Detection monitoring well locations for AP-BCD are tabulated on Table 1 and are shown on Figure 2.

The piezometer network for the ash ponds currently consists of sixty-three (63) site piezometers (Table 2) installed at the Site to characterize groundwater conditions. Piezometers are identified in Table 2 and shown on Figure 2. Groundwater is currently monitored at AP-BCD under the assessment monitoring program pursuant to 40 CFR 257.97-98 and GA EPD's CCR Rule 391-3-10.

Boring logs and well construction logs for detection monitoring wells and site piezometers are presented in *Well Installation and Design Report Addendum* (Golder, 2020a).

3.1.2 SSLs for Appendix IV Constituents

During the assessment sampling events, groundwater samples were collected and analyzed for Appendix IV parameters in accordance with 40 CFR 257.97-98 and GA EPD's CCR Rule 391-3-10(6). Analytical data from the semi-annual assessment monitoring events have been statistically analyzed pursuant to §257.93(f) and in general accordance with the USEPA document *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance* (Unified Guidance; USEPA, 2009). Following federal and state rule requirements, separate groundwater protection standards (GWPS) were established for statistical comparisons of Appendix IV groundwater monitoring parameters. Site-specific GWPS are presented on Table 3. Details regarding the statistical analyses are provided in the 2020 *Annual Groundwater and Corrective Action Monitoring Report* (Golder, 2020b).

SSL of Appendix IV groundwater monitoring parameters include cadmium and cobalt at BRGWC-50.

3.2 Field Investigation Activities

The following summarizes the field investigation activities and data evaluations completed since the 2020 *Annual Groundwater Monitoring and Corrective Action Report* in July 2020 (Golder, 2020b).

- August and September 2020: Two routine assessment monitoring events were conducted. Horizontal delineation piezometers PZ-51S and PZ-51I, downgradient of detection monitoring well BRGWC-50 and adjacent to Lake Sinclair, were sampled in August and September 2020 for analysis of Appendix III and Appendix IV SSLs.
- October 2020: Piezometers PZ-50D and PZ-51D were installed to vertically characterize the groundwater flow and quality conditions downgradient of AP-BCD.

- October 2020: The newly installed piezometers and converted delineation wells were sampled for analysis of Appendix III and Appendix IV constituents.
- October 2020: Surface water samples were collected for analysis of Appendix III constituents, SSL constituents (cobalt and cadmium), and major cations and anions in support of evaluating the geochemical composition of the surface water.

3.2.1 Delineation Wells

To delineate groundwater impacts, two (2) horizontal delineation piezometers (PZ-51S and PZ-51I) and two (2) vertical delineation piezometers (PZ-50D and PZ-51D) were installed at locations downgradient of the monitoring well where Appendix IV SSLs were observed. Piezometer PZ-51S and PZ-51I were installed in August 2018, while PZ-50D and PZ-51D were installed in October 2020. The AP-BCD network and delineation wells along with the identified SSLs are shown on the March 2020 and September 2020 isoconcentration maps presented as Figures 6 and 7 (March 2020) and Figures 8 and 9 (September 2020).

Horizontal delineation piezometers were installed in the uppermost aquifer at PZ-51S and PZ-51I at locations downgradient of detection monitoring well BRGWC-50 and adjacent to Lake Sinclair.

Vertical delineation wells, within a minimum 20-foot screen separation from detection monitoring wells, were installed within the bedrock aquifer and slightly off-set from locations BRGWC-50 and PZ-51I resulting in a shallow and deep well pair at each of these locations.

Detailed boring and piezometer construction logs for the vertical delineation piezometers are provided in Appendix B. The locations for each of the site wells and piezometers are shown on Figure 2 and well and piezometer construction details are shown in Tables 1 and 2.

3.2.2 Groundwater Sampling

Pursuant to GA EPD Rule 391-3-4-.10(6) and listed in 40 CFR 257.96, groundwater in the vicinity of AP-BCD continues to be monitored in accordance with the assessment monitoring program established for AP-BCD. During August 2020, groundwater samples were collected from the detection monitoring wells and select assessment monitoring wells listed in Table 3.2.1 and analyzed for the full suite of Appendix IV constituents per GA EPD Rule 391-3-4-.10(6) and listed in 40 CFR 257.95(b). Groundwater samples were also collected in September 2020, for Appendix III and detected Appendix IV constituents. Groundwater analytical results from the August and September sampling events are summarized in Table 4A through 4D. Laboratory reports associated with these sampling events are provided in Appendix C.

3.2.3 Surface Water Sampling

Due to the presence of surface water in the downgradient direction of BRGWC-50 (refer to Figures 6 through 9), installation of additional wells to horizontally characterize this area is infeasible. Georgia Power proactively collected surface water samples from Lake Sinclair on October 22, 2020. Four (4) samples were collected from each of the locations presented on Figure 2. Analytical results are tabulated in Table 5 and presented in Appendix C. Review of analytical results shows concentrations below reporting limits and therefore, no impacts to surface water have been identified.

3.3 Nature and Extent Evaluation

Based on data collected to date, horizontal and vertical delineation of Appendix IV SSLs for AP-BCD at Plant Branch is considered complete.

4.0 GROUNDWATER CORRECTIVE MEASURES

This section reviews potentially applicable remediation alternatives for groundwater corrective measures at the Site.

4.1 Objectives of the Corrective Measures

In evaluating the effectiveness of potential corrective measures using the criteria in accordance with 40 CFR 257.97-98 and GA EPD Rule 391-3-10(6), including performance, reliability, ease of implementation, potential impacts, remedy duration, and institutional and public health requirements, the following criteria listed in 40 CFR 257.97(b) must be met by the corrective measure when selected:

- Protect human health and the environment
- Attain applicable GWPS as specified pursuant to 40 CFR 257.95(h)
- Control the sources of releases to reduce or eliminate, to the maximum extent feasible, further releases of Appendix IV constituents to the environment
- Remove from the environment as much of the contaminated material that was released from the CCR unit as is feasible, considering factors such as avoiding inappropriate disturbance of sensitive ecosystems
- Comply with standards for management of wastes as specified in 40 CFR 257.98(d).

Corrective measures selected for evaluation for potential use at AP-BCD Unit are anticipated to satisfy the above criteria.

4.2 Summary of Potential Groundwater Corrective Measures

The following presents a summary of potential corrective measures evaluated as part of this ACM. Based on specific information and knowledge of corrective alternatives and conditions at AP-BCD, the following remedies – or combination of remedies are being evaluated using the criteria specified in referenced in GA EPD Rule 391-3-4-.10(6) and listed in 40 CFR 257.96(c):

- Geochemical Approaches (In-Situ Injection)
- Hydraulic Containment (Pump and Treat)
- In-Situ Solidification/Stabilization
- Monitored Natural Attenuation (MNA)
- Permeable Reactive Barrier (PRB)
- Phytoremediation
- Subsurface Vertical Barrier Walls

Following the preliminary assessment, a more detailed evaluation of these corrective measures is required to (i) verify the feasibility of each; and (ii) provide sufficient information to design a corrective action system that meets the criteria specified in 40 CFR 257.97(b). Table 6 provides a summary of the remedial technologies compared to the evaluation criteria as applied to site conditions.

Phytoremediation technologies are not feasible at Plant Branch due to the depth of groundwater and the limited physical space for installation of a phytoremediation system between the AP-BCD and the adjacent surface water bodies. Thus, while phytoremediation is technically feasible as a remedial technology for cobalt and cadmium, it will not be retained for further evaluation.

4.2.1 Geochemical Approaches (In-Situ Injection)

Subsurface in-situ injections of reagents are a remediation technology that can be applied to select constituents. In-situ injections for inorganic constituents may be applied in three modes that influence solubility, mobility, and/or toxicity of constituents: (i) oxidation-reduction potential (redox) manipulation; (ii) adsorption to iron oxyhydroxides, other metal oxyhydroxides, or various sulfur compounds under oxidizing groundwater conditions; and (iii) adsorption to, or coprecipitation with, iron or other metal sulfides under reducing conditions. This technology requires understanding of the subsurface transport and (geo)chemical characteristics and a thorough understanding of the reaction kinetics to derive appropriate reagent dosing is applied to the subsurface. Often this technology is field evaluated in a relatively small area (i.e., a pilot test) to bolster the understanding of these factors prior to remedial selection, design, and/or implementation.

Cadmium and cobalt can be precipitated and/or immobilized under different combinations of geochemical pH and redox conditions. A variety of pH and/or redox-altering technologies are available which can incorporate biological processes, chemical oxidants and reductants, and/or mechanical processes such as air sparging. These processes can be used to decrease the mobility of these constituents although some are mutually exclusive when these metals are found at the same location.

Recent success with cobalt has been the biological incorporation into biomass that retards and substantially immobilizes cobalt from parts per million (ppm) concentrations to less than ten of parts per billion (ppb) using active biogeochemistry. To understand the biogeochemical processes that would effectively immobilize cadmium and cobalt in groundwater, bench-scale treatability studies and/or field-scale pilot tests specific to the conditions at AP-BCD are needed to evaluate amendment effectiveness to promote appropriate conditions for the precipitation and/or sorption of these inorganics without mobilizing other naturally-occurring constituents. Once precipitated, these minerals are often stable even if geochemical conditions revert to a different redox environment.

In-situ chemical oxidation (ISCO) or in-situ chemical reduction (ISCR) can be used to chemically alter the redox environment in the subsurface to affect the mobility and/or bioavailability of certain inorganic compounds, including cobalt and cadmium. Air sparging can be used to provide oxygen to the subsurface in an attempt to precipitate (or make more “sorptive”) compounds that are generally more soluble and mobile under reducing conditions. This can also promote the formation of iron or manganese (oxy-) hydroxides for subsequent sorption of cadmium and cobalt onto these mineral phases. If sufficient iron is present in groundwater, the use of air sparging alone may be considered to precipitate iron (oxy-) hydroxides for sorption.

The key process limiting in-situ remedial implementation and effectiveness is the delivery of amendments within the area of interest. Mixing and contact with the target constituents are necessary and can be difficult to achieve in heterogeneous materials and/or fine-grained materials. This technology will be retained for further evaluation.

4.2.2 Hydraulic Containment (Pump and Treat)

Generally, pump and treat (P&T) refers to the use of groundwater extraction to artificially induce a hydraulic gradient for capture or control of the migration of impacted groundwater. As a hydraulic control, it is often considered to be a viable remedial technology at many sites (USEPA, 1996b). This approach uses extraction wells or trenches to capture groundwater, which may subsequently require above-ground treatment and permitted discharge to a receiving water body or sewer system, reinjection into the aquifer, or reuse at the generating station. Groundwater P&T is often relatively slow and costly as a means to restore groundwater quality over a long-term period. However, P&T can be effective as a stand-alone remedy, a temporary (interim) measure, or in combination with another measure to provide hydraulic containment to limit constituent migration toward a potential receptor.

Groundwater extraction for hydraulic control can often effectively address the variety of inorganic constituents encountered at CCR sites, including cobalt and cadmium. Extraction technologies also have the ability to overcome the limitations of in-situ injection-based technologies (i.e., subsurface mixing and contact with affected materials, access to impacted groundwater in lower permeability geologic formations). Space constraints are mainly limited to the above-ground conveyance and treatment component of a P&T system since extraction wells can generally be installed into relatively tight spaces at the edge of waste or other points of compliance.

Extracted groundwater may need to be treated prior to discharge (depending on discharge permit requirements) but does have the potential to be used for reuse (as process water), irrigation (e.g., of a cover system or other vegetated areas at Plant Branch), or dust suppression purposes. During ash pond closure, there will be an on-site wastewater treatment plant that may be available for treatment of extracted groundwater. Therefore, P&T is a potentially viable corrective measure for cobalt and cadmium in groundwater at Plant Branch and will be retained for further evaluation.

4.2.3 In-Situ Stabilization

In-situ stabilization is a technique that uses mixing of the CCR with additives to solidify the material in place and reduce future dissolution of CCR compounds from the stabilized material. Additives typically include Portland cement, and the solidification is completed in-situ using large diameter augers. Groundwater impacts would be addressed through the processes of natural attenuation. This alternative would isolate/secure the source in a bound matrix, and over time, allow the concentrations of target constituents showing SSLs in downgradient groundwater to decline to below applicable standards.

Implementation of ISS will require a detailed design effort with bench scale testing to determine the appropriate amendment mix for a variety of overburden geologic materials. Pilot testing will also be needed to verify the ability of equipment to solidify material at depth.

While ISS is generally considered a viable option for either small source areas or targeted zones within a larger footprint, this potential corrective measure may not be a viable corrective measure at AP-BCD. The closure of AP-BCD as previously described will remove CCR materials and place them into a lined, landfill onsite. However, this option may be viable for targeted areas as stated above and will be retained for further evaluation.

4.2.4 Monitored Natural Attenuation

USEPA defines MNA as the reliance on natural attenuation processes (within the context of a carefully controlled and monitored site cleanup approach) to achieve site-specific remediation objectives within a time frame that is

reasonable compared to that offered by other more active methods. The natural attenuation processes that are at work in such a remediation approach include a variety of physical, chemical, and/or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of constituents in soil or groundwater. These in-situ processes include the following: dispersion; dilution; sorption; volatilization; radioactive decay; and chemical or biological stabilization, precipitation, transformation, or destruction of inorganic constituents (USEPA, 2015).

Attenuation mechanisms for inorganic constituents, such as cobalt and cadmium are either physical (e.g., dilution, dispersion, flushing, and related processes) or chemical (e.g., sorption or oxidation reduction reactions). Select chemical processes can be facilitated by biogeochemical reactions. Per USEPA (2015):

MNA may, under certain conditions (e.g., through sorption or oxidation-reduction reactions), effectively reduce the dissolved concentrations and/or toxic forms of inorganic contaminants in groundwater and soil. Both metals and non-metals (including radionuclides) may be attenuated by sorption reactions such as precipitation, adsorption on the surfaces of soil minerals, absorption into the matrix of soil minerals, or partitioning into organic matter. Oxidation-reduction (redox) reactions can transform the valence states of some inorganic contaminants to less soluble and thus less mobile forms (e.g., hexavalent uranium to tetravalent uranium) and/or to less toxic forms (e.g., hexavalent chromium to trivalent chromium).

The USEPA uses four tiers to establish whether MNA can be successfully implemented for inorganics at a given site, including:

- Tier 1:** Demonstration that SSLs in groundwater are delineated and stable.
- Tier 2:** Evaluation of the mechanisms and rates of attenuation.
- Tier 3:** Assessment if the capacity of the aquifer is sufficient to attenuate the mass of constituents in groundwater and that the immobilized constituents are stable and will not remobilize.
- Tier 4:** Design of a performance monitoring program based on the mechanisms of attenuation and including a decision framework for consideration of a contingent remedy tailored to site-specific conditions should MNA not perform adequately.

A successful MNA approach requires an understanding of hydrogeologic conditions, geochemistry, and long-term monitoring of site conditions.

Under current conditions, attenuation processes for cadmium and cobalt are already occurring as evidenced by groundwater data from delineation wells. Therefore, MNA is a potentially viable corrective measure for cobalt and cadmium in groundwater at Plant Branch and will be retained for further evaluation.

4.2.5 Permeable Reactive Barriers

Permeable reactive barriers (PRBs) typically involve the installation of a permeable subsurface wall constructed with reactive media for the removal of constituents as groundwater passes through. PRBs can be installed in downgradient locations using conventional excavation methods or one-pass trenching method. Excavated

trenches are backfilled with reactive media to create a barrier that treats dissolved constituents as they passively flow through the PRB with the groundwater (e.g., ITRC, 2011). These systems can either be constructed as continuous “walls” or as “funnel-and-gate” systems where (impermeable) slurry walls create a “funnel” that directs groundwater to permeable “treatment gates” filled with reactive materials. Since the costs for reactive materials [e.g., zero-valent iron (ZVI) or similar] are generally higher than bentonite-based slurry wall construction, the funnel-and-gate configurations with a smaller treatment area help lower construction and maintenance costs. PRBs are typically keyed into an underlying low-permeability unit such as a clay layer.

PRBs may present a viable alternative for in-situ treatment of cobalt and cadmium. The technology typically includes reactive media such as ZVI, biologically active media (to induce oxidizing or reducing conditions), or clays, apatite, zeolites, and/or peat moss (to promote ionic exchange and/or sorption). While uncommon, addition of a sulfate source to a PRB may be an effective technology for remediation of cobalt and cadmium. PRBs have proven to be effective in passively treating several inorganic constituents (e.g., ITRC, 2011).

The installation depths of a PRB using conventional engineering techniques are generally limited to about 90 ft below ground surface (bgs). However, novel engineering may extend this depth to more than 100 ft bgs. Given the proximity of the adjacent canals to the unit, space constraints may be an issue for installation of a PRB.

Additional subsurface investigations, reactive media testing, and compatibility testing of groundwater with the components of a PRB are needed to evaluate the feasibility of installing a PRB at AP-BCD. Pending these evaluations, the technology is currently considered to be a potentially viable corrective measure to address cobalt and cadmium in groundwater at AP-BCD and will be retained for further evaluation.

4.2.6 Subsurface Vertical Barrier Walls

Vertical barrier walls have been used for decades to control the flow of groundwater in both environmental applications as well as general foundation construction. Soil-bentonite walls are constructed by excavating a narrow vertical trench and injecting bentonite slurry to support the trench walls. The bentonite slurry used to support the trench walls is generally a mixture of pulverized bentonite in water. Water from the slurry bleeds into the trench wall, leaving behind a mat of particles known as filter cake, which along with the hydrostatic force of the slurry, holds the trench open. Once the trench reaches final grade, the trench is backfilled with a mixture of soil from the excavation, slurry, and soil from other sources, as necessary, to achieve the desired properties of strength and hydraulic conductivity. The backfill is generally placed with a tremie, clamshell, and/or a bulldozer, displacing the trench support slurry. The filter cake remains in place and, along with the gradation of the backfill used in the wall, is a function of the hydraulic conductivity of the final wall. Installation of soil-bentonite barrier walls can require significant amounts of space for mixing backfill (Bliss, 2014). At CCR facilities, berms may be constructed to provide the working space for barrier wall emplacement.

Cement-bentonite barrier walls are similar to soil-bentonite walls except that the stabilizing fluid used during excavation is a cement-bentonite water mix. The slurry remains in place to form the wall, so a separate operation to mix the backfill and displace the slurry is not necessary. Since the excavated material is not used in the backfill mix, significant amounts of spoil are generated with this type of barrier wall. Also, due to the method of excavation with the slurry, there can be a significant amount of slurry waste (up to 40% of the total trench/panel volume) during excavation (EPRI, 2015).

Barrier walls used alone at the Site could produce groundwater mounding, with possible rise of groundwater to the surface, and could produce groundwater flow around the end of the barrier walls. However, barrier walls could be

used to improve the subsurface hydraulic (flow) conditions for PRB walls and pump-and-treat. For example, barrier walls could form the impermeable portions of a funnel-and-gate PRB wall to direct groundwater to the treatment gates containing reactive media and could be used in a similar way to direct groundwater toward pumping wells in a pump-and-treat system. Because they could be part of PRB or hydraulic control (pump-and-treat) systems, barrier walls are viable corrective measures at the Site, and therefore will be retained for further evaluation.

5.0 REMEDY SELECTION PROCESS

The purpose of this ACM is to identify potential corrective measure(s) for groundwater using the criteria outlined in 40 CFR 257.96 and GA Rule 391-3-4-.10(6)(a). The following sections present the pond closure and site management strategy, additional data gathering, schedule, reporting, and next steps.

5.1 Source Control (Pond Closure) and Site Management Strategy

Georgia Power retired AP-BCD at Plant Branch in 2015 and will consolidate the ash to a new lined landfill. The current conceptual model may need to be refined and/or updated as more data are collected and analyzed. GPC plans to proactively utilize adaptive site management for Plant Branch to support the remedial strategy and address potential changes in groundwater conditions at AP-BCD (e.g., successful reduction of constituent concentrations or changing trends) as appropriate. Under an adaptive site management strategy, a remedial approach will be selected whereby: (1) a corrective measure will be installed or implemented to address current conditions; (2) the performance of the corrective measure will be monitored, evaluated, and reported semiannually; (3) the site conceptual model will be updated as more data are collected; and (4) adjustments and augmentations will be made to the corrective measure(s), as needed, to assure that performance criteria and site remedial goals are met.

5.2 Additional Data Gathering

Additional data, data analysis, and site-specific evaluation are necessary to refine the conceptual site model and to further evaluate the feasibility of each corrective measure presented herein such that an appropriate groundwater corrective measure may be selected. Some of the data needed to refine the conceptual site model may be collected concurrent with routine groundwater monitoring events under the assessment monitoring program, or during supplemental sampling, if required.

Additional data collection that may include aquifer testing, groundwater modeling, material compatibility testing, bench scale studies, and/or pilot tests may require an estimated one to two additional years to complete. Once sufficient data are available to arrive at a combination of corrective measures that would provide an effective groundwater remedy, necessary steps will be taken to implement a remedy at the site in accordance with EPD Rule 391-3-4-.10(6) and listed in 40 CFR 257.98.

A groundwater remedy process that incorporates one or more remedies described in this ACM will be implemented at the former CCR Unit. The remedy process will be designed to meet the performance standards as referenced in EPD Rule 391-3-4-.10(6) and listed in 40 CFR 257.98(c). Since the groundwater remedy may incorporate multiple approaches, additional data and analysis will be required to (i) perform a thorough location-specific evaluation regarding the feasibility of each potential remedy and (ii) to design or configure a groundwater corrective action plan.

The following summarizes typical additional data needed to evaluate and select a remedy:

- Geochemical studies of groundwater and aquifer media
- Geochemical, groundwater flow, or fate and transport modeling
- Material compatibility tests
- Laboratory treatability studies on groundwater, aquifer media, reactive media, and potential treatment solutions for injection
- Field pilot studies based on results of laboratory treatability studies.

Some of the data needed to evaluate potential remedies may be collected concurrently with routine groundwater monitoring events or during supplementary sampling events, if required. Additional data collection or feasibility evaluations may require up to 18 to 24 months to complete.

5.3 Schedule, Reporting & Next Steps

Additional data collection is ongoing to refine the understanding of the nature and extent of constituents resulting in SSLs. Georgia Power will prepare semi-annual progress reports to document groundwater conditions for AP-BCD at Plant Branch, results associated with additional data collection, and the progress in selecting and designing the remedy in accordance with 40 CFR 257.97(a).

At least 30 days prior to the selection of remedy or remedies, a public meeting to discuss the results of the corrective measures assessment will be held pursuant to 40 CFR 257.96(e). The final remedy selection report will be developed as outlined in 40 CFR 257.97(a). Once the remedy has been selected, the implementation of the remedy will be initiated in accordance with 40 CFR 257.98.

6.0 REFERENCES

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Signature Page

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[https://golderassociates.sharepoint.com/sites/11952g/shared documents/200 reports/assessment of corrective measures/final report/branch ap-bcd acm final v.4.12.4.2020.docx](https://golderassociates.sharepoint.com/sites/11952g/shared%20documents/200%20reports/assessment%20of%20corrective%20measures/final%20report/branch%20ap-bcd%20acm%20final%20v.4.12.4.2020.docx)

TABLES

TABLE 1
MONITORING WELL NETWORK SUMMARY (AP-BCD)
 Georgia Power - Plant Branch
 Milledgeville, GA

Well-ID	Hydraulic Location	Geologic Unit Screened ^{#1}	NAD 83 Northing	NAD 83 Easting	Latitude	Longitude	Ground Surface Elevation (feet NAVD88)	Top of Casing Elevation (feet NAVD88)	Total Depth (feet bgs)	Top of Screen Elevation (feet NAVD88)	Bottom of Screen Elevation (feet NAVD88)	Top of Seal Elevation (feet NAVD88)	Top of Filter Pack Elevation (feet NAVD88)	Bottom of Well Elevation (feet NAVD88)	Screen Length (feet)	Date of Installation
ASH POND BCD MONITORING WELL NETWORK																
BRGWA-2S	Upgradient BCD & E	Saprolite	1167139.7	2549952.6	33.205940	-83.338294	440.4	443.20	44.6	406.2	396.2	410.4	408.4	395.8	10.0	4/2/2014
BRGWA-2I	Upgradient BCD & E	Amphibolite Gneiss	1167130.0	2549957.3	33.205913	-83.338279	440.5	443.14	64.3	386.6	376.6	391.9	389.9	376.2	10.0	3/14/2014
BRGWA-5S	Upgradient BCD & E	Saprolite	1170177.5	2549415.5	33.214300	-83.339971	440.8	443.86	40.0	411.2	401.2	415.2	412.2	400.8	10.0	4/3/2014
BRGWA-5I	Upgradient BCD & E	Amphibolite Gneiss	1170183.7	2549408.0	33.214317	-83.339996	441.1	443.79	61.2	390.3	380.3	395.1	393.1	379.9	10.0	4/3/2014
BRGWA-6S	Upgradient BCD & E	Saprolite	1170732.9	2551540.8	33.215780	-83.333008	455.8	458.96	49.7	416.5	406.5	420.8	418.6	406.1	10.0	4/1/2014
BRGWA-12S	Upgradient BCD	Residuum	1164286.6	2557142.9	33.197941	-83.314864	431.6	434.64	58.3	383.7	373.7	389.6	386.6	373.3	10.0	3/4/2014
BRGWA-12I	Upgradient BCD	Biotite Gneiss	1164301.2	2557138.9	33.197981	-83.314877	431.5	434.39	77.6	364.3	354.3	375.5	366.6	353.9	10.0	2/20/2014
BRGWA-23S	Upgradient BCD	Saprolite/TWR	1162971.7	2557868.1	33.194311	-83.312528	425.5	428.24	40.8	394.7	384.7	403.0	398.0	384.7	10.0	7/26/2016
BRGWC-25I	Downgradient B	Saprolite/TWR/Biotite Gneiss	1160583.7	2561315.1	33.187670	-83.301326	355.0	357.37	20.5	344.5	334.5	352.5	347.5	334.5	10.0	7/25/2016
BRGWC-27I	Downgradient C	Saprolite	1159695.3	2559712.2	33.185265	-83.306589	364.0	366.86	24.0	350.0	340.0	360.0	355.0	340.0	10.0	7/22/2016
BRGWC-29I	Downgradient C	TWR	1160297.6	2561050.2	33.186890	-83.302200	350.6	353.23	20.0	340.6	330.6	348.6	343.6	330.6	10.0	7/23/2016
BRGWC-30I	Downgradient D	Saprolite/TWR/Biotite Gneiss	1161607.6	2557691.8	33.190566	-83.313141	350.0	352.61	20.3	340.0	330.0	348.0	343.0	329.8	10.0	7/18/2016
BRGWC-32S	Downgradient D	Saprolite	1160677.7	2558497.9	33.187992	-83.310531	403.6	406.39	45.0	368.6	358.6	376.6	371.6	358.6	10.0	7/20/2016
BRGWC-45	Downgradient B	Saprolite/TWR/Biotite Gneiss	1162229.8	2561075.5	33.192199	-83.302065	381.6	384.58	57.0	335.0	325.0	341.6	336.6	324.6	10.0	2/3/2018
BRGWC-47	Downgradient D	TWR	1162700.7	2559456.7	33.193530	-83.307343	408.8	411.20	92.0	327.2	317.2	333.8	328.8	316.8	10.0	1/25/2018
BRGWC-50	Downgradient B	Residuum/Biotite Gneiss	1161593.3	2562372.9	33.190421	-83.297841	378.8	381.35	65.0	324.2	314.2	330.8	325.8	313.8	10.0	1/31/2018
BRGWC-52I	Downgradient B	Biotite Gneiss	1161275.0	2562145.3	33.189551	-83.298594	381.2	383.87	73.9	317.3	307.3	330.8	321.5	307.3	10.0	8/6/2018

- Notes:**
1. feet NAVD88 = feet North American Vertical Datum 1988 feet NAD83 = North American Datum 1983
 2. feet bgs = feet below ground surface
 3. TWR = Transitionally Weathered Rock
 4. Wells resurveyed by Metro Engineering & Surveying Co., Inc between June-July 2020

TABLE 2
GROUNDWATER PIEZOMETER DETAILS
 Georgia Power - Plant Branch
 Milledgeville, GA

Well-ID	Hydraulic Location	Geologic Unit Screened ^(B)	NAD 83 Northing	NAD 83 Easting	Latitude	Longitude	Ground Surface Elevation (feet NAVD88)	Top of Casing Elevation (feet NAVD88)	Total Depth (feet bgs)	Top of Screen Elevation (feet NAVD88)	Bottom of Screen Elevation (feet NAVD88)	Top of Seal Elevation (feet NAVD88)	Top of Filter Pack Elevation (feet NAVD88)	Bottom of Well Elevation (feet NAVD88)	Screen Length (feet)	Date of Installation
PZ-1D	Upgradient	Biotite Gneiss	1171999.0	2551598.1	33.219259	-83.332788	462.9	463.41	160.0	NA	302.9	NA	NA	302.9	NA	4/4/2014
PZ-1I	Upgradient	Biotite Gneiss	1171995.8	2551577.8	33.219250	-83.332855	461.9	464.71	79.5	392.8	382.8	398.8	394.7	382.4	10.0	3/10/2014
PZ-1S	Upgradient	Saprolite	1171996.4	2551588.0	33.219251	-83.332821	462.4	465.07	65.0	407.8	397.8	431.4	424.3	397.4	10.0	3/20/2014
PZ-3D	Upgradient	Biotite Gneiss	1165474.4	2550275.1	33.201356	-83.337283	486.7	487.50	130.0	NA	358.6	NA	NA	356.7	NA	3/27/2014
PZ-3I	Upgradient	Biotite Gneiss	1165494.5	2550273.2	33.201412	-83.337289	486.5	489.49	54.6	442.3	432.3	450.5	445.7	431.9	10.0	3/11/2014
PZ-3S	Upgradient	Saprolite	1165484.5	2550274.6	33.201384	-83.337284	487.0	490.53	39.9	457.5	447.5	464.6	461.0	447.1	10.0	3/11/2014
PZ-4I	Upgradient	Biotite Gneiss	1163246.8	2551282.0	33.195212	-83.334049	479.9	482.98	46.8	443.5	433.5	451.4	446.3	433.1	10.0	3/11/2014
PZ-4S	Upgradient	Saprolite	1163247.8	2551270.1	33.195216	-83.334088	479.9	482.87	30.0	460.3	450.3	466.4	462.9	449.9	10.0	3/10/2014
PZ-7S	Downgradient	Saprolite	1169419.2	2553055.6	33.212137	-83.328090	449.0	451.57	44.5	414.9	404.9	419.0	417.0	404.5	10.0	4/1/2014
PZ-8S	Upgradient	Saprolite	1167801.1	2551188.9	33.207731	-83.334235	450.5	453.08	49.5	411.4	401.4	414.5	412.5	401.0	10.0	4/1/2014
PZ-9S	Upgradient	Saprolite	1162633.3	2553089.6	33.193487	-83.328157	466.1	469.28	48.0	428.5	418.5	435.6	431.5	418.1	10.0	3/5/2014
PZ-10S	Downgradient	Saprolite	1164021.5	2554990.5	33.197260	-83.321907	431.0	433.85	39.0	402.4	392.4	407.5	405.0	392.0	10.0	3/5/2014
PZ-11S	Downgradient	Saprolite	1162467.3	2557002.5	33.192944	-83.315371	390.9	393.99	24.5	376.8	366.8	382.9	380.9	366.4	10.0	2/20/2014
PZ-12D	Downgradient	Biotite Gneiss	1164311.9	2557136.4	33.198010	-83.314885	431.4	434.09	141.7	350.1	290.1	376.0	359.4	289.7	60.0	4/14/2014
PZ-13S	Downgradient	Saprolite	1168011.4	2555276.7	33.208218	-83.320866	406.5	409.97	34.7	382.2	372.2	386.3	384.3	371.8	10.0	3/19/2014
PZ-14I	Downgradient	Biotite Gneiss	1168398.2	2554365.6	33.209302	-83.323834	419.9	422.71	53.8	376.5	366.5	382.6	380.2	366.1	10.0	3/20/2014
PZ-14S	Downgradient	Saprolite	1168398.7	2554359.2	33.209303	-83.323855	420.2	423.31	37.6	393.0	383.0	397.1	395.1	382.6	10.0	3/20/2014
PZ-15I	Downgradient	Biotite Gneiss/Amphibolite	1167720.9	2554399.2	33.207440	-83.323742	400.2	403.06	88.7	321.9	311.9	327.2	325.2	311.5	10.0	3/25/2014
PZ-15S	Downgradient	Saprolite	1167720.3	2554394.0	33.207438	-83.323759	400.1	402.90	39.9	370.2	360.2	374.6	372.2	360.2	10.0	3/27/2014
PZ-16I	Downgradient	Amphibolite Gneiss	1166980.7	2554587.5	33.205401	-83.323146	379.5	382.45	38.6	351.3	341.3	355.1	353.1	340.9	10.0	3/14/2014
PZ-16S	Downgradient	Saprolite	1166977.8	2554581.4	33.205393	-83.323166	379.3	382.52	19.1	370.6	360.6	374.3	372.3	360.2	10.0	3/18/2014
PZ-17I	Downgradient	Amphibolite Gneiss	1166313.8	2554702.5	33.203566	-83.322788	362.3	365.33	43.5	329.2	319.2	333.5	330.2	318.8	10.0	3/17/2014

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TABLE 2
GROUNDWATER PIEZOMETER DETAILS
 Georgia Power - Plant Branch
 Milledgeville, GA

Well-ID	Hydraulic Location	Geologic Unit Screened (3)	NAD 83 Northing	NAD 83 Easting	Latitude	Longitude	Ground Surface Elevation (feet NAVD88)	Top of Casing Elevation (feet NAVD88)	Total Depth (feet bgs)	Top of Screen Elevation (feet NAVD88)	Bottom of Screen Elevation (feet NAVD88)	Top of Seal Elevation (feet NAVD88)	Top of Filter Pack Elevation (feet NAVD88)	Bottom of Well Elevation (feet NAVD88)	Screen Length (feet)	Date of Installation
PZ-18I	Downgradient	Biotite Gneiss	1160766.2	2557745.5	33.188252	-83.312988	359.6	362.55	38.4	331.3	321.3	339.6	333.3	321.2	10.0	2/26/2014
PZ-18S	Downgradient	Saprolite	1160757.3	2557747.4	33.188228	-83.312982	359.7	362.82	24.2	345.0	335.0	350.2	348.1	335.5	10.0	3/26/2014
PZ-19I	Downgradient	Biotite Gneiss	1159797.1	2558900.0	33.185563	-83.309241	368.9	371.74	43.7	335.6	325.6	341.3	338.3	325.2	10.0	3/4/2014
PZ-19S	Downgradient	Saprolite	1159805.4	2558894.5	33.185586	-83.309258	368.4	371.42	28.0	350.8	340.8	355.1	352.7	340.4	10.0	3/4/2014
PZ-20I	Downgradient	Biotite Gneiss	1159495.4	2560160.2	33.184705	-83.305130	362.2	365.34	29.5	343.1	333.1	348.1	345.8	332.7	10.0	3/5/2014
PZ-20S	Downgradient	Saprolite	1159490.3	2560157.0	33.184691	-83.305140	362.2	365.41	15.3	357.3	347.3	361.2	359.2	346.9	10.0	3/5/2014
PZ-21I	Downgradient	Biotite Gneiss	1160591.6	2561328.2	33.187691	-83.301283	355.8	358.92	24.4	341.8	331.8	346.0	344.0	331.4	10.0	3/10/2014
PZ-21S	Downgradient	Residuum/Saprolite	1160592.4	2561321.3	33.187694	-83.301305	355.5	358.52	9.8	351.1	346.1	355.4	353.5	345.7	5.0	3/11/2014
PZ-23I	Downgradient	Biotite Gneiss	1162975.4	2557877.7	33.194321	-83.312497	425.1	427.74	66.5	368.6	358.6	376.6	371.1	358.6	10.0	7/29/2016
PZ-24S	Downgradient	Saprolite	1162400.9	2562862.2	33.192629	-83.296220	351.4	354.10	42.0	319.9	309.9	327.9	322.9	309.4	10.0	7/27/2016
PZ-26I	Downgradient	Biotite Gneiss	1160669.0	2561626.4	33.187898	-83.300306	368.0	370.63	30.5	347.5	337.5	356.0	351.0	337.5	10.0	7/26/2016
PZ-28I	Downgradient	TWR/Biotite Gneiss	1159505.1	2560151.7	33.184732	-83.305158	362.5	364.81	24.0	348.5	338.5	356.5	351.5	338.5	10.0	7/24/2016
PZ-31S	Downgradient	TWR	1160936.9	2557971.8	33.188716	-83.312244	374.3	376.77	39.5	344.8	334.8	352.8	347.8	334.8	10.0	7/26/2016
PZ-39	Downgradient	Saprolite	1163675.4	2557460.5	33.196254	-83.313842	432.0	434.78	44.7	397.3	387.3	405.8	400.6	387.3	10.0	7/30/2016
PZ-40S	Downgradient	Residuum	1162414.9	2562807.7	33.192669	-83.296398	353.2	355.96	40.2	324.4	314.4	328.5	325.4	313.0	10.0	2/14/2017
PZ-41S	Downgradient	Saprolite	1162431.8	2562759.4	33.192716	-83.296553	354.3	357.17	44.2	320.5	310.5	325.0	322.3	310.1	10.0	2/14/2017
PZ-42S	Downgradient	Residuum	1162845.7	2562735.0	33.193854	-83.296624	359.0	361.66	32.2	337.2	327.2	345.0	342.8	326.8	10.0	2/9/2017
PZ-43	Downgradient	Residuum/Biotite Gneiss	1162159.8	2562031.3	33.191985	-83.298942	381.0	383.71	40.4	351.0	341.0	358.0	353.0	340.6	10.0	2/7/2018
PZ-44	Downgradient	Saprolite/TWR/Biotite Gneiss	1161724.6	2561587.5	33.190799	-83.300405	380.5	383.04	57.0	333.9	323.9	340.5	335.5	323.5	10.0	2/2/2018
PZ-46	Downgradient	Saprolite/TWR/Biotite Gneiss	1162756.2	2560559.0	33.193658	-83.303739	382.1	384.64	45.6	346.5	336.5	353.1	348.1	336.5	10.0	2/5/2018
PZ-48	Downgradient	Saprolite/TWR/Amphibolite	1163046.7	2558444.6	33.194504	-83.310642	418.3	420.90	67.0	361.7	351.7	368.3	363.3	351.3	10.0	1/24/2018
PZ-49	Downgradient	Residuum/Biotite Gneiss	1163321.2	2561125.7	33.195198	-83.301871	382.2	384.99	17.0	375.6	365.6	379.7	377.2	365.2	10.0	1/30/2018
PZ-50D	Downgradient	Biotite Gneiss	1161588.9	2562381.2	33.190410	-83.297817	378.3	380.86	106.0	282.3	272.3	288.6	284.4	272.3	10.0	10/8/2020
PZ-51S	Downgradient	Residuum	1161613.4	2562433.1	33.190474	-83.297644	377.9	380.27	45.4	337.9	327.9	344.7	342.2	332.5	5.0	8/1/2018
PZ-51I	Downgradient	Saprolite/TWR/Biotite Gneiss	1161631.1	2562439.3	33.190523	-83.297623	378.0	380.52	65.0	323.1	313.1	328.8	325.5	313.0	10.0	8/1/2018
PZ-51D	Downgradient	Biotite Gneiss	1161639.8	2562434.0	33.190548	-83.297643	378.1	380.75	106.0	282.1	272.1	288.6	284.5	272.1	10.0	10/9/2020
PZ-52D	Downgradient	Biotite Gneiss	1168053.9	2554051.7	33.208362	-83.324870	414.3	417.03	59.5	364.8	354.8	371.3	367.3	354.8	10.0	5/14/2020
PZ-53D	Downgradient	Saprolite/TWR/Biotite Gneiss	1164393.8	2554984.3	33.198283	-83.321917	431.6	434.68	139.4	302.2	292.2	310.6	305.0	292.2	10.0	5/17/2020
PZ-54	Downgradient	Saprolite/TWR	1164828.7	2555458.3	33.199468	-83.320356	440.8	443.86	52.0	398.8	388.8	404.3	400.8	388.8	10.0	5/15/2020
PZ-55	Downgradient	Saprolite/TWR/Biotite Gneiss	1163208.0	2554783.6	33.195029	-83.322604	450.2	453.07	49.3	410.9	400.9	416.2	413.8	400.9	10.0	5/19/2020
PZ-56	Downgradient	Saprolite/TWR/Biotite Gneiss	1162965.1	2554086.3	33.194377	-83.324890	416.2	418.84	29.3	396.9	386.9	402.7	399.2	386.9	10.0	5/20/2020
PB-1S	Downgradient	Saprolite/PWR	1164910.5	2556355.9	33.199673	-83.317420	400.4	403.16	38.0	372.4	362.4	377.4	374.4	362.4	10.0	1/22/2019
PB-2D	Downgradient	Gneiss	1164853.6	2556914.2	33.199504	-83.315596	414.9	416.71	57.0	367.9	357.9	374.9	370.9	357.9	10.0	12/4/2018
PB-4S	Downgradient	Saprolite/PWR	1164335.1	2556069.2	33.198098	-83.318372	409.3	411.15	48.0	371.3	361.3	378.3	372.3	361.3	10.0	1/16/2019
PB-4D	Downgradient	Gneiss	1164339.6	2556060.7	33.198110	-83.318400	409.0	412.12	114.5	304.5	294.5	311.0	306.0	294.5	10.0	1/16/2019
PB-7S	Downgradient	Saprolite/PWR	1163831.3	2556186.2	33.196710	-83.318003	399.7	402.88	33.0	376.7	366.7	381.7	378.7	366.7	10.0	1/14/2019
PB-8S	Downgradient	Saprolite/PWR	1163018.2	2556792.3	33.194463	-83.316044	398.6	401.82	35.0	373.6	363.6	378.6	375.6	363.6	10.0	1/8/2018
PB-8D	Downgradient	Gneiss	1163024.4	2556786.7	33.194480	-83.316062	398.2	401.74	106.0	304.2	294.2	307.2	305.2	292.2	10.0	1/8/2018
PB-10S	Downgradient	Saprolite	1163588.9	2558551.2	33.195992	-83.310279	397.6	400.91	33.0	374.6	364.6	379.6	376.6	364.6	10.0	1/16/2019
PB-10D	Downgradient	Gneiss	1163593.4	2558546.7	33.196004	-83.310294	397.5	400.31	85.0	322.5	312.5	328.5	324.5	312.5	10.0	1/16/2019
PB-13S	Downgradient	Saprolite	1162084.4	2556626.1	33.191900	-83.316612	370.8	373.31	50.0	330.8	320.8	335.8	332.8	320.8	10.0	12/10/2018
PB-13D	Downgradient	Gneiss	1162084.5	2556638.8	33.191900	-83.316570	371.1	373.77	97.0	284.1	274.1	295.1	291.1	274.1	10.0	12/10/2018

Notes:

1. feet NAVD88 = feet North American Vertical Datum 1988 feet ; NAD83 = North American Datum 1983
2. feet bgs = feet below ground surface
3. TWR = Transitionally Weathered Rock
4. NA = Not applicable
5. Piezometers may be used to collect waters levels. They are not considered compliance monitoring locations.
6. Wells resurveyed by Metro Engineering & Surveying Co., Inc between June-July 2020

12/1/2020
 166625418



TABLE 3
SUMMARY OF GROUNDWATER PROTECTION STANDARDS

Georgia Power - Plant Branch
Milledgeville, Georgia

Analyte	Units	Maximum Contaminant Level (MCL)	Site Specific Background March 2020 ^[1]	GWPS ^[2]
Antimony	mg/L	0.006	0.012	0.012
Arsenic	mg/L	0.01	0.005	0.01
Barium	mg/L	2	0.13	2
Beryllium	mg/L	0.004	0.003	0.004
Cadmium	mg/L	0.005	0.0025	0.005
Chromium	mg/L	0.1	0.016	0.1
Cobalt	mg/L	NA	0.0135	0.0135
Fluoride	mg/L	4	0.42	4
Lead	mg/L	NA	0.005	0.005
Lithium	mg/L	NA	0.089	0.089
Mercury	mg/L	0.002	0.0005	0.002
Molybdenum	mg/L	NA	0.01	0.01
Radium (226 + 228)	pCi/L	5	1.903	5
Selenium	mg/L	0.05	0.01	0.05
Thallium	mg/L	0.002	0.001	0.002

Notes:

Mg/L = milligrams per liter; pCi/L = picocuries per liter; NA = Not Available

[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.

TABLE 4A
ANALYTICAL DATA SUMMARY
Ash Pond BCD - August 2020
 Georgia Power - Plant Branch
 Milledgeville, Georgia

Analyte	Units	Well ID											
		BRGWA-12S	BRGWA-12I	BRGWA-23S	BRGWC-25I	BRGWC-27I	BRGWC-29I	BRGWC-30I	BRGWC-32S	BRGWC-45	BRGWC-47	BRGWC-50	BRGWC-52I
		8/18/2020	8/18/2020	8/18/2020	8/19/2020	8/19/2020	8/19/2020	8/19/2020	8/19/2020	8/20/2020	8/20/2020	8/20/2020	8/20/2020
Appendix III													
BORON, TOTAL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
CALCIUM, TOTAL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
CHLORIDE, TOTAL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
FLUORIDE, TOTAL	mg/L	< 0.050	0.052 J	< 0.050	0.17	0.19	0.12	0.14	< 0.050	< 0.050	< 0.050	0.39	0.23
pH	S.U.	5.75	6.25	5.56	6.32	5.81	4.67	6.36	5.97	5.86	5.75	5.26	6.85
SULFATE, TOTAL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
TOTAL DISSOLVED SOLIDS	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Appendix IV													
ANTIMONY, TOTAL	mg/L	< 0.00028	0.0067	< 0.00028	< 0.00028	< 0.00028	< 0.00028	< 0.00028	< 0.00028	0.0031	< 0.00028	< 0.00028	< 0.00028
ARSENIC, TOTAL	mg/L	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	0.00089 J	< 0.00078	0.0031 J
BARIUM, TOTAL	mg/L	0.058	0.053	0.067	0.027	0.016	0.019	0.026	0.025	0.083	0.035	0.019	0.017
BERYLLIUM, TOTAL	mg/L	< 0.000046	< 0.000046	< 0.000046	< 0.000046	0.000099 J	0.00074 J	< 0.000046	< 0.000046	0.000046 J	0.000047 J	0.0044	< 0.000046
CADMIUM, TOTAL	mg/L	< 0.00012	< 0.00012	< 0.00012	< 0.00012	< 0.00012	< 0.00012	< 0.00012	< 0.00012	0.00014 J	< 0.00012	0.0079	< 0.00012
CHROMIUM, TOTAL	mg/L	0.0029 J	0.0023 J	0.0017 J	< 0.00055	< 0.00055	< 0.00055	< 0.00055	0.0021 J	0.0010 J	0.00064 J	0.00065 J	< 0.00055
COBALT, TOTAL	mg/L	< 0.00038	< 0.00038	0.00067 J	0.0039 J	0.0078	0.0065	0.00080 J	< 0.00038	0.022	0.00043 J	1.4	< 0.00038
FLUORIDE, TOTAL	mg/L	< 0.050	0.052 J	< 0.050	0.17	0.19	0.12	0.14	< 0.050	< 0.050	< 0.050	0.39	0.23
LEAD, TOTAL	mg/L	< 0.000036	< 0.000036	< 0.000036	< 0.000036	< 0.000036	0.00025 J	< 0.000036	< 0.000036	0.00021 J	0.000048 J	0.000067 J	< 0.000036
LITHIUM, TOTAL	mg/L	< 0.00081	0.0039 J	0.0099 J	< 0.00081	0.0014 J	0.0029 J	0.018 J	0.0020 J	0.0034 J	0.044	0.040	0.0022 J
MERCURY, TOTAL	mg/L	< 0.000078	< 0.000078	< 0.000078	0.000083 J	< 0.000078	0.000098 J	0.000082 J	0.000082 J	< 0.000078	< 0.000078	< 0.000078	< 0.000078
MOLYBDENUM, TOTAL	mg/L	< 0.00069	< 0.00069	< 0.00069	0.00081 J	< 0.00069	< 0.00069	0.00078 J	< 0.00069	0.00076 J	< 0.00069	< 0.00069	0.0012 J
RADIUM (226 + 228)	pCi/L	0.969 U	0.988 U	0.784 U	0.467 U	0.684 U	0.876 U	1.00 U	0.482 U	0.501 U	1.64	2.78	2.97
SELENIUM, TOTAL	mg/L	< 0.0016	< 0.0016	0.0033 J	< 0.0016	< 0.0016	< 0.0016	< 0.0016	0.099	< 0.0016	0.0016 J	0.0037 J	< 0.0016
THALLIUM, TOTAL	mg/L	< 0.00014	< 0.00014	< 0.00014	< 0.00014	< 0.00014	0.00016 J	< 0.00014	< 0.00014	< 0.00014	< 0.00014	< 0.00014	< 0.00014

NOTES:

1. mg/L - milligrams per Liter
2. pCi/L - picocuries per Liter
3. S.U. - Standard Units
4. < indicates the substance was not detected above the analytical method detection limit (MDL). The value displayed is the method detection limit.
5. 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 is qualified by the laboratory as an estimated number.
6. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed as less than the MDC and considered an undetected result (U qualified). The MDC varies depending upon the sample amount and elapsed time of the measurement.

TABLE 4B
ASSESSMENT MONITORING ANALYTICAL DATA SUMMARY
Ash Pond BCD - August 2020
 Georgia Power - Plant Branch
 Milledgeville, Georgia

Analyte	Units	Well ID	
		PZ-51I	PZ-51S
		8/20/2020	8/20/2020
Appendix III			
BORON, TOTAL	mg/L	Not Analyzed	Not Analyzed
CALCIUM, TOTAL	mg/L	Not Analyzed	Not Analyzed
CHLORIDE, TOTAL	mg/L	Not Analyzed	Not Analyzed
FLUORIDE, TOTAL	mg/L	< 0.050	0.056 J
pH	S.U.	5.57	6.15
SULFATE, TOTAL	mg/L	Not Analyzed	Not Analyzed
TOTAL DISSOLVED SOLIDS	mg/L	Not Analyzed	Not Analyzed
Appendix IV			
ANTIMONY, TOTAL	mg/L	0.0017 J	< 0.00028
ARSENIC, TOTAL	mg/L	< 0.00078	< 0.00078
BARIUM, TOTAL	mg/L	0.013	0.030
BERYLLIUM, TOTAL	mg/L	0.000077 J	< 0.000046
CADMIUM, TOTAL	mg/L	0.0019 J	< 0.00012
CHROMIUM, TOTAL	mg/L	< 0.00055	0.00063 J
COBALT, TOTAL	mg/L	0.020	0.0039 J
FLUORIDE, TOTAL	mg/L	< 0.050	0.056 J
LEAD, TOTAL	mg/L	< 0.000036	< 0.000036
LITHIUM, TOTAL	mg/L	0.019 J	< 0.00081
MERCURY, TOTAL	mg/L	0.000099 J	< 0.000078
MOLYBDENUM, TOTAL	mg/L	< 0.00069	< 0.00069
RADIUM (226 + 228)	pCi/L	0.937 U	1.19
SELENIUM, TOTAL	mg/L	< 0.0016	< 0.0016
THALLIUM, TOTAL	mg/L	< 0.00014	< 0.00014

NOTES:

1. mg/L - milligrams per Liter
2. pCi/L - picocuries per Liter
3. S.U. - Standard Units
4. < indicates the substance was not detected above the analytical method detection limit (MDL). The value displayed is the method detection limit.
5. 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 is qualified by the laboratory as an estimated number.
6. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed as less than the MDC and considered an undetected result (U qualified). The MDC varies depending upon the sample amount and elapsed time of the measurement.

TABLE 4C
ANALYTICAL DATA SUMMARY
Ash Pond BCD - September 2020
 Georgia Power - Plant Branch
 Milledgeville, Georgia

Analyte	Units	Well ID											
		BRGWA-12S	BRGWA-12I	BRGWA-23S	BRGWC-25I	BRGWC-27I	BRGWC-29I	BRGWC-30I	BRGWC-32S	BRGWC-45	BRGWC-47	BRGWC-50	BRGWC-52I
		9/15/2020	9/15/2020	9/15/2020	9/15/2020	9/16/2020	9/15/2020	9/16/2020	9/16/2020	9/16/2020	9/16/2020	9/17/2020	9/17/2020
Appendix III													
BORON, TOTAL	mg/L	< 0.0052	0.0071 J	0.033 J	1.2	1.2	1.1	1.7	1.4	0.028 J	0.47	0.36	1.9
CALCIUM, TOTAL	mg/L	5.7	14.5	10.7	40.1	62.5	55.1	106	43.1	39.7	309	206	35.4
CHLORIDE, TOTAL	mg/L	3.5	2.4	3.1	4.9	5.4	5.5	4.4	5.6	54.9	4.1	20.1	6.3
FLUORIDE, TOTAL	mg/L	< 0.050	0.062 J	< 0.050	0.15	0.15	0.057 J	0.13	< 0.050	0.052 J	< 0.050	0.46	0.074 J
pH	S.U.	6	6.01	5.72	6	5.81	4.53	6.29	5.79	5.27	5.76	4.41	6.12
SULFATE, TOTAL	mg/L	< 0.50	1.7	41.5	126	190	241	334	255	103	1360	1330	165
TOTAL DISSOLVED SOLIDS	mg/L	60	95	109	272	301	281	634	428	275	2090	1910	329
Appendix IV													
ANTIMONY, TOTAL	mg/L	< 0.00028	0.010	0.00033 J	< 0.00028	< 0.00028	< 0.00028	< 0.00028	< 0.00028	0.0012 J	0.00035 J	0.00041 J	< 0.00028
ARSENIC, TOTAL	mg/L	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078	< 0.00078
BARIUM, TOTAL	mg/L	0.058	0.059	0.086	0.024	0.016	0.017	0.022	0.024	0.085	0.028	0.020	0.020
BERYLLIUM, TOTAL	mg/L	< 0.000046	< 0.000046	< 0.000046	< 0.000046	0.00011 J	0.00071 J	< 0.000046	< 0.000046	< 0.000046	< 0.000046	0.0065	< 0.000046
CADMIUM, TOTAL	mg/L	< 0.00012	< 0.00012	< 0.00012	< 0.00012	< 0.00012	< 0.00012	< 0.00012	< 0.00012	< 0.00012	< 0.00012	0.021	< 0.00012
CHROMIUM, TOTAL	mg/L	0.0025 J	0.00096 J	0.0019 J	< 0.00055	< 0.00055	< 0.00055	0.014	0.0025 J	0.0014 J	< 0.00055	0.00098 J	< 0.00055
COBALT, TOTAL	mg/L	< 0.00038	< 0.00038	0.00076 J	0.0035 J	0.008	0.0064	0.00080 J	< 0.00038	0.0049 J	0.00053 J	1.4	0.00046 J
FLUORIDE, TOTAL	mg/L	< 0.050	0.062 J	< 0.050	0.15	0.15	0.057 J	0.13	< 0.050	0.052 J	< 0.050	0.46	0.074 J
LEAD, TOTAL	mg/L	< 0.000036	< 0.000036	< 0.000036	< 0.000036	< 0.000036	0.00029 J	0.00011 J	< 0.000036	0.000053 J	0.000066 J	0.00015 J	< 0.000036
LITHIUM, TOTAL	mg/L	< 0.00081	0.0037 J	0.011 J	< 0.00081	0.0014 J	0.0030 J	0.016 J	0.0022 J	0.0036 J	0.039	0.052	0.0058 J
MERCURY, TOTAL	mg/L	< 0.000078	< 0.000078	< 0.000078	< 0.000078	< 0.000078	< 0.000078	< 0.000078	< 0.000078	< 0.000078	< 0.000078	< 0.000078	< 0.000078
MOLYBDENUM, TOTAL	mg/L	< 0.00069	< 0.00069	< 0.00069	0.0008 J	< 0.00069	< 0.00069	0.0022 J	< 0.00069	< 0.00069	< 0.00069	< 0.00069	0.00070 J
RADIUM (226 + 228)	pCi/L	0.359 U	0.762 U	1.04 U	0.205 U	0.175 U	1.23 U	0.430 U	0.195 U	0.254 U	0.510 U	0.717 U	2.04
SELENIUM, TOTAL	mg/L	< 0.0016	< 0.0016	0.0028 J	< 0.0016	0.0042 J	< 0.0016	< 0.0016	0.12	< 0.0016	0.0020 J	< 0.0016	< 0.0016
THALLIUM, TOTAL	mg/L	< 0.00014	< 0.00014	< 0.00014	< 0.00014	< 0.00014	0.00016 J	< 0.00014	< 0.00014	< 0.00014	< 0.00014	< 0.00014	< 0.00014

NOTES:

1. mg/L - milligrams per Liter
2. pCi/L - picocuries per Liter
3. S.U. - Standard Units
4. < indicates the substance was not detected above the analytical method detection limit (MDL). The value displayed is the method detection limit.
5. 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 is qualified by the laboratory as an estimated number.
6. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed as less than the MDC and considered an undetected result (U qualified). The MDC varies depending upon the sample amount and elapsed time of the measurement.

TABLE 4D
ASSESSMENT MONITORING ANALYTICAL DATA SUMMARY
Ash Pond BCD - September and October 2020
 Georgia Power - Plant Branch
 Milledgeville, Georgia

Analyte	Units	Well ID				
		PZ-51I	PZ-51S	PZ-50D	PZ-51D	PZ-51I
		9/17/2020	9/17/2020	10/27/2020	10/27/2020	10/27/2020
Appendix III						
BORON, TOTAL	mg/L	0.43	0.0063 J	0.15	0.029 J	0.37
CALCIUM, TOTAL	mg/L	168	7.7	159	132	183
CHLORIDE, TOTAL	mg/L	10.5	4.6	5.6	6.3	11.0
FLUORIDE, TOTAL	mg/L	< 0.050	0.062 J	0.28	0.21	< 0.050
pH	S.U.	4.93	5.77	6.47	6.79	5.49
SULFATE, TOTAL	mg/L	1030	0.53 J	492	357	893
TOTAL DISSOLVED SOLIDS	mg/L	1600	101	914	680	1200
Appendix IV						
ANTIMONY, TOTAL	mg/L	< 0.00028	0.00043 J	NA	NA	NA
ARSENIC, TOTAL	mg/L	< 0.00078	< 0.00078	NA	NA	NA
BARIUM, TOTAL	mg/L	0.015	0.033	NA	NA	NA
BERYLLIUM, TOTAL	mg/L	0.000096 J	< 0.000046	NA	NA	NA
CADMIUM, TOTAL	mg/L	0.033	< 0.00012	< 0.00012	< 0.00012	0.0051
CHROMIUM, TOTAL	mg/L	0.00098 J	< 0.00055	NA	NA	NA
COBALT, TOTAL	mg/L	0.022	0.0062	0.0037 J	0.00041 J	0.020
FLUORIDE, TOTAL	mg/L	< 0.050	0.062 J	0.28	0.21	< 0.050
LEAD, TOTAL	mg/L	0.00036 J	< 0.000036	NA	NA	NA
LITHIUM, TOTAL	mg/L	0.021 J	< 0.00081	NA	NA	NA
MERCURY, TOTAL	mg/L	< 0.000078	< 0.000078	NA	NA	NA
MOLYBDENUM, TOTAL	mg/L	< 0.00069	< 0.00069	NA	NA	NA
RADIUM (226 + 228)	pCi/L	1.76	0.952 U	NA	NA	NA
SELENIUM, TOTAL	mg/L	< 0.0016	< 0.0016	NA	NA	NA
THALLIUM, TOTAL	mg/L	< 0.00014	< 0.00014	NA	NA	NA

NOTES:

1. mg/L - milligrams per Liter
2. pCi/L - picocuries per Liter
3. S.U. - Standard Units
4. NA - Not Analyzed
5. < indicates the substance was not detected above the analytical method detection limit (MDL). The value displayed is the method detection limit.
6. 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 is qualified by the laboratory as an estimated number.
7. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed as less than the MDC and considered an undetected result (U qualified). The MDC varies depending upon the sample amount and elapsed time of the measurement.

TABLE 5
ANALYTICAL DATA SUMMARY
Surface Water - October 2020
 GPC PLANT BRANCH
 MILLDEGEVILLE, GEORGIA

Analyte	Units	SURFACE WATER SAMPLE LOCATION			
		LR-1	LR+8	LR+9	LR+10
		10/22/2020	10/22/2020	10/22/2020	10/22/2020
Appendix III					
Boron, Total	mg/L	<0.040	<0.040	<0.040	<0.040
Calcium, Total	mg/L	3.7	4.2	4.3	4.5
Chloride, Total	mg/L	3.3	3.7	3.8	4.0
Fluoride, Total	mg/L	<0.10	<0.10	<0.10	<0.10
Sulfate, Total	mg/L	2.1	2.5	2.6	2.6
pH	S.U.	7.1	7.2	7.2	7.1
Total Dissolved Solids	mg/L	59	60	57	59
Appendix IV					
Cadmium, Total	mg/L	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050
Other					
Sodium , Total	mg/L	4.4	4.9	4.9	5.1
Magnesium, Total	mg/L	2.0	2.1	2.1	2.1
Potassium, Total	mg/L	2.7	2.8	2.9	2.8
Alkalinity, Bicarbonate (CaCO ₃)	mg/L	24.2	25.6	25.8	26.5
Alkalinity, Total (CaCO ₃)	mg/L	24.2	25.6	25.8	26.5

Notes:

mg/L = milligrams per Liter; S.U. = Standard Units

< = substance was not detected above the analytical reporting limit (RL). The value displayed is the RL.

TABLE 6 - Evaluation of Remedial Technologies
Plant Branch - Milledgeville, GA

Corrective Measure	REGULATORY CITATION FOR CRITERIA: 40 CFR 257.96(C)(1)		
	Description	Performance	Reliability
Geochemical Approaches (in situ injection)	Use of an injection well network, or other means of introducing reagents or air into the subsurface, to provide suitable reagents for either anaerobic or aerobic attenuation of cadmium (Cd) and cobalt (Co). Under anaerobic conditions, Co would be attenuated within sparingly soluble sulfide minerals; this approach might also increase the attenuation of Cd. Under aerobic conditions, soluble iron or manganese and oxygen (either via air sparging or through a chemical oxidant) would be injected to promote the formation of iron or manganese (oxy-) hydroxides for subsequent sorption of Co and Cd onto these mineral phases. If sufficient iron is present in groundwater, the use of air sparging alone may be considered to precipitate iron (oxy-) hydroxides for sorption. In-situ chemical oxidation (ISCO) or in-situ chemical reduction (ISCR) can be used to chemically alter the redox environment in the subsurface to affect the mobility of certain inorganic compounds, including Co. However, the main attenuation mechanism for Co and Cd is sorption, which is more dependent on pH than redox.	The effective immobilization of Co has been shown under aerobic and anaerobic conditions; however, the anaerobic approach (involving the injection of an electron donor together with iron or manganese and sulfur) requires careful study and testing. While aerobic approaches are somewhat less complex, additional aquifer characterization is needed to further evaluate these options. It is currently not well understood whether cadmium can be efficiently attenuated using in-situ redox manipulations due to slow reaction kinetics. Cd attenuation under both aerobic and anaerobic conditions needs to be further evaluated but is expected to occur. Cd is more strongly sorbed to aluminum oxides than other metal oxides, and it is generally less sorptive and more mobile compared to Co.	Reliability dependent on permeability of the subsurface and the amount and distribution of secondary iron or manganese (oxy-) hydroxides (for aerobic approach), or electron donors and soluble iron or manganese and sulfur that can be consistently distributed (for anaerobic approach). Reliable technology if injected materials can be distributed throughout the impacted aquifer. Bench- and/or pilot-scale treatability testing programs are needed to understand the biogeochemical processes that would effectively reduce migration of Co and Cd in groundwater.
Hydraulic Containment (pump- and-treat)	Hydraulic containment refers to the use of groundwater extraction to induce a hydraulic gradient for hydraulic capture or control the migration of impacted groundwater. This approach uses extraction wells or trenches to capture groundwater, which may subsequently require above-ground treatment and permitted discharge to a receiving water feature, reinjection into the groundwater, or reuse [e.g., land application, coal combustion residual (CCR) conditioning, etc.]. It is applicable to a variable mix of inorganic constituents, including dissolved Co and Cd.	Pump and treat (P&T) is effective at providing hydraulic control, but it is unclear whether full groundwater remediation can be achieved without further understanding attenuation mechanisms at the Site. At AP-BCD, implementation of the corrective measure is contingent on completing additional assessment activities (i.e., high-resolution site characterization, additional pump tests, flow modeling, and capture zone analysis). This is needed to refine the constituent distribution in the subsurface to target specific zones for pumping for improved mass recovery efficiency/ effectiveness and to further evaluate the potential remedy performance.	Generally reliable for hydraulic containment, but uncertainty exists whether groundwater remediation goals can be achieved within a reasonable time frame without further understanding attenuation mechanisms
In-Situ Stabilization	In-situ stabilization is a technique that uses mixing of the CCR with additives to solidify the material in place and reduce future dissolution of CCR compounds from the stabilized material. Additives typically include Portland cement, and the solidification is completed in-situ using large diameter augers. CCR located beneath the water table would be isolated by ISS.	Medium to high, groundwater impacts would be addressed through the processes of natural attenuation. This alternative would isolate/secure the source in a bound matrix, and over time, allow the concentrations of Co and Cd in downgradient groundwater to decline to below applicable standards.	In-situ stabilization can be a reliable corrective measure for Co, and Cd in groundwater. Reliability is dependent on the permeability of the subsurface and mechanics of injection.
Monitored Natural Attenuation (MNA)	MNA relies on natural attenuation processes to achieve site-specific remediation objectives within a reasonable time frame relative to more active methods. Under certain conditions (e.g., through sorption, mineral precipitation or oxidation-reduction reactions), MNA effectively reduces the dissolved concentrations of inorganic constituents in groundwater. Attenuation mechanisms for inorganic constituents at CCR sites, including Co and Cd at AP-BCD are either physical (e.g. dilution, dispersion, flushing, and related processes) or chemical (sorption or oxidation reduction reactions). Chemical attenuation processes include precipitation, and sorption reactions such as adsorption on the surfaces of soil minerals, absorption into the matrix of soil minerals, or partitioning into organic matter. Further, oxidation-reduction (redox) reactions, via abiotic or biotic processes, can transform the valence states of some inorganic constituents to less soluble and thus less mobile forms. For Co and Cd, the main attenuation processes include sorption to iron and manganese oxides (Co and Cd), and formation of sparingly soluble sulfide minerals (Co).	Physical and chemical MNA mechanisms for cobalt and cadmium, including dilution, dispersion, sorption, and oxidation reduction reactions can be effective at achieving groundwater protection standards (GWPS) within a reasonable time frame. Attenuation processes for Co and Cd are already occurring at the site as evidenced by groundwater data from the delineation wells. Source control will improve the mass balance such that the buffer capacity of the aquifer is unlikely to be exhausted, and the attenuation processes already at work for Co and Cd at AP-BCD will further enhance ongoing MNA.	Reliable as long as the aquifer conditions that result in Co and Cd attenuation remain favorable and/or are being enhanced and sufficient attenuation capacity is present. MNA is reliable and can either be used as a stand-alone corrective measure for groundwater impacted by dissolved Co and/or Cd, or in combination with a second technology.
Permeable Reactive Barrier (PRB)	PRB technology typically involves the installation of a permeable subsurface wall constructed with reactive media for the removal of constituents as groundwater passes through. Either ZVI-Carbon matrix or solid carbon (bio-barrier) are most likely viable for the concurrent removal of Co and Cd. The carbon could be composed of peat moss, mulch or another carbon source. Exact placement of the PRB would be contingent on finalization of the nature and extent characterization. PRB walls are typically keyed into the bedrock. While the shallow groundwater in the residuum and fractured bedrock is connected to the groundwater in more competent bedrock, the higher permeability/conductivity of the PRB is not expected to impede groundwater flow. PRBs can also be constructed as "funnel and gate" systems, where a barrier wall directs groundwater to a smaller "treatment gate" filled with reactive media.	PRBs have been shown to effectively address Co and Cd in groundwater if the right mix of reactive materials (e.g., ZVI and carbon) is selected for concurrent removal/immobilization of these constituents. The approach is expected to achieve GWPS for both constituents as impacted groundwater passes through the reactive barrier. Cadmium redox kinetics may be slow and hence a thicker wall might be needed relative to solely treating for Co. Furthermore, additional testing is required to select the appropriate sorptive media mix, especially related to Cd.	Reliable groundwater corrective measure technology, but loss of reactivity over time may require re-installation depending on the duration of the remedy. Additional data collection, including conducting a bench and/or pilot study, is needed to better characterize current attenuation mechanisms and/or select the appropriate reactive media mix for a PRB wall.
Subsurface Vertical Barrier Walls	This approach involves placing a barrier to groundwater flow in the subsurface, frequently around a source area, to prevent future migration of dissolved constituents in groundwater from beneath the source to downgradient areas. In general, barrier walls are designed to provide containment; localized treatment achieved through the sorption or chemical precipitation reactions from construction of the walls are incidental to the design objective. Barrier walls can also be used in downgradient applications to limit discharge to a surface water feature or to reduce aquifer recharge from an adjacent surface water feature when groundwater extraction wells are placed near one. A variety of barrier materials can be used, including cement and/or bentonite slurries, geomembrane composite materials, or driven materials such as steel or vinyl sheet pile. Groundwater extraction from upgradient of the barrier is required to avoid groundwater mounding behind the barrier. Though highly effective, vertical barrier walls may serve as groundwater dams, so mounding of groundwater behind barrier walls, or flow of groundwater around the ends of barrier walls, should be considered in corrective action design.	Barrier walls are a proven technology for groundwater cutoff at impoundments. Slurry walls are limited by the depth of installation, which is approximately 90 feet below ground surface (bgs). However, site-specific geologic and technology-specific considerations specific to the former CCR Unit may limit this depth to shallower installations. Within the context of the former CCR Unit, a barrier wall might be used in conjunction with a "funnel and gate" system for a PRB rather than a stand-alone technology. As such, groundwater with cobalt and cadmium above GWPS could either be directed to "treatment gates" for passive treatment (in a PRB) or migration of impacted groundwater could be minimized via barrier wall installation. Additional subsurface investigations and compatibility testing with groundwater from the former CCR Unit will be needed.	Generally reliable as a barrier to groundwater flow; however, treatment of downgradient groundwater is incidental and not the primary objective.

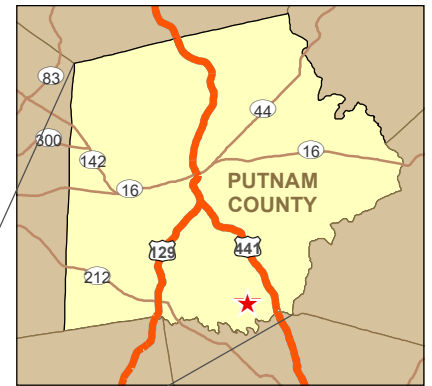
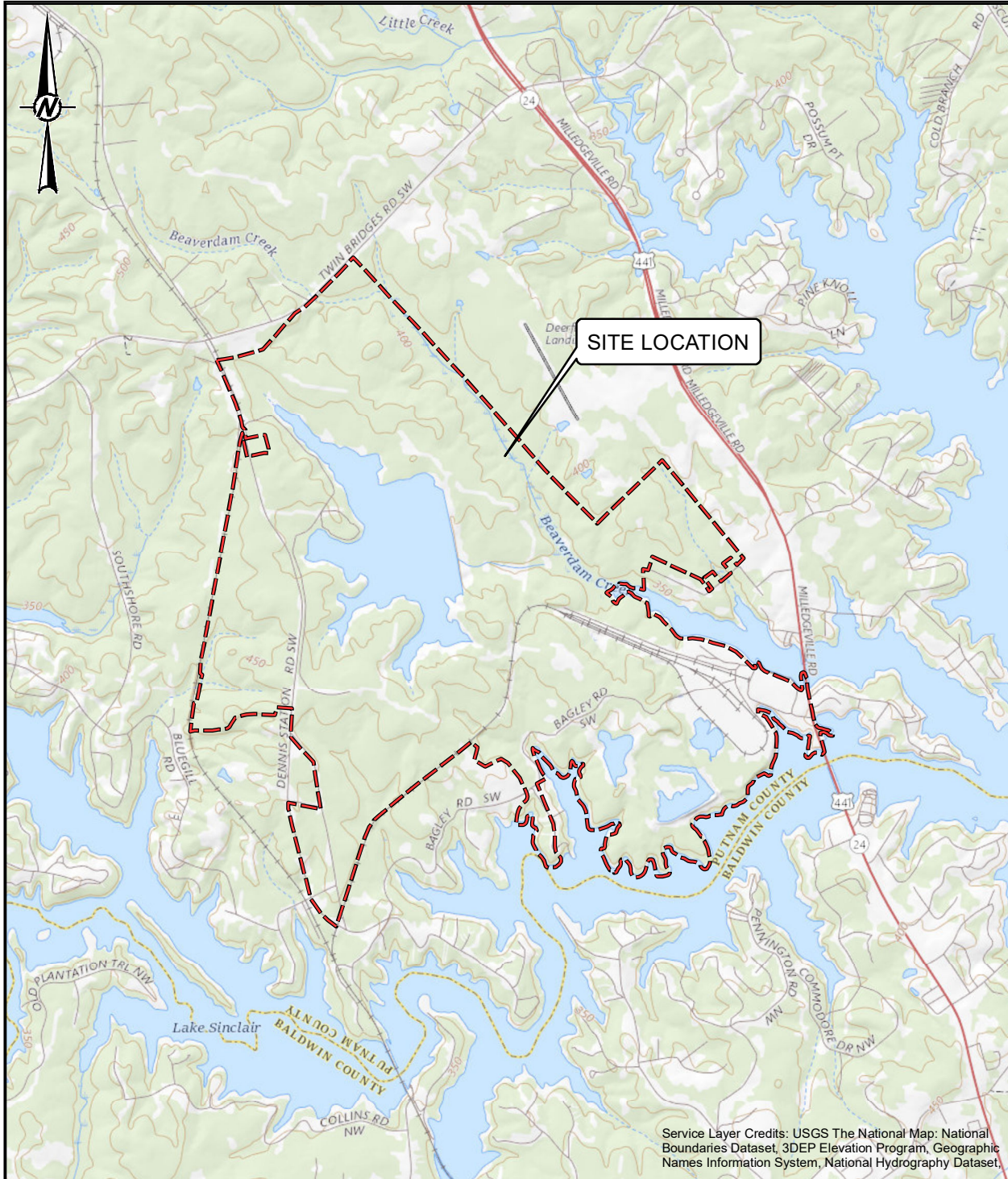
TABLE 6 - Evaluation of Remedial Technologies
Plant Branch - Milledgeville, GA

Corrective Measure	REGULATORY CITATION FOR CRITERIA: 40 CFR 257.96(C)(1)		
	Ease of Implementation	Potential Impacts	Time Requirement to Begin/Complete
Geochemical Approaches (in situ injection)	Moderate. Installation of injection well network or other injection infrastructure would be required. Alternative installation approaches may be considered, such as along the downgradient edge of impacted groundwater, which would function similar to a PRB application. Potential for clogging of aquifer matrix and/or injection well infrastructure. Chemical distribution during injections (i.e., radius of influence) needs to be evaluated.	Minimal impacts are expected if remedy works as designed, based on a thorough pre-design investigation, geochemical modeling, and bench/pilot study results. Redox-altering processes have the potential to mobilize naturally-occurring constituents as an unintended consequence if not properly evaluated and implemented. Consideration of groundwater flow to nearby sensitive environments may be needed.	Installation of the injection network can be accomplished relatively quickly (1 to 2 months). However, a thorough pre-design investigation, geochemical modeling, and/or bench- and/or pilot-testing will be required to obtain design parameters prior to design and construction of the corrective measure, which may take up to 24 months. Once installed, the time required to achieve GWPS within the treatment area may be relatively quick but depends on the attenuation process kinetics of each targeted constituent. The time for complete distribution of the injected materials throughout the treatment area is also variable.
Hydraulic Containment (pump- and-treat)	Moderate. Proven approach, and supplemental installation of extraction wells/trenches is fairly straightforward. The extracted groundwater may potentially require an above-ground treatment system. A variety of sorption and precipitation approaches exist for ex-situ treatment of Co and Cd. Operation and maintenance (O&M) requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals	Moderate. The main potential impacts are related to the presence and operation of an on-site above-ground water treatment facility and related infrastructure to convey and treat extracted groundwater. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone.	Installation of extraction wells and/or trenches can be accomplished relatively quickly (1 to 2 months). However, additional aquifer testing, system design and installation, and permit approval may be required, which may take up to 24 months. The initiation of the approach would be contingent on the start-up of the wastewater treatment infrastructure. Hydraulic containment can be achieved relatively quickly after startup of the extraction system, but uncertainty exists with respect to the time to achieve GWPS without additional data collection to better understand attenuation mechanisms for Co and Cd.
In-Situ Stabilization	Easy to moderate, implementation of ISS will require a detailed design effort with bench scale testing to determine the appropriate amendment mix for a variety of overburden geologic materials. Pilot testing will also be needed to verify the ability of equipment to solidify material at depth. ISS has not been commonly used to stabilize entire ash units as part of a closure strategy.	Potential impacts of the remedy will be negligible.	In-situ stabilization around the area of exceedance is predicted to take a number of years to complete, depending on the availability of specialized contractors and equipment.
MNA	Reasonably implementable with respect to infrastructure, but moderate to complex with respect to documentation. Proven approach, but additional data are needed to show that the existing attenuation capacity is sufficient to meet site objectives within a reasonable timeframe. A monitoring well network already exists to implement future groundwater monitoring efforts.	None. MNA relies on the natural processes active in the aquifer matrix to reduce constituent concentrations without disturbing the surface or the subsurface.	The infrastructure to initiate MNA is already in place. Demonstrating attenuation mechanisms and capacity can be time-consuming and can take up to 24 months. MNA is expected to be successful within a reasonable time frame following pond closure. Engineering measures will be implemented during closure of AP-BCD to minimize potential impacts to the subsurface during closure activities and routine groundwater monitoring will be used to verify that groundwater impacts remain stable or decrease over time.
PRB	Moderate to difficult. Trenching would be required to install a mix of reactive materials in the subsurface. Continuous trenching may be the most feasible construction method. Site-specific geology (i.e., partially weathered bedrock layer) poses a possible constructability challenge when attempting to key PRB material into competent bedrock. Installation methods and materials are readily available. Once installed, treatment will be passive and O&M requirements are minimal if replacement of the PRB is not necessary.	Minimal impacts are expected following the construction of the remedy. However, ZVI has the potential to create anaerobic conditions downgradient of the PRB wall that may mobilize redox-sensitive naturally-occurring constituents. These conditions need to be carefully monitored. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures.	Installation of a PRB can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, bench- and/or pilot testing would be required to obtain design parameters prior to design and construction of the remedy, which may take up to 24 months. Once installed, the time to achieve GWPS downgradient of the PRB is anticipated to be relatively quick.
Subsurface Vertical Barrier Walls	Moderate to difficult. Trenching will be required to fill in the various slurry mixes; alternatively, sheet pile installations can be accomplished without excavation of trenches. The application of barrier walls is limited by the depth of installation, which similar to PRBs, should be keyed into a low permeability layer such as a thick clay layer or bedrock. Installation methods and materials are readily available. Once installed, above-ground infrastructure to pump and treat groundwater will be required. O&M requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.	Minimal impacts are expected following the construction of the remedy. Short-term impacts during remedy construction can be mitigated through appropriate planning and health and safety measures. Changes to groundwater flow patterns due to installation of the barrier wall are expected, which can affect other aspects of groundwater corrective action. Groundwater extraction may unintentionally alter the geochemistry within the wall that may result in the mobilization of other constituents that require treatment.	Installation of a barrier wall can be accomplished relatively quickly (i.e., 6 to 12 months), depending on the final location and configuration. However, some design phase and additional aquifer and compatibility testing will be required, which may take up to 24 months. Once installed, preventing migration of constituents dissolved in groundwater is anticipated to be relatively quick. Since this approach does not treat the downgradient area of impacted groundwater but prevents migration from a source area, it will likely have to be maintained long-term and coupled with other approaches.

TABLE 6 - Evaluation of Remedial Technologies
Plant Branch - Milledgeville, GA

Corrective Measure	REGULATORY CITATION FOR CRITERIA: 40 CFR 257.96(C)(1)		
	Institutional Requirements	Other Env. Or Public Health Requirements	Relative Costs
Geochemical Approaches (in situ injection)	Deed restrictions may be necessary until in-situ treatment has achieved GWPS. An underground injection control (UIC) permit would be required to implement this corrective measure. No other institutional requirements are expected at this time.	None expected at this point. Potential for mobilization of redox-sensitive constituents exists during implementation of an anaerobic attenuation approach. Following installation, the remedy is passive.	Medium (depending on expanse of injection network required and injectate volume required per derived design parameters)
Hydraulic Containment (pump-and-treat)	Depending on the effluent management strategy, modifications to the existing National Pollutant Discharge Elimination System (NPDES) permit may be required, or obtaining a new UIC permit may be needed if groundwater reinjection is chosen. In addition, deed restrictions may be required as long as groundwater conditions are above regulatory standards for unrestricted use.	Above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on remedy duration, complexity of above-ground treatment system, and volume of water processed)
In-Situ Stabilization	Deed restrictions may be necessary until groundwater concentrations are below GWPS. No other institutional requirements that may limit application of this technology are expected at this time.	Changes to groundwater chemistry relative to the mobility of Appendix IV constituents following completion of ISS, where large volumes of amendments (typically Portland cement) are added to the subsurface, are unknown and would require pilot testing.	Medium, depending on permeability of aquifer.
MNA	MNA may require the implementation of institutional controls, such as deed restrictions, to preclude potential exposure to groundwater within the footprint of impacted groundwater until GWPS are achieved.	Little to no physical disruption to remediation areas and no adverse construction related impacts are expected on the surrounding community.	Low to medium
PRB	Deed restrictions may be necessary for groundwater areas upgradient of the PRB (if not installed along the waste boundary). No other institutional requirements are expected at this time.	None expected at this point. Following installation, the remedy is passive. However, certain treatment media (such as ZVI) have the potential to mobilize naturally-occurring constituents downgradient of the PRB.	Medium to high (for installation) - minimal O&M requirements if replacement is not necessary
Subsurface Vertical Barrier Walls	Deed restrictions may be necessary until groundwater concentrations are below GWPS. No other institutional requirements that may limit application of this technology are expected at this time.	Due to the need for groundwater extraction associated with barrier walls, above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on length and depth of wall, remedy duration and complexity of above-ground treatment system)

FIGURES



GEORGIA



CLIENT
 GEORGIA POWER COMPANY
 PLANT BRANCH



PROJECT
 ASSESSMENT OF CORRECTIVE
 MEASURES REPORT

TITLE
 SITE LOCATION MAP

CONSULTANT



YYYY-MM-DD	2019-03-15
PREPARED	DJC
DESIGN	DLP
REVIEW	RK
APPROVED	DLP

PROJECT No.
 1666254

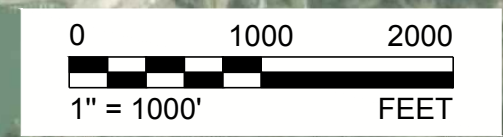
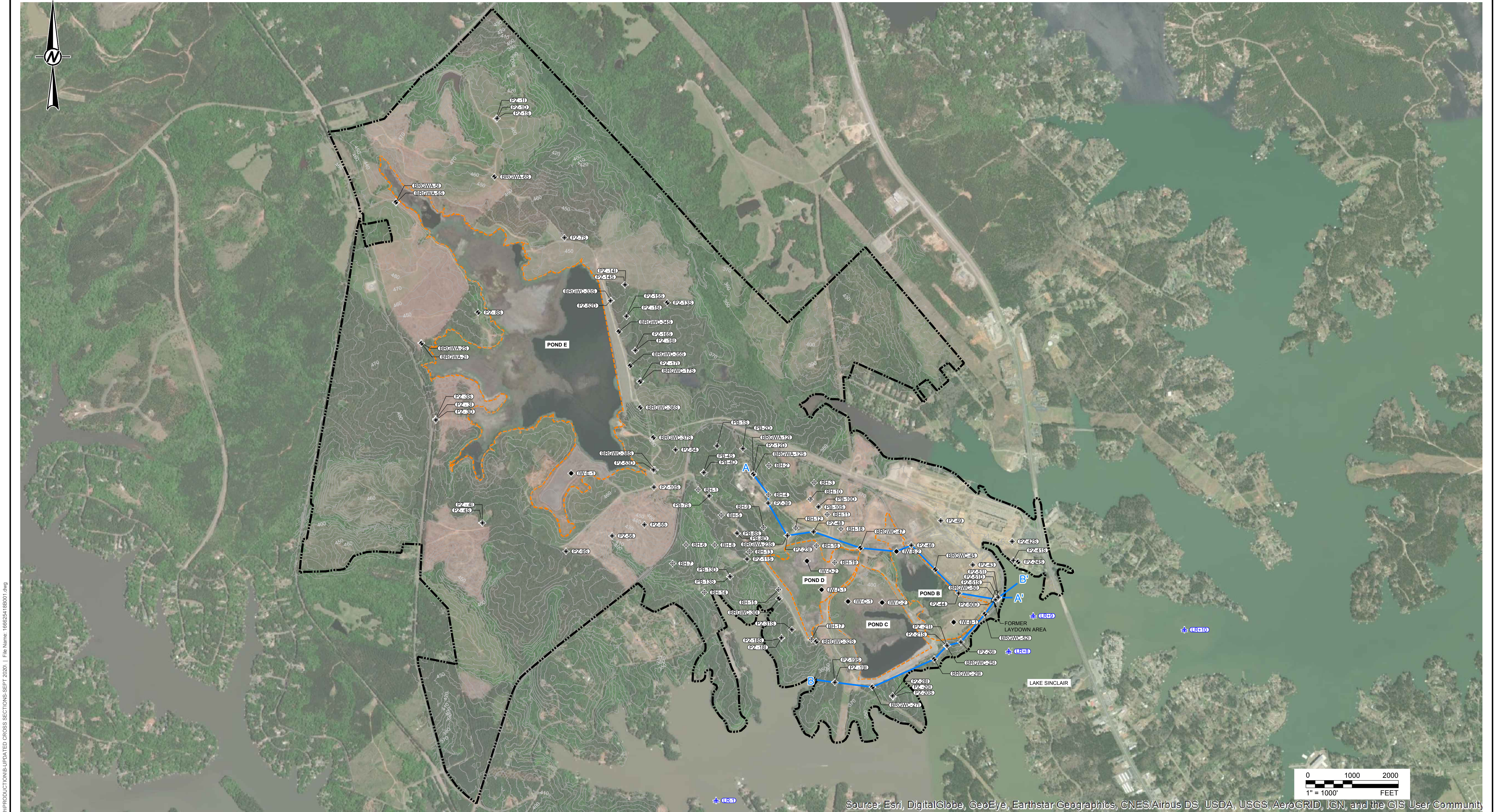
CONTROL
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FIGURE
 1

Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset.

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANSIA



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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LEGEND	
	APPROXIMATE PROPERTY BOUNDARY
	ESTIMATED EXTENT OF SURFACE IMPOUNDMENTS
	CROSS SECTION LOCATION
	BH-05 EXISTING BORING LOCATIONS
	PZ-6S EXISTING PIEZOMETER LOCATIONS
	BRGW-12 EXISTING MONITORING WELL LOCATIONS
	IW-D-1 INTERSTITIAL WELL LOCATIONS
	LR-1 SW LOCATIONS

NOTES	
1.	TOPOGRAPHIC CONTOUR INTERVAL = 10 FEET
2.	TOP OF ROCK SURFACE CONTOUR INTERVAL = 20 FEET
3.	BEDROCK CONTOURS BASED ON LINEAR INTERPOLATION BETWEEN AND EXTRAPOLATION FROM KNOWN DATA, AND TOPOGRAPHIC CONTOURS. THEREFORE, CONTOURS MAY NOT REFLECT ACTUAL CONDITIONS.
4.	ESTIMATED CCR LIMITS PROVIDED BY GPC AND ADJUSTED WITH AVAILABLE DATA FROM IW BORINGS.

REFERENCES	
1.	BORING LOCATIONS AND PROPERTY LINE PROVIDED BY SOUTHERN COMPANY SERVICES, INC.
2.	WELL/PIEZOMETER LOCATIONS SURVEYED BY METRO ENGINEERING (2020).
3.	IW LOCATIONS SURVEYED ON JULY 29, 2016 BY E&CS CIVIL FIELD SERVICES.
4.	TOPOGRAPHY PROVIDED BY GEORGIA POWER LAND DEPARTMENT, DATE OF SURVEY 3-15-2018.

CLIENT
GEORGIA POWER COMPANY

CONSULTANT

	YYYY-MM-DD	2020-10-14
DESIGNED	BS	
PREPARED	DJC	
REVIEWED	BS	
APPROVED	RPK	



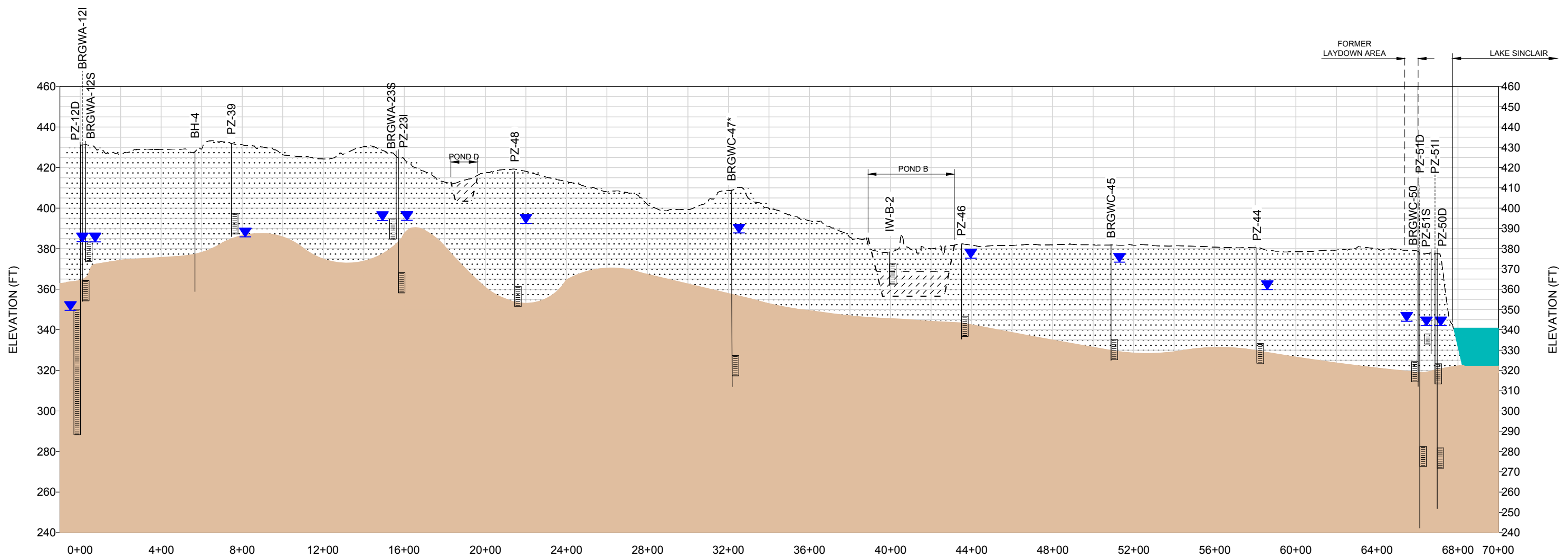
PROJECT
ASSESSMENT OF CORRECTIVE MEASURES REPORT
PLANT BRANCH

TITLE
SUBSURFACE PROFILE ORIENTATION MAP

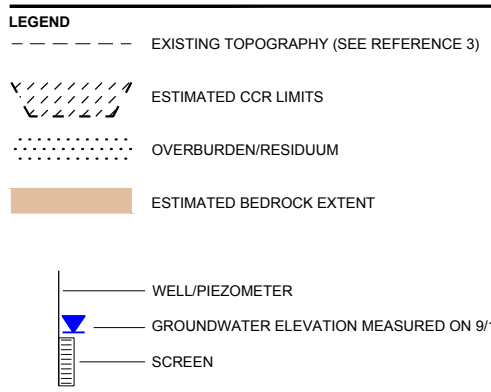
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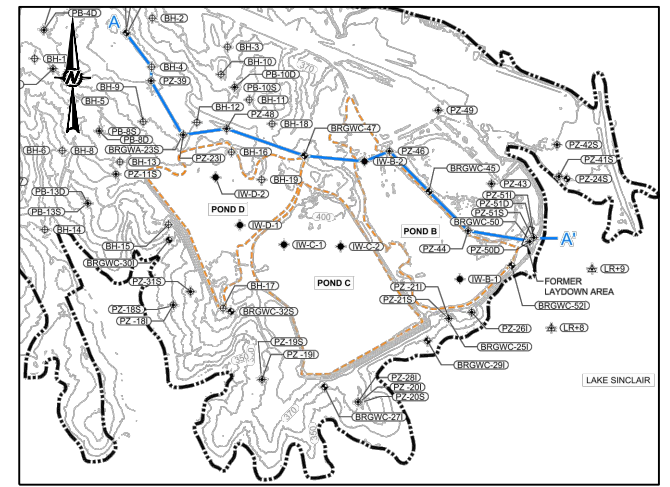


A-A'



- NOTES**
- BEDROCK IN THIS PART OF THE SITE CONSISTS PRIMARILY OF BIOTITE GNEISS AND AMPHIBOLITE.
 - * THE TOP OF ROCK ELEVATION FOR BRGWC-47 APPEARS ANOMALOUS AND WAS THEREFORE NOT USED FOR BEDROCK CONTOURING.
 - ESTIMATED CCR LIMITS PROVIDED BY GPC AND ADJUSTED WITH AVAILABLE DATA FROM IW BORINGS.

- REFERENCES**
- BORING LOCATIONS AND PROPERTY LINE PROVIDED BY SOUTHERN COMPANY SERVICES, INC.
 - WELL/PIEZOMETER LOCATIONS SURVEYED BY METRO ENGINEERING (2020).
 - IW LOCATIONS SURVEYED ON JULY 29, 2016 BY E&CS CIVIL FIELD SERVICES.
 - TOPOGRAPHY PROVIDED BY GEORGIA POWER LAND DEPARTMENT, DATE OF SURVEY 3-15-2018.



0 250 500
1" = 500' FEET
VERTICAL SCALE: 10X EXAGGERATION

CLIENT
GEORGIA POWER COMPANY



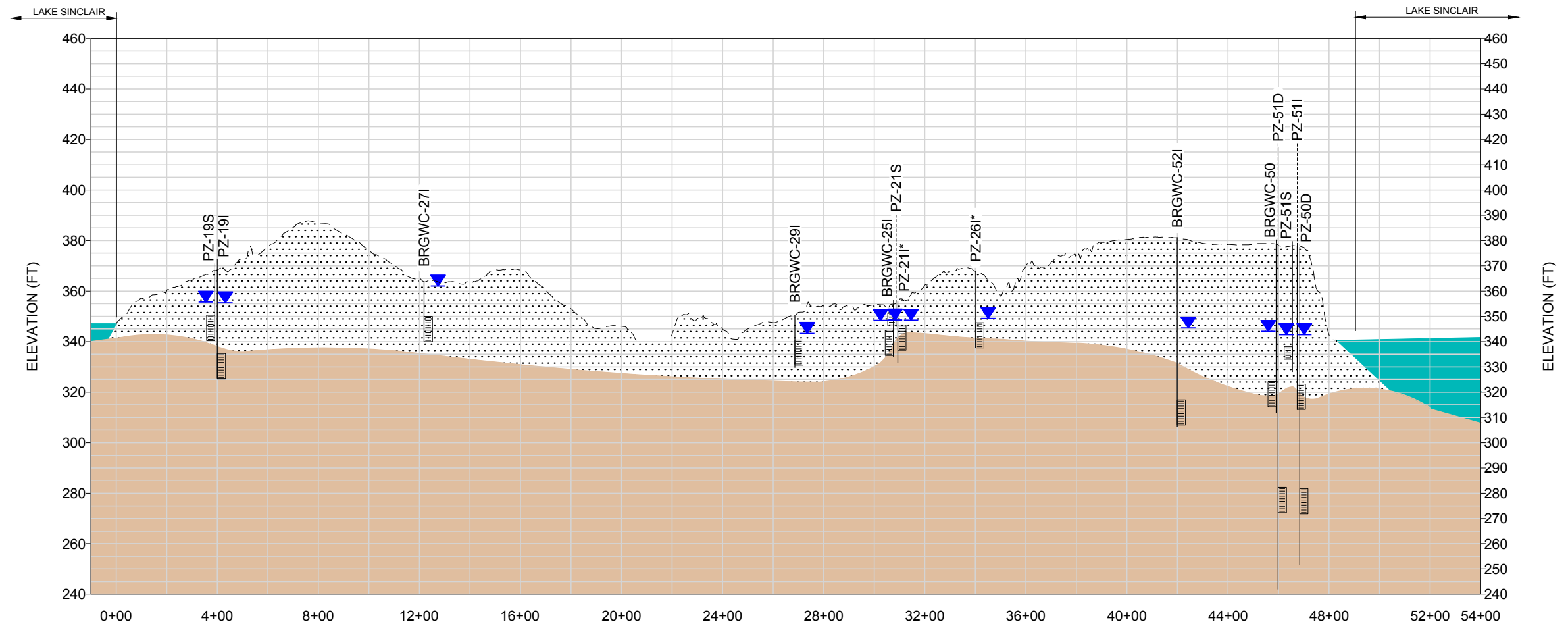
CONSULTANT	YYYY-MM-DD	2020-10-14
	DESIGNED	BS
	PREPARED	DJC
	REVIEWED	BS
	APPROVED	RPK

PROJECT
ASSESSMENT OF CORRECTIVE MEASURES REPORT
PLANT BRANCH

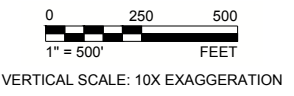
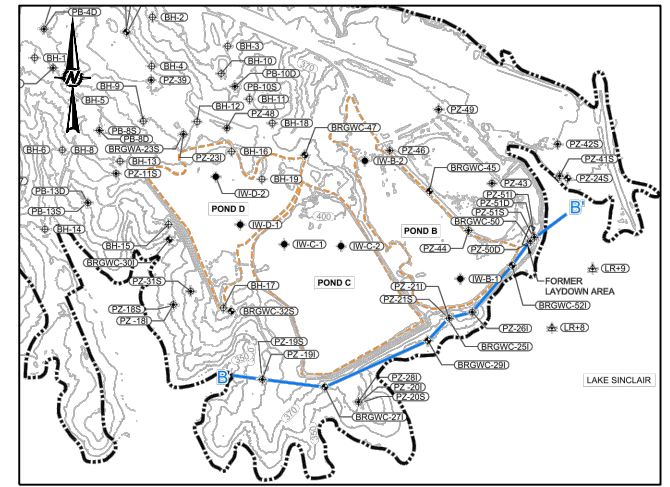
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PROJECT NO.	CONTROL	REV.	
166625418	166625418C002.dwg	0	

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B-B'



- LEGEND**
- EXISTING TOPOGRAPHY (SEE REFERENCE 3)
 - ESTIMATED CCR LIMITS
 - OVERBURDEN/RESIDUUM
 - ESTIMATED BEDROCK EXTENT
 - WELL/PIEZOMETER
 - GROUNDWATER ELEVATION MEASURED ON 9/14/2020
 - SCREEN

- NOTES**
- BEDROCK IN THIS PART OF THE SITE CONSISTS PRIMARILY OF BIOTITE GNEISS AND AMPHIBOLITE.
 - * THE TOP OF ROCK ELEVATIONS FOR PZ-211 AND PZ-261 APPEAR ANOMALOUS AND WERE THEREFORE NOT USED FOR BEDROCK CONTOURING.
 - ESTIMATED CCR LIMITS PROVIDED BY GPC AND ADJUSTED WITH AVAILABLE DATA FROM IW BORINGS.

- REFERENCES**
- BORING LOCATIONS AND PROPERTY LINE PROVIDED BY SOUTHERN COMPANY SERVICES, INC.
 - WELL/PIEZOMETER LOCATIONS SURVEYED BY METRO ENGINEERING (2020).
 - IW LOCATIONS SURVEYED ON JULY 29, 2016 BY E&CS CIVIL FIELD SERVICES.
 - TOPOGRAPHY PROVIDED BY GEORGIA POWER LAND DEPARTMENT, DATE OF SURVEY 3-15-2018.

CLIENT
 GEORGIA POWER COMPANY



CONSULTANT
 GOLDER



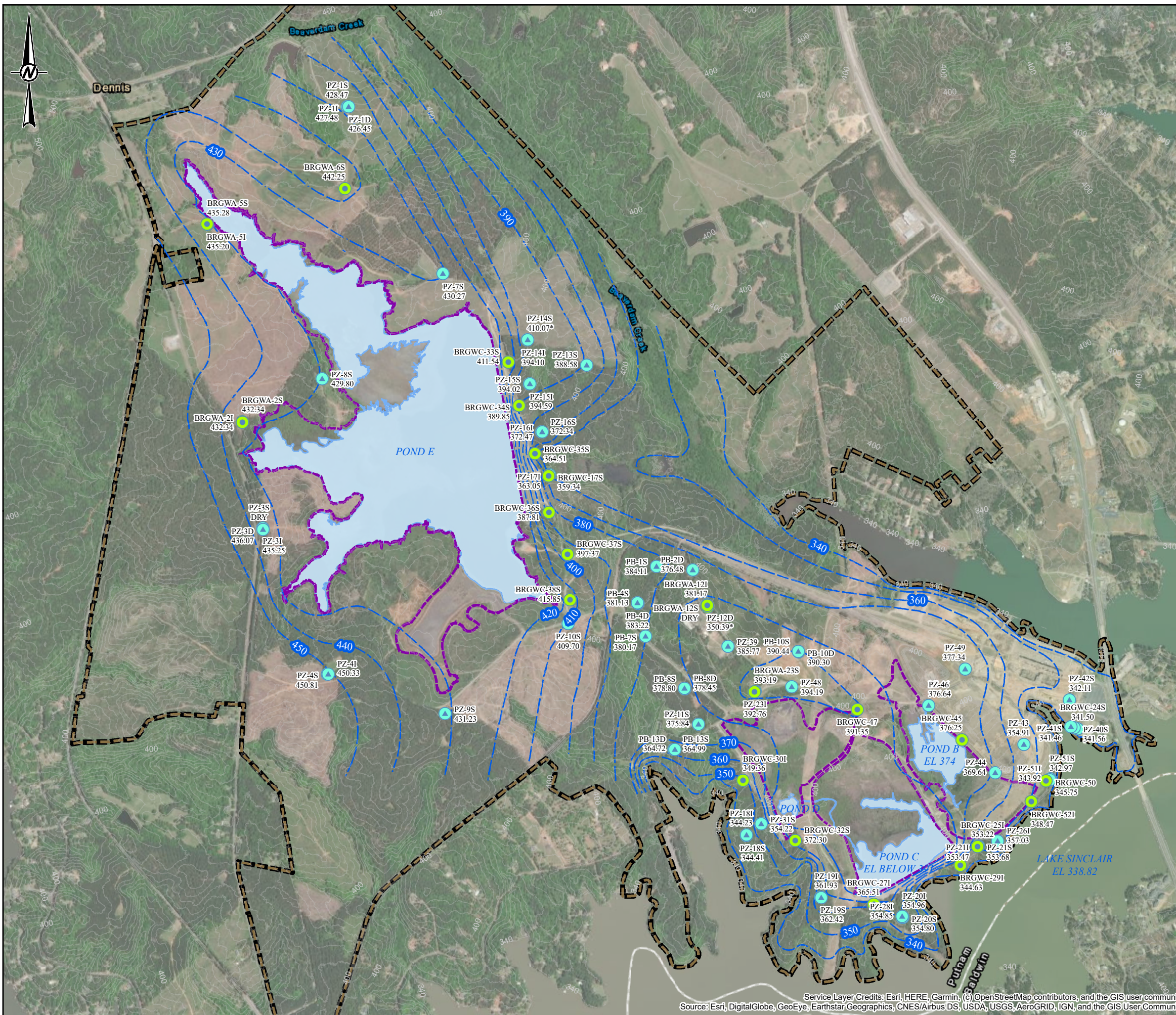
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PREPARED	DJC
REVIEWED	BS
APPROVED	RPK

PROJECT
 ASSESSMENT OF CORRECTIVE MEASURES REPORT
 PLANT BRANCH

TITLE
GEOLOGIC CROSS SECTION B-B'

PROJECT NO.	CONTROL	REV.	FIGURE
166625418	166625418C004.dwg	0	4

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LEGEND

- MONITORING WELL
- PIEZOMETER
- PROPERTY BOUNDARY
- INFERRED POTENTIOMETRIC SURFACE (NAVD88)
- APPROXIMATE ASH POND BOUNDARY
- APPROXIMATE SURFACE WATER LIMITS

NOTES

1. GROUNDWATER SURFACE CONTOUR INTERVAL = 10 FEET
2. GROUNDWATER CONTOURS BASED ON LINEAR INTERPOLATION BETWEEN AND EXTRAPOLATION FROM KNOWN DATA, AND TOPOGRAPHIC CONTOURS. THEREFORE, CONTOURS MAY NOT REFLECT ACTUAL CONDITIONS.
3. DEEP (D) AND INTERMEDIATE (I) WELL ELEVATIONS WERE NOT USED FOR GROUNDWATER CONTOURING.
4. NAVD88=NORTH AMERICAN VERTICAL DATUM 88

5. GROUNDWATER ELEVATIONS RECORDED MARCH 2, 2020

REFERENCE

1. SERVICE LAYER CREDITS: ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRI, IGN, AND THE GIS USER COMMUNITY
2. COORDINATE SYSTEM: NAD 1983 STATE PLAN GEORGIA WEST (U.S. FEET).
3. BORING/PIEZOMETER LOCATIONS AND PROPERTY LINE PROVIDED BY METRO ENGINEERING & SURVEYING CO., INC.



CLIENT
GEORGIA POWER COMPANY
 PLANT BRANCH

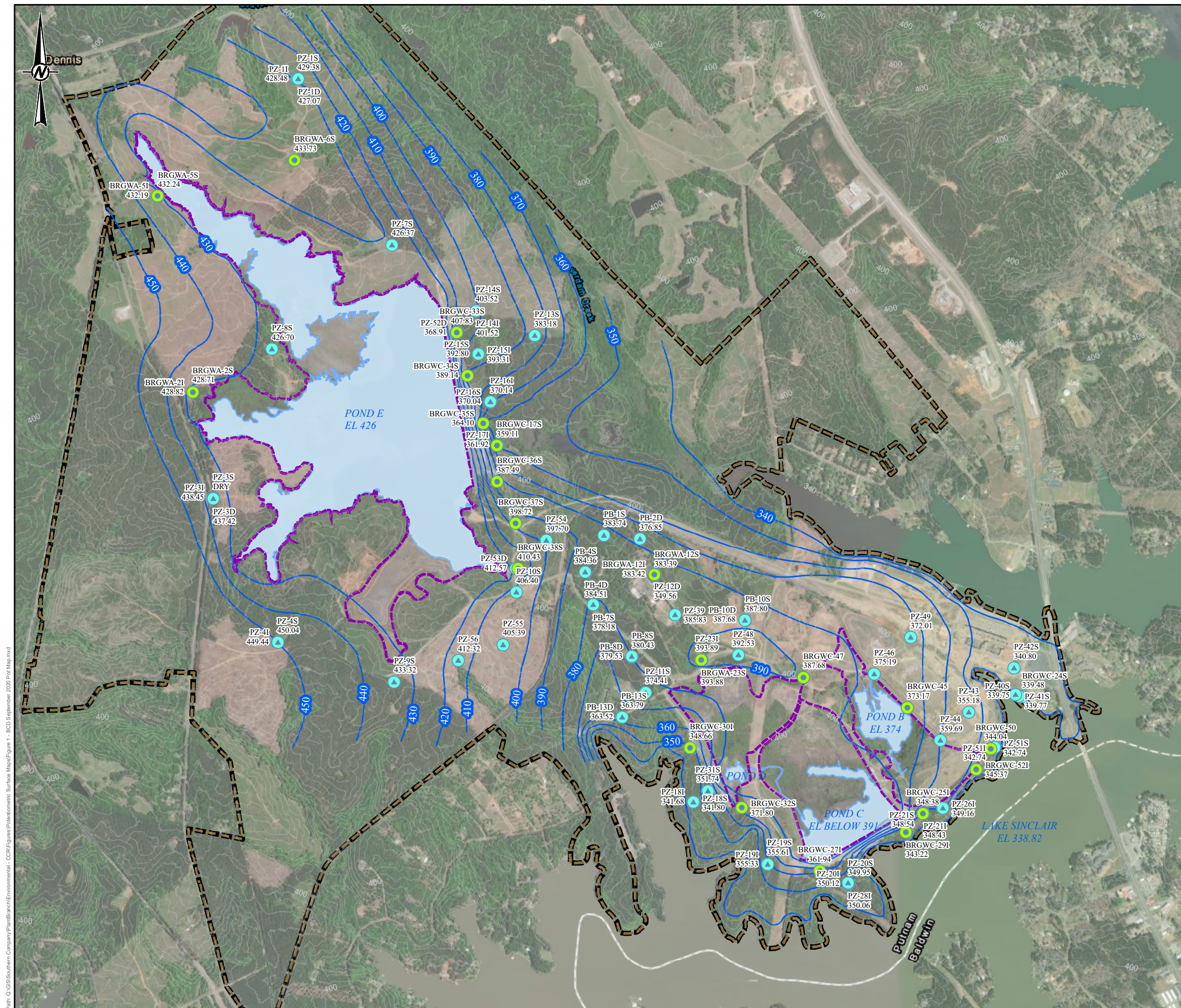


PROJECT
GROUNDWATER MONITORING PROGRAM

TITLE
POTENTIOMETRIC SURFACE CONTOUR MAP
MARCH 2, 2020

CONSULTANT	DATE	REVISION
	YYYY-MM-DD	2020-07-22
	PREPARED	DJC
	DESIGN	ED
	REVIEW	RK
	APPROVED	DLP

PROJECT No. 166625418 CONTROL 1666254V001-GIS.mxd Rev. 1 FIGURE 5A



LEGEND

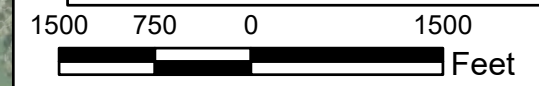
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- PIEZOMETER
- INFERRED POTENTIOMETRIC SURFACE (NAVD88)
- PROPERTY BOUNDARY
- APPROXIMATE ASH POND BOUNDARY
- APPROXIMATE SURFACE WATER LIMITS

NOTES

1. GROUNDWATER SURFACE CONTOUR INTERVAL = 10 FEET
2. GROUNDWATER CONTOURS BASED ON LINEAR INTERPOLATION BETWEEN AND EXTRAPOLATION FROM KNOWN DATA, AND TOPOGRAPHIC CONTOURS. THEREFORE, CONTOURS MAY NOT REFLECT ACTUAL CONDITIONS.
3. DEEP (D) AND INTERMEDIATE (I) WELL ELEVATIONS WERE NOT USED FOR GROUNDWATER CONTOURING.
4. NAVD88=NORTH AMERICAN VERTICAL DATUM 88
5. GROUNDWATER ELEVATIONS RECORDED SEPTEMBER 14, 2020.

REFERENCE

1. SERVICE LAYER CREDITS: ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
2. COORDINATE SYSTEM: NAD 1983 STATE PLAN GEORGIA WEST (U.S. FEET).
3. BORING/PIEZOMETER LOCATIONS PROVIDED BY METRO ENGINEERING & SURVEYING CO., INC.
4. PROPERTY LINE PROVIDED BY SOUTHERN COMPANY SERVICES.



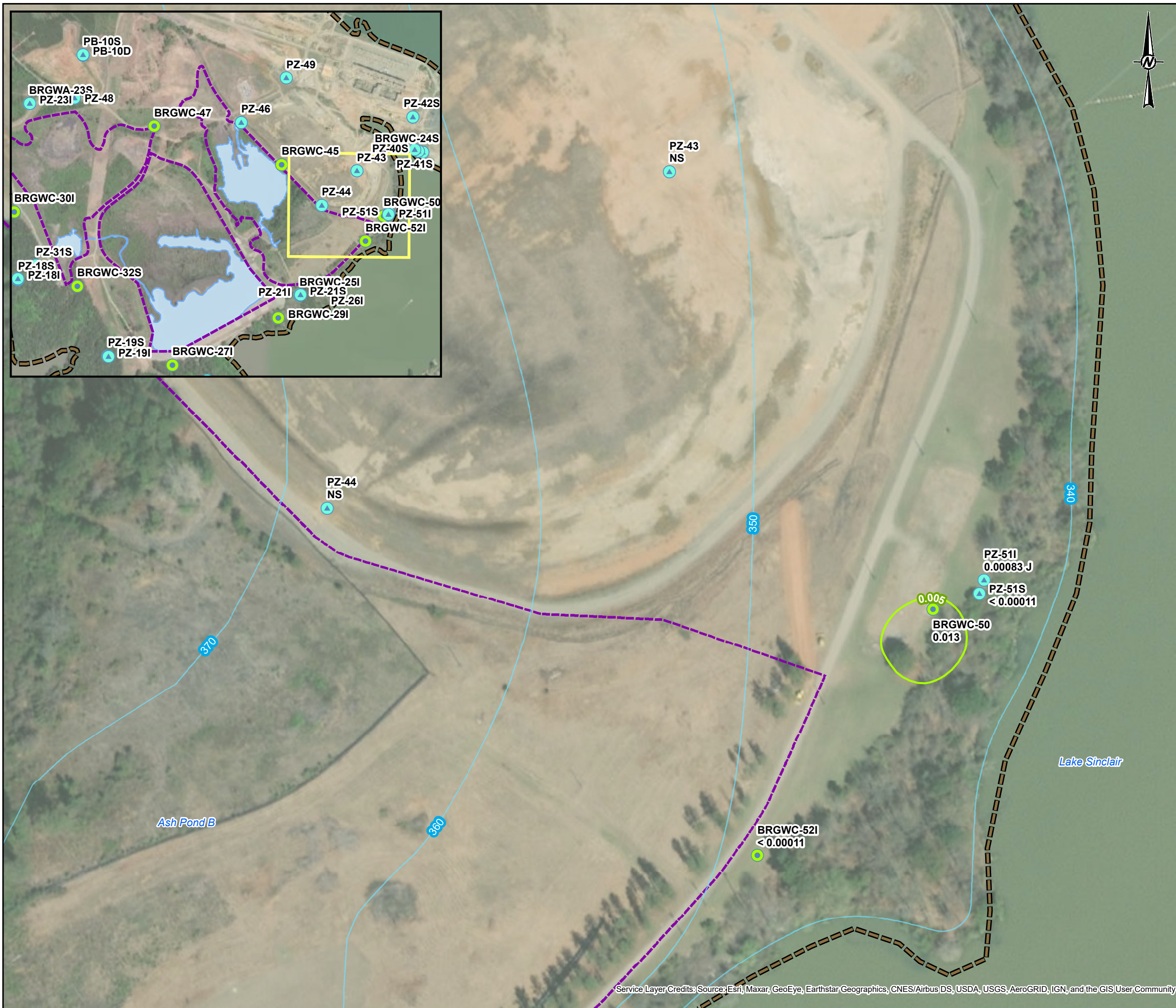
CLIENT
GEORGIA POWER COMPANY
 PLANT BRANCH

PROJECT
 ASSESSMENT OF CORRECTIVE
 MEASURES REPORT

TITLE
**POTENTIOMETRIC SURFACE CONTOUR
 MAP SEPTEMBER 14, 2020**

CONSULTANT	YYYY-MM-DD	2020-09-25
	PREPARED	SEB
	DESIGN	ED
	REVIEW	RK
	APPROVED	DLP

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Path: C:\Users\kchick\Desktop\Branch1_30\Map\Figure 6 - March 2020 AP BCD - Cadmium Isoconcentration Map.mxd

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar, Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

- MONITORING WELL
- ▲ PIEZOMETER
- 0.005 CADMIUM GWPS ISOCONTOUR (INFERRED)
- PROPERTY BOUNDARY
- INFERRED POTENTIOMETRIC SURFACE (MAR 2020)
- APPROXIMATE ASH POND BOUNDARY
- APPROXIMATE SURFACE WATER LIMITS

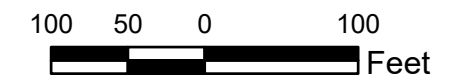
NOTES

1. GROUNDWATER CONCENTRATIONS IN MILLIGRAMS PER LITER (MG/L)
2. ISOCONTOUR SHOWN REPRESENT GROUNDWATER PROTECTION STANDARD
3. GROUNDWATER CONCENTRATIONS IN MILLIGRAMS PER LITER (MG/L). GWPS = GROUNDWATER PROTECTION STANDARD. RSL = FEDERAL REGIONAL SCREENING LEVEL. ISOCONTOUR SHOWN REPRESENT GROUNDWATER PROTECTION STANDARD NS = NOT SAMPLED. J = ESTIMATED VALUE.
4. DATA SHOWN REPRESENT THE MARCH SEMI-ANNUAL MONITORING EVENT RESULTS AS WELL AS APPLICABLE DELINEATION WELL DATA.

Analyte	Units	GWPS
Cadmium	mg/L	0.005

REFERENCE

1. SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
2. COORDINATE SYSTEM: NAD 1983 STATE PLAN GEORGIA WEST (U.S. FEET).
3. PROPERTY LINE PROVIDED BY SOUTHERN COMPANY SERVICES. WELL AND PIEZOMETER LOCATIONS PROVIDED BY METRO ENGINEERING.



CLIENT
GEORGIA POWER COMPANY
 PLANT BRANCH



PROJECT
ASSESSMENT OF CORRECTIVE MEASURES REPORT

TITLE
CADMIUM ISOCONCENTRATION CONTOUR MAP
POND BCD
MARCH 2020

CONSULTANT	YYYY-MM-DD	2020-06-03
GOLDER	PREPARED	BAS
	DESIGN	BAS
	REVIEW	RK/DP
	APPROVED	

1 in. IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANS/B



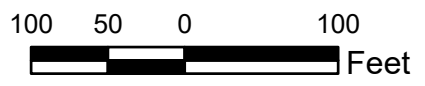
LEGEND

- MONITORING WELL
- PIEZOMETER
- 0.0135** COBALT GWPS ISOCONTOUR (INFERRED)
- PROPERTY BOUNDARY
- INFERRED POTENTIOMETRIC SURFACE (MAR 2020)
- APPROXIMATE ASH POND BOUNDARY
- APPROXIMATE SURFACE WATER LIMITS

- NOTES**
- GROUNDWATER CONCENTRATIONS IN MILLIGRAMS PER LITER (MG/L)
 - ISOCONTOURS SHOWN REPRESENT GROUNDWATER PROTECTION STANDARD
 - GROUNDWATER CONCENTRATIONS IN MILLIGRAMS PER LITER (MG/L). NS = NOT SAMPLED. GWPS = GROUNDWATER PROTECTION STANDARD. RSL = FEDERAL REGIONAL SCREENING LEVEL.
 - DATA SHOWN REPRESENT THE MARCH SEMI-ANNUAL MONITORING EVENT RESULTS AS WELL AS APPLICABLE DELINEATION WELL DATA.
 - GWPS IS EQUAL TO SITE SPECIFIC BACKGROUND CONCENTRATION AS THERE IS NO MCL AND THE RSL IS BELOW SITE SPECIFIC BACKGROUND

Analyte	Units	GWPS
Cobalt	mg/L	0.0135

- REFERENCE**
- SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGIRD, IGN, AND THE GIS USER COMMUNITY
 - COORDINATE SYSTEM: NAD 1983 STATE PLAN GEORGIA WEST (U.S. FEET).
 - PROPERTY LINE PROVIDED BY SOUTHERN COMPANY SERVICES. WELL AND PIEZOMETER LOCATIONS PROVIDED BY METRO ENGINEERING.



CLIENT
GEORGIA POWER COMPANY
 PLANT BRANCH

PROJECT
ASSESSMENT OF CORRECTIVE MEASURES REPORT

TITLE
COBALT ISOCONCENTRATION CONTOUR MAP
POND BCD
MARCH 2020

CONSULTANT	YYYY-MM-DD	2020-10-08
PREPARED	BAS	
DESIGN	BAS	
REVIEW	RK/DP	
APPROVED		

PROJECT No. 166625418 CONTROL 1666254Q002-GIS.mxd Rev. 0 FIGURE 7

Path: C:\Users\jvelde\Desktop\Branch\Map\Figures 7 - March 2020 AP-BCD - Cobalt Isoconcentration Map.mxd

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar, Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

1 in. IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANS/B



LEGEND

- SURFACE WATER SAMPLE
- MONITORING WELL
- PIEZOMETER
- 0.005 CADMIUM GWPS ISOCONTOUR (INFERRED)
- INFERRED POTENTIOMETRIC SURFACE (SEPT 2020)
- PROPERTY BOUNDARY
- APPROXIMATE ASH POND BOUNDARY
- APPROXIMATE SURFACE WATER LIMITS

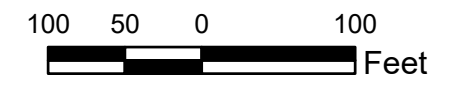
NOTES

- GROUNDWATER CONCENTRATIONS IN MILLIGRAMS PER LITER (MG/L). GWPS = GROUNDWATER PROTECTION STANDARD.
- ISOCONTOURS SHOWN REPRESENT GROUNDWATER PROTECTION STANDARD
- DATA SHOWN REPRESENT THE SEPTEMBER SEMI-ANNUAL MONITORING EVENT RESULTS AS WELL AS APPLICABLE DELINEATION DATA. SAMPLE RESULTS FROM PZ-50D AND PZ-51D FROM OCTOBER 2020.
- SURFACE WATER SAMPLE COLLECTED BY ARCADIS IN OCTOBER 2020

Analyte	Units	GWPS
Cadmium	mg/L	0.005

REFERENCE

- SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRIID, IGN, AND THE GIS USER COMMUNITY
- COORDINATE SYSTEM: NAD 1983 STATE PLAN GEORGIA WEST (U.S. FEET).
- PROPERTY LINE PROVIDED BY SOUTHERN COMPANY SERVICES. WELL AND PIEZOMETER LOCATIONS PROVIDED BY METRO ENGINEERING.



CLIENT
GEORGIA POWER COMPANY
 PLANT BRANCH

PROJECT
ASSESSMENT OF CORRECTIVE MEASURES REPORT

TITLE
CADMIUM ISOCONCENTRATION CONTOUR MAP
POND BCD
SEPTEMBER 2020

CONSULTANT	YYYY-MM-DD	2020-06-03
	PREPARED	BAS
	DESIGN	BAS
	REVIEW	RK/DP
	APPROVED	

PROJECT No. 166625418 CONTROL 1666254Q002-GIS.mxd Rev. 1 FIGURE 8

Path: C:\Users\jchick\Desktop\Branch 8 - September 2020 APBCD - Cadmium Isoconcentration Map_Backup.mxd

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar, Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANSIB

APPENDIX A

Risk Evaluation Report



RISK EVALUATION REPORT

PLANT BRANCH

ASH PONDS B, C, AND D

MILLEDGEVILLE, PUTNAM COUNTY, GEORGIA

Prepared for

Georgia Power
241 Ralph McGill Boulevard
Atlanta, Georgia 30308

Prepared by

Geosyntec Consultants
1255 Roberts Blvd., Suite 200,
Kennesaw, Georgia 30144

Project Number GZ7112BR

December 2020

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LIST OF ACRONYMS AND ABBREVIATIONS

Amsl	Above Mean Aea Level
AP	Ash Pond
CCR	Coal Combustion Residual
CEM	Conceptual Exposure Model
CFR	Code of Federal Regulations
COI	Constituent of Interest
COPI	Constituent of Potential Interest
EPC	Exposure Point Concentration
EPD	[Georgia] Environmental Protection Division
ft	feet
ft/day	feet per day
GWPS	Groundwater Protection Standard
HAR	Hydrogeologic Assessment Report
HSRA	Hazardous Site Response Act
ISWQC	In-stream Water Quality Criteria
IRIS	Integrated Risk Information System
NAWQC	National Ambient Water Quality Criteria
MCL	Maximum Contaminant Level
mg/L	Milligrams per liter
ProUCL	ProUCL software version 5.1
PWR	Partially Weathered Rock
PZ	Piezometer
RME	Reasonable Maximum Exposure
RRS	Risk Reduction Standards
RSL	Regional Screening Level
SSL	Statistically Significant Level
TWR	Transitionally Weathered Rock
UCL	95 Percent Upper Confidence Limit of the Arithmetic Mean
USEPA	United States Environmental Protection Agency
VRP	Voluntary Remediation Program

EXECUTIVE SUMMARY

Plant Branch (site) is a former four-unit, coal-fired electric generating facility owned and operated by Georgia Power that was retired on April 15, 2015. The site is located adjacent to Lake Sinclair, approximately 8 miles north of Milledgeville in Putnam County, Georgia. During the operation of the site from 1960 to 2015, coal combustion residual (CCR) material resulting from power generation was transferred and stored in five ash ponds (AP) AP-A, AP-B, AP-C, AP-D, and AP-E in compliance with applicable regulations. This report addresses AP-B, AP-C, and AP-D, together referred to as a multi-unit AP-BCD.

AP-BCD is inactive and Georgia Power is currently in the permitting process to close the ponds by removal and relocation of the stored CCR material to a proposed fully lined landfill located on the plant property in accordance with the Georgia Environmental Protection Division (EPD) Rules for Solid Waste Management, Rule 391-3-4.10 (State CCR Rule). Because the site ceased producing electricity prior to April 2015, these ash ponds are not subject to the Federal CCR Rule¹. Georgia Power submitted a permit application for the closure of AP-BCD to Georgia EPD on November 15, 2018.

This report presents the results of a human health and ecological risk evaluation for cadmium and cobalt, the CCR constituents² exhibiting statistically significant levels (SSLs) in groundwater at AP-BCD from samples collected between March 2018 through March 2020. Cadmium and cobalt were previously identified as SSL-related constituents based on groundwater protection standards (GWPS) established for AP-BCD pursuant to Georgia EPD Rule 391-3-4-.10(6)(a) (Golder Associates, 2020). The risk evaluation relies on groundwater data collected by Georgia Power between March 2018 and March 2020 in compliance with the State CCR rule. The risk evaluation has been completed using a conservative, health-protective approach based on methods consistent with United States Environmental Protection Agency (USEPA) guidance, Georgia EPD regulations and guidance, and standard practice for risk assessment in the State of Georgia.

¹ 40 C.F.R. § 257, Subpart D – *Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments*. Original effective date, October 14, 2015; last amended; August 28, 2020, effective date of latest amendments, September 28, 2020 (USEPA, 2020a).

² The constituents included in the risk evaluation also occur naturally in the site geologic setting.

Consistent with USEPA guidance, this risk evaluation used a tiered approach to evaluate potential risks, which included the following steps:

1. Development of a conceptual exposure model (CEM) for AP-BCD.
2. Initial groundwater risk screening: Comparison of groundwater concentrations of SSL-related constituents, cadmium and cobalt, to conservative, health-protective criteria and/or background concentrations to assess whether they pose a risk to human health.
3. Refined groundwater risk evaluation: Perform a more refined analysis of Constituents of Potential Interest (COPIs) that were not screened out in the initial risk screening to assess whether they pose a potential risk to human health.
4. Surface water risk screening: For constituents identified as groundwater constituents of interest (COIs), comparison of surface water concentrations to conservative, health-protective criteria to assess whether they pose a potential risk to human health or the environment as an additional line of evidence.
5. Development of risk conclusions and identification of associated uncertainties.

Using this approach that includes multiple conservative assumptions, constituents evaluated from AP-BCD are not expected to pose a risk to human health or the environment; therefore, no further risk evaluation for groundwater is warranted. Compliance monitoring for AP-BCD will continue pursuant to the requirements of the State CCR rule. Georgia Power will proactively evaluate the data and update this evaluation, if necessary.

1 INTRODUCTION

This report summarizes a risk evaluation of AP-BCD at Georgia Power's Plant Branch (site) located approximately eight miles north of Milledgeville, Georgia (**Figure 1**). AP-BCD is located to the southeast of AP-E and to the north of Lake Sinclair. AP-BCD is inactive and Georgia Power is currently in the permitting process to close the ponds by removal and relocation of the stored CCR material to a proposed fully lined landfill located on the plant property in accordance with the State CCR Rule. Because the site ceased producing electricity prior to April 2015, AP-BCD is not subject to the Federal CCR Rule (40 CFR § 257, Subpart D). Georgia Power submitted a permit application for the closure of AP-BCD to Georgia EPD in November 2018.

This risk evaluation provides additional technical review of the human health and environmental protectiveness associated with the closure of AP-BCD with respect to constituent concentrations in groundwater identified at SSLs above GWPS³. The evaluation relies on a conservative, health-protective approach that is consistent with the risk approaches outlined in Voluntary Remediation Program (VRP) (Georgia Voluntary Remediation Act, OCGA §12-8-100; EPD, 2009) and USEPA Regional Screening Levels (RSLs) User's Guide (USEPA, 2020b). This evaluation also incorporated principles and assumptions consistent with the Federal CCR Rule (USEPA, 2020a) and the State CCR Rule.

The risk evaluation includes the development of a site-specific CEM and a stepwise risk screening process for identified SSL-related constituents for AP-BCD.

The remainder of the report is organized as follows:

Section 2, Basis and Background for the Development of the Conceptual Exposure Model – Presents site-specific information related to the site history, monitoring network, topography and surface hydrology, geology and hydrogeology, potential transport pathways, and receptors that could potentially be exposed to SSL-related constituents.

Section 3, Groundwater Risk Evaluation Screening – Describes the process for the initial risk-based screening of SSL-related constituents to identify COPIs in groundwater.

³ Cadmium and cobalt were previously identified as SSL-related constituents based on GWPS established for AP-BCD pursuant to Georgia EPD Rule 391-3-4-.10(6)(a) (Golder Associates, 2020).

Section 4, Refined Risk Evaluation – Describes the risk screening process for the COPIs identified in groundwater, including calculation of exposure point concentrations (EPCs) and analysis of concentration trends over time and for those constituents evaluated for surface water in the nearest adjacent surface water bodies.

Section 5, Uncertainty Assessment – Describes the uncertainties associated with the risk screening process.

Section 6, Conclusions – Presents the conclusions of the risk evaluation.

Section 7, References – Provides reference information for the sources cited in this document.

2 BASIS AND BACKGROUND FOR THE DEVELOPMENT OF THE CONCEPTUAL EXPOSURE MODEL

This section provides a brief overview of the site location and operational history, site regulatory status, and geology/hydrogeology.

A CEM representing the site-specific processes and conditions that are relevant to the potential migration of groundwater and potential exposure to SSL-related constituents has been developed based on a review and compilation of information previously presented in site documents, including the *Hydrogeologic Assessment Report (HAR) for Ash Ponds B, C, and D* (Geosyntec, 2020), *2019 Annual Groundwater Monitoring & Corrective Action Report – Plant Branch - Ash Pond BCD* (Golder Associates, 2019), and *2020 Annual Groundwater Monitoring & Corrective Action Report – Plant Branch - Ash Pond BCD* (Golder Associates, 2020). The CEM includes a conservative evaluation of assumed potential transport pathways, exposure pathways and potential human and ecological receptors.

2.1 Site Description

The site is located adjacent to Lake Sinclair, approximately 8 miles north of Milledgeville in Putnam County, Georgia. The property occupies approximately 3,200 acres and is bounded on the south and east by Lake Sinclair, which is an approximate 15,330-acre hydroelectric reservoir that was created in 1953 by the impoundment of the Oconee River. A site location map and a detailed site map is included as **Figure 1**.

The site is a former four-unit, coal-fired fired electric generating facility owned and operated by Georgia Power that was retired on April 15, 2015. During the operation of the site from 1960 to 2015, CCR material resulting from power generation was transferred and stored in five ash ponds, identified as AP-A, AP-B, AP-C, AP-D, and AP-E, in compliance with applicable regulations.

AP-BCD is inactive, and Georgia Power is currently in the permitting process to close the ponds by removal and relocation of the stored CCR material to a proposed fully lined landfill located on the plant property in accordance with the State CCR Rule. Because the site ceased producing electricity prior to April 2015, these ash ponds are not subject to the Federal CCR Rule. Georgia Power submitted one permit application for the closures of AP-BCD (as a combined multi-unit application) to Georgia EPD on November 15, 2018. Potable water at the site was historically provided by one on-site potable well (BRPW-1). This well is located upgradient of AP-BCD to the northwest as shown on **Figure 2**; it will be decommissioned

during the the construction of the proposed CCR landfill. Water from BRPW-1 was historically used for the sanitary facilities and for the central water supply at the site.

2.1.1 Topography and Surface Hydrology

The site is located in the Piedmont Physiographic Province (Piedmont) of central Georgia, which is characterized by gently rolling hills and narrow valleys, with locally pronounced linear ridges. Generally, the property slopes gently eastward and southward towards Lake Sinclair. The site is located in the eastern half of the site property, which is generally topographically lower than the western portion of the property. Topographic relief across the site is approximately 100 ft, with a natural topographic high at an elevation of nearly 440 ft above mean sea level (amsl) occurring along the topographic ridge west of Ash Pond D, and with a topographic low at the banks of Lake Sinclair at approximately 340 ft amsl (Geosyntec, 2020).

2.1.2 Geology and Hydrogeology

The following information is provided in the *2020 Annual Groundwater Monitoring & Corrective Action Report – Plant Branch - Ash Pond BCD* (Golder Associates, 2020).

The metamorphic and igneous rocks that underlie the area have been subjected to physical and chemical weathering which has created a landscape dissected by creeks and streams forming a dendritic drainage pattern. These rocks are weathered due to the humid climate resulting in bedrock being overlain by a variably thick blanket of residual soils and saprolite (collectively called regolith). The overall depth of weathering in the Piedmont is generally about 20 to 60 feet; however, the depth of weathering along discontinuities and/or in very feldspathic rock units may extend to depths greater than 100 feet.

The near surface conditions were determined based upon available boring and monitoring well installation logs. Micaceous, locally saprolitic soils, consisting primarily of clay, silty clay, silt, and sandy clay occur as a variably thick blanket of residuum overlying bedrock across most of the site. The thickness of the residual soil encountered in the borings is variable, ranging from approximately 11 feet to as much as 74 feet. Saprolitic soils and/or saprolitic rock vary in thickness across the site but are generally encountered at or near ground surface. Saprolitic rock is also considered to be transitionally weathered rock (TWR) or partially weathered rock (PWR), as defined by standard penetration test data, where available. Material

overlying the top of rock surface, including residual soils, saprolite, and transitionally weathered rock, is collectively referred to as overburden or regolith.

Groundwater flow rates at the site were calculated based on hydraulic gradients, hydraulic conductivity from previous slug test results, and an estimated effective porosity of the screened horizon. Based on slug test data at the site, hydraulic conductivity ranges from 2.7 to 5.5 feet per day, which is used in the flow calculations. The groundwater flow velocity at the site ranges from approximately 0.18 to 0.86 feet per day (or approximately 66 to 314 feet per year) across AP-BCD. The observed groundwater flow velocities calculated for this monitoring event are also generally consistent with expected velocities in the regolith-upper bedrock aquifers of Georgia Piedmont and confirm the groundwater monitoring system as properly located to monitor the uppermost aquifer for AP-BCD at Plant Branch.

The potentiometric surface contours provided in the 2020 *Annual Groundwater Monitoring & Corrective Action Report – Georgia Power Company - Plant Branch, Ash Pond BCD* (Golder Associates, 2020) are provided on **Figure 3**. The potentiometric surface contours show that groundwater flow direction is to the southeast and south of AP-BCD, towards Lake Sinclair. The groundwater flow direction and rates interpreted during the October 2019 and March 2020 monitoring events are generally consistent with historical evaluations.

2.2 Potential Transport Pathways

A variety of geologic, hydrogeologic, and geochemical mechanisms can occur in the subsurface and serve to attenuate constituent concentrations in groundwater such as soil or rock characteristics, the local geology and hydrogeology, and the distance the groundwater must travel before reaching a potential receptor. A summary of potential transport pathways is shown on the CEM in **Figure 4**.

Lake Sinclair, which was created by the impoundment of the Oconee River, abuts the site to the south. Due to the input of water from the river northeast of the site, the prevailing surface water flow in the vicinity of the site is to the south/southeast (**Figure 2**). A conservative assumption for this assessment was made that all of the groundwater from the site flows to Lake Sinclair. In addition, for the purposes of this evaluation, Lake Sinclair was assumed to represent a hydraulic discharge boundary for groundwater flow in the upper aquifer from the nearby region.

2.3 Potential Exposure Pathways and Receptors

The exposure pathways for groundwater assumed to be complete based on site-specific information were used to identify potential receptors and estimate potential risk. The CEM depicts the conservative potential exposure pathways and receptors included in the risk evaluation.

The following potential exposure pathways and receptors were considered:

- On-site industrial worker: Potable water at the site was historically provided by one on-site potable well (BRPW-1). This well is located upgradient of AP-BCD as shown on **Figure 2**; it will be decommissioned during the the construction of the proposed CCR landfill. Water from BRPW-1 was used for the sanitary facilities and for the central water supply at the site. The groundwater exposure pathway for the on-site industrial worker was considered incomplete due to the well's location upgradient of AP-BCD therefore there is no risk to on-site industrial workers.
- On-site construction worker: While there is a potential for limited exposure to groundwater by a future construction worker through dermal contact with on-site shallow groundwater during subsurface activities, future construction workers would be expected to have little to no direct contact with on-site groundwater due to safety procedures outlined in their site-specific health and safety plans.
- On-site resident: The groundwater exposure pathway for on-site residents was considered incomplete because the site is zoned industrial-manufacturing district and there is no residential use on-site under current site conditions and future residential use of the site is considered unlikely (Putnam County, 2020).
- Off-site industrial/construction worker: The potential for off-site worker exposure through direct contact with groundwater was addressed qualitatively through the evaluation of hypothetical off-site residential receptors. Health-protective screening levels for residential receptors would be more conservative than industrial and construction worker screening levels.
- Off-site resident: The groundwater exposure pathway for hypothetical off-site residential receptors was assumed potentially complete. Land use surrounding the site is zoned Agricultural/Rural District with the exception of some Commercial zoning adjacent to the southeast corner of the site (Putnam County, 2020). Zoning to the east of the site is generally commercial, to the north is an agricultural district, and

the west is single family residential (Putnam County, 2020). An off-site well survey of potential groundwater wells within a three-mile radius of the site was conducted and consisted of reviewing federal, state, and county records and online sources, in addition to conducting a windshield survey of the area (Newfields, 2020). The well survey is included as **Appendix A**. Results of the survey are presented on **Figure 5**. Lake Sinclair is the source of the public water supply in the area and the well survey identified a surface water intake belonging to the Sinclair Water Authority approximately 1.75 miles to the northeast, and upstream, of AP-BCD (Newfields, 2020). Because this public water supply intake is upstream of the site, this is considered an incomplete exposure pathway and there is no risk to hypothetical off-site residential receptors. In addition, as other downgradient hypothetical off-site residential receptors identified in the well survey are located on the opposite side of Lake Sinclair, the assumed hydraulic discharge boundary for AP-BCD, this potential groundwater exposure pathway is also incomplete.

Concentrations of the SSL-related constituent cadmium in on-site groundwater monitoring wells and peizometers are below health-protective screening levels within the site property boundary (i.e., on-site at AP-BCD). The concentrations of cobalt at 0.022 milligrams per liter (mg/L), were detected above health-protective screening levels in wells located adjacent to Lake Sinclair. As a conservative measure, assumed potential off-site residential exposure to SSL-related constituents were evaluated using data collected from on-site groundwater wells between March 2018 and March 2020 around the perimeter and downgradient of AP-BCD. This comparison makes the conservative assumption that on-site groundwater may potentially migrate to off-site drinking water wells through advective transport in groundwater without any attenuation within the aquifer media through factors such as dilution, dispersion, or adsorption, and disregarding the presence of Lake Sinclair which represents an assumed hydraulic discharge boundary for groundwater downgradient of AP-BCD.. Accordingly, the risk evaluation screening for the off-site residential receptor assumed potential exposure by ingestion and dermal contact with SSL-related constituents cadmium and cobalt in groundwater through its use as a future potable water source.

- Off-site recreational surface water receptors: The potentially complete surface water exposure pathway for hypothetical recreational receptors was addressed quantitatively through the evaluation of surface water data collected from Lake Sinclair in March 2018. The surface water risk evaluation conservatively assumed that hypothetical off-site recreators' exposure included ingestion of aquatic

organisms (mainly fish) and potential incidental ingestion and dermal contact with surface water by hypothetical adult and child recreational receptors.

- Off-site ecological surface water receptors: The surface water exposure pathway for off-site ecological receptors was addressed quantitatively through the evaluation of surface water data collected from Lake Sinclair in March 2018. Ecological receptors were assumed to be exposed to surface water through direct contact to surface water as well as through the food chain pathway.

3 RISK EVALUATION SCREENING

The CEM developed in Section 2 was used to identify the potentially completed exposure pathways to human receptors that should be considered in the risk evaluation. The initial step in the risk evaluation is the comparison of SSL-related constituent concentrations from groundwater samples collected between March 2018 through March 2020 to relevant, health-protective levels. The approach used is consistent with the Georgia EPD regulations and guidance, USEPA guidance, and standard practice for risk assessment in the State of Georgia. The Georgia EPD allows for the evaluation of risk to support site-specific remedial approaches in programs such as the Voluntary Remediation Program (VRP) (EPD, 2009).

The initial risk evaluation screening was performed for the potential groundwater exposure pathway by comparing the concentrations of cadmium and cobalt in groundwater samples from monitoring well BRGWC-50⁴ to health-protective screening criteria. These criteria included the risk reduction standards (RRS) established under the Hazardous Site Response Act (HSRA) for drinking water and site-specific background for the protection of human health. If the maximum concentration of a SSL-related constituent exceeded the screening criterion, the constituent was identified as a COPI for further evaluation in the refined risk evaluation. The methodology and screening criteria used were identified in accordance with regulatory guidance and standard risk assessment practices using an approach designed to conservatively overestimate possible exposures and risks, providing an additional level of confidence in the conclusions. The methodology is summarized on **Figure 6** and discussed in more detail below.

3.1 Data Used in Risk Evaluation Screening

This section provides information on the groundwater dataset used in the risk evaluation screening and refined risk evaluation.

⁴ Cadmium and cobalt were identified as federal and state SSL-related constituents. State SSL-related constituents are identified by comparing the confidence intervals developed to either the constituent's MCL, if available, or the calculated background interwell prediction limit. Federal SSL-related constituents are identified by comparing the confidence intervals developed to either the constituent's MCL, if available, the USEPA RSL, if no MCL is available, or the calculated background interwell prediction limit. Cadmium and cobalt were identified as SSL-related constituents in only BRGWC-50 based on data from March 2018 and March 2020.

3.1.1 Groundwater Data

For the initial risk screening evaluation, groundwater data from samples collected between March 2018 through March 2020 from the on-site well that was identified to have SSL-related constituents, cadmium and cobalt, was used in the risk screening evaluation for hypothetical off-site residential exposure. Monitoring well BRGWC-50 is the single well that was previously identified to have SSL-related constituents under the State and Federal CCR rules. Analytical data for cadmium and cobalt from BRGWC-50 were screened against relevant health-protective screening criteria.

The well with SSL-related constituents is depicted on **Figure 2** and the groundwater dataset used in the risk evaluation is presented in **Appendix B-1**. Method detection limits for the groundwater datasets used in the risk evaluation were reviewed and confirmed to be less than the screening levels.

Groundwater data used in the risk screening level evaluation is considered to be representative of groundwater conditions at the site. The downgradient groundwater monitoring wells and piezometers included in the risk evaluation are depicted on **Figure 6**. The well used to assess hypothetical off-site residential exposure includes the well with SSL-related constituents, BRGWC-50.

The groundwater dataset used in the risk evaluation is presented in **Appendix B-1**. Method detection limits for the groundwater datasets used in the risk evaluation were reviewed and confirmed to be less than the screening levels.

3.1.2 Background Groundwater Quality

Statistical analysis of groundwater monitoring data are performed at the site pursuant to §257.93-95 following the established statistical method from the Unified Guidance (USEPA, 2009) for AP-BCD; background values are routinely updated under the program. Three monitoring wells in the certified monitoring well network are designated as upgradient (background) locations for AP-BCD, including BRGWA-12S, BRGWA-12I, and BRGWA-23S. In April 2020, the five upgradient background monitoring wells for AP-E were added to the AP-BCD groundwater monitoring well network including BRGWA-2S, BRGWA-2I, BRGWA-5S, BRGWA-5I, and BRGWA-6S. Therefore, there are a total of nine upgradient monitoring wells used to develop background values. The statistical analyses performed on the groundwater data were described in the *2019 Annual Groundwater Monitoring & Corrective Action Report*

- *Plant Branch Ash Pond BCD* (Golder Associates, 2020) and text from that document is presented below:

The selected statistical method for AP-BCD was developed in accordance with § 257.93(f) and 391-3-4-.10(6) using methodology presented in Statistical Analysis of Groundwater Data at RCRA Facilities, Unified Guidance (USEPA, 2009). The Sanitas Groundwater statistical software was used to perform the statistical analyses. Sanitas is a decision-support software package that incorporates the statistical tests required of Subtitle C and D facilities by USEPA regulations and guidance as recommended in the USEPA (2009) document.

The following guidance is also applicable to the statistical analysis method:

- *Statistical analyses are not performed on analytes containing 100% non-detects (USEPA Unified Guidance, 2009, Chapter 6).*
- *When data contain less than or equal to 15% non-detects in background, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for non-detects is the practical quantitation limit (PQL) as reported by the laboratory.*
- *When data contain between 15-50% non-detects, a non-detect adjustment such as the Kaplan-Meier or*
- *Regression on Order Statistics (ROS) method for adjustment of the mean and standard deviation will be used prior to constructing a parametric prediction limit.*
- *Nonparametric prediction limits are used on data containing greater than 50% non-detects*

Naturally occurring or site-specific background concentrations can exceed health-protective screening criteria. Therefore, site-specific background values were used as the groundwater screening values if background concentrations were identified as greater than the groundwater screening values, as further described in Section 3.2.

3.2 Groundwater Screening Evaluation

The process of screening constituents detected in groundwater against human health screening levels for groundwater is discussed below and presented in **Figure 7**. The HSRA RRS evaluated under the VRP approach presented herein included Type 1 and

Type 2 standards for off-site residential receptors. The Hazardous Site Response Act. Rule 391-3-19.07(1) notes that “[a]ll risk reduction standards will, when implemented, provide adequate protection of human health and the environment.” In addition, Rule 391-3-19.07(3) notes a corrective action, if needed, may be considered complete when “a site meets any or a combination of the applicable risk reduction standards described in Rule 391-3-19-.07.”

In accordance with standard methodologies approved by the Georgia EPD, the screening level hierarchy for the SSL-related constituents is as follows:

- The higher of the Type 1 or Type 2 RRS for hypothetical off-site residential exposure, which are considered protective of human health for those constituents regulated under HSRA (cadmium).
- The Type 2 RRS was used for cadmium, which is the lower of the calculated carcinogenic and non-carcinogenic values derived using the default exposure factors for residential receptors and the methodology found in Appendix III of the HSRA rule (EPD, 2018b). Toxicity values for cadmium used for the Type 2 RRS calculations were identified in the Integrated Risk Information System (IRIS) (USEPA, 2020c). The risk-based Type 2 RRS was calculated using USEPA’s RSL calculator (USEPA, 2020b) assuming a target cancer risk of 1×10^{-5} and a target hazard quotient of 1, consistent with Georgia EPD guidance (EPD, 2018b). The calculation of Type 2 RRS values is presented in **Appendix C**.
- If site-specific background concentrations are greater than the criteria described above, then the site-specific background concentration is used as the screening level in accordance with the CCR rule methodology for development of groundwater protection (USEPA, 2020b). The background concentration for cobalt is greater than the criteria described above. Therefore, the background value was used as a screening level for cobalt in this evaluation.

Groundwater data collected from the wells identified to have SSL-related constituents were compared to residential screening criteria in order to protect potential future hypothetical off-site receptors. Concentrations of cadmium and cobalt in BRGWC-50 were compared to the HSRA Type 2 RRS and background values for groundwater.

Table 1 presents the maximum detected concentration of each SSL-related constituent. The maximum cadmium concentration of 0.087 mg/L and maximum cobalt concentration of 1.5 mg/L were used to represent potential off-site groundwater quality for comparison

to the risk-based cadmium screening level of 0.0092 mg/L and the background value for cobalt of 0.0135 mg/L for the hypothetical off-site residential receptors. As noted in **Table 1**, cadmium and cobalt were detected at concentrations that exceeded their screening level and were retained for further evaluation in the refined risk evaluation.

4 REFINED RISK EVALUATION

A refined risk evaluation was conducted for the groundwater COPIs (cadmium and cobalt) that were detected in BRGWC-50 at concentrations that exceeded the health-protective screening criteria. The refined risk evaluation identified an EPC for potential exposure to cadmium and cobalt for the purposes of characterizing potential risk to human receptors.

4.1 Refined Groundwater Risk Evaluation

Potential risk associated with exposure to cadmium and cobalt by hypothetical off-site residential receptors was refined using the methodology described in the HSRA and VRP guidance (EPD, 2018b; EPD, 2009) and is presented in the following section and on **Figure 8**.

For the refined risk evaluation, groundwater data from samples collected between March 2018 and March 2020 from the on-site well identified to have SSL-related constituents, BRGWC-50, and downgradient piezometers that represent groundwater flow in the same hydrologically downgradient direction (PZ-51I and PZ-51S) were used for hypothetical off-site residential exposure.

Groundwater data used in the risk screening level evaluation were considered to be representative of groundwater conditions at the site. The groundwater dataset used in the refined risk evaluation is presented in **Appendix B-1**.

4.1.1 Groundwater Exposure Point Calculation

The refined risk evaluation for cadmium and cobalt included the development of an EPC. The EPC is a conservative estimate of potential exposure that is selected to address uncertainty and variability in the dataset (USEPA, 2002). Consistent with USEPA guidance for developing groundwater EPCs (USEPA, 2014), 95 percent upper confidence limits of the arithmetic mean (UCLs) were calculated using USEPA ProUCL 5.1 software (ProUCL) (USEPA, 2016) and the ProUCL User's Guide (USEPA, 2015a). For the refined risk evaluation, the UCLs for the COPIs in groundwater were calculated for the following specific datasets:

- UCLs were calculated for the individual well BRGWC-50 to determine if the UCL complies with the screening level;

- UCLs were calculated based on combined data from BRGWC-50 and other wells/piezometers in the general vicinity to include additional downgradient monitoring wells/piezometers (PZ51I and PZ-51S) that represent groundwater flow in the same hydrologically downgradient direction; and
- UCLs were calculated based on the combined data from the farthest downgradient wells that are hydrologically downgradient of the well with SSL-related constituents, PZ-51I and PZ-51S.

Other assumptions made in the calculations of the UCLs include:

- Primary samples (no duplicates) were used to calculate EPCs as duplicate samples were analyzed for quality assurance purposes.
- If the calculated UCL exceeded the maximum detected concentration, then the maximum detected concentration was used as the EPC.

ProUCL software calculates multiple UCLs and provides a recommended UCL which was selected as the EPC. If there were multiple UCLs recommended by ProUCL, the maximum UCL value was selected. **Appendix D-1** provides a detailed summary of the UCLs calculated using the methods described above, and **Appendix D-2** presents figures showing the wells used in the calculation of the EPCs for each groundwater COPI. **Appendix D-3** provides the input and output files associated with the ProUCL software.

Table 2 summarizes the groundwater EPCs selected for cadmium and cobalt. This table shows the number of samples, the maximum detected concentration, the UCL recommended by ProUCL software, and the selected EPC.

4.1.2 COPI Concentration Trend Analysis

Concentration trends over time were evaluated as one line of evidence in the refined risk evaluation for cadmium and cobalt. The Mann-Kendall trend test with an alpha value equal to 0.05 and the Theil-Sen line test were conducted on the data from BRGWC-50 between March 2018 and March 2020 for cadmium and cobalt to evaluate the trends in concentrations over time. The tests were conducted using the USEPA ProUCL 5.1 software (USEPA, 2016).

The Mann-Kendall and Thiel-Sen results are presented on time series graphs and the ProUCL inputs and outputs are provided in **Appendix D-4**.

The Mann-Kendall test for cadmium concentrations in BRGWC-50 indicated that there was statistically significant evidence of a decreasing trend at the specified level of significance. The highest detected concentrations in the well were from samples in 2018 with more recent concentrations in 2020 approximately an order of magnitude lower than the maximum concentration in BRGWC-50.

Two piezometers are downgradient of BRGWC-50, PZ-51I and PZ-51S. Three samples were collected from the downgradient piezometers from August 2018 to October 2019. PZ-51I had three detections of cadmium, all below the screening level. PZ-50S had no detections of cadmium and the reporting limits for the samples were all below the screening level. Based on these data, cadmium is delineated in on-site groundwater.

The Mann-Kendall test for cobalt concentrations in BRGWC-50 indicated that there was insufficient evidence to identify a trend. Samples collected from BRGWC-50 had concentrations approximately an order of magnitude above the screening level.

Two piezometers are downgradient of BRGWC-50, PZ-51I and PZ-51S. Three samples were collected from the downgradient piezometers from August 2018 to October 2019. PZ-51S samples had cobalt concentrations below the screening level, but PZ-51I samples had cobalt concentrations above the screening level. Accordingly, cobalt was not delineated to its health-protective criterion in on-site groundwater and therefore surface water risk screening was performed, as described in Section 3.2.

Mann Kendall trend analysis requires four data points with at least three detections. Trends may be evaluated at the farthest downgradient piezometers from the well with SSL-related constituents, if necessary, after additional sampling events are conducted at the following downgradient locations: PZ-51I and PZ-51S.

4.1.3 Refined Groundwater Risk Evaluation Results

Cadmium and cobalt were identified as groundwater COPIs in the initial risk screening. In the refined risk evaluation, comparison of the calculated EPC to the screening level was used to identify constituents of interest (COIs) that may pose a potential risk to hypothetical off-site residential receptors exposed through the potential use of groundwater as potable water. If the EPC from the farthest downgradient well(s) is greater than the respective screening level, then the constituent is identified as having the potential for risk that warrants additional evaluation (e.g., performing a surface water evaluation).

4.1.3.1 Cadmium

Cadmium was detected in 11 out of 11 groundwater samples in well BRGWC-50 at concentrations that exceeded the off-site groundwater screening level for residential receptors. For the refined risk evaluation, the following EPCs were calculated for cadmium using the monitoring wells/piezometers shown in **Appendices D-1** and **D-2**:

- Data from BRGWC-50 were combined to determine if the UCL complied with the screening level (EPC Step 1 in **Appendix D-1**).
- Data from BRGWC-50 and the downgradient piezometers PZ-51I and PZ-51S were combined to represent groundwater exposure in the same hydrologically downgradient direction (EPC Step 2 in **Appendix D-1**).
- Data from PZ-51I and PZ-51S were combined to represent groundwater exposure using the wells that are the farthest hydrologically downgradient of wells BRGWC-50 (EPC Step 3 in **Appendix D-1**).

The UCLs for the dataset for BRGWC-50 of 0.0509 mg/L and the combined dataset from BRGWC-50, PZ-51I and PZ-51S of 0.0354 mg/L exceeded the cadmium screening level of 0.0092 mg/L. The UCL for the dataset of the farthest hydraulically downgradient wells (PZ-51I and PZ-51S) of 0.00149 mg/L is below the screening level of 0.0092 mg/L.

Table 3 presents the results of the refined screening comparing the farthest hydrologically downgradient EPC to the screening criterion. Cadmium was not identified as a groundwater COI for hypothetical off-site residential receptors and is not expected to pose a risk to human health through potential potable water use.

4.1.3.2 Cobalt

Cobalt was detected in 11 out of 11 groundwater samples in well BRGWC-50 at concentrations that exceeded the off-site groundwater screening level for residential receptors. For the refined risk evaluation, the following EPCs were calculated for cadmium using the monitoring wells/piezometers shown in **Appendices D-1** and **D-2**:

- Data from BRGWC-50 was used to determine if the UCL complied with the screening level (EPC Step 1 in **Appendix D-1**).

- Data from BRGWC-50 and the downgradient piezometers PZ-51I and PZ-51S were combined to represent groundwater exposure in the same hydrologically downgradient direction (EPC Step 2 in **Appendix D-1**).
- Data from PZ-51I and PZ-51S were combined to represent groundwater exposure using the wells that are the farthest hydrologically downgradient of wells BRGWC-50 (EPC Step 3 in **Appendix D-1**).

The EPC for BRGWC-50 of 1.429 mg/L exceeded the screening level of 0.0135 mg/L. The EPC for the combined dataset from BRGWC-50, PZ-51I and PZ-51S was the maximum detected value of 1.5 mg/L and exceeded the screening level of 0.0135 mg/L for cobalt. The EPC for PZ-51I and PZ-51S combined of 0.0271 mg/L was above the screening level of 0.0135 mg/L for cobalt.

Table 3 presents the results of the refined screening comparing the farthest hydrologically downgradient EPC to the screening criterion. Cobalt was identified as a COI in groundwater and is further evaluated below.

4.2 Surface Water Risk Evaluation

A surface water screening evaluation was conducted for Lake Sinclair for the only groundwater COI (cobalt) identified in the downgradient in the refined groundwater risk evaluation. The surface water screening process is discussed below and presented in **Figure 9**.

Both human and ecological receptors have the potential to come into contact with surface water. Routes of exposure include ingestion of aquatic organisms (mainly fish) and potential incidental ingestion and dermal contact with surface water by adult and child recreational receptors. Potential routes of exposure for ecological receptors include direct contact to surface water and ingestion by aquatic receptors.

4.2.1 Surface Water Data

Surface water data for cobalt come from samples collected during a March 2018 sampling event at five locations in Lake Sinclair. The surface water sample locations are shown on **Figure 10**. The surface water dataset used in the risk evaluation is presented in **Appendix B-2**.

4.2.2 Human Health Screening

The following hierarchy of sources was considered in the process of selecting the surface water human health screening value for cobalt:

- Georgia In-Stream Water Quality Criteria (ISWQC) for human health (EPD, 2015).
- National Ambient Water Quality Criteria (NAWQC) for human health protective through ingestion of water and organisms (USEPA, 2015b). For select constituents for which no numerical values for surface water are provided, USEPA (2015b) states that “EPA has issued an MCL [Maximum Contaminant Level] which may be more stringent” suggesting the use of the MCL for surface water screening. This is a conservative approach.
- In accordance with standard practice using methodologies approved by the Georgia EPD, the higher of the residential groundwater screening levels described in Section 3.2.2 was used for the remaining constituents due to lack of human health surface water screening levels for these constituents, which is a conservative approach.
- Maximum detected upstream concentration if the maximum upstream surface water concentration is greater than the surface water screening value.

For cobalt the higher of the residential groundwater screening levels described in Section 3.2 was used because of the lack of human health surface water screening levels for Georgia ISWQC (EPD, 2015) and national ambient water quality criteria (USEPA, 2015a). The Type 2 RRS was used as a screening value for cobalt; the site-specific use of drinking water screening levels for surface water exposure is a conservative approach likely to overestimate risk as domestic use of Lake Sinclair surface water downgradient of the site for human receptors is an incomplete exposure pathway.

The surface water maximum concentration for cobalt (<0.005 mg/L) was compared to the human health screening level (0.006 mg/L), as shown in **Table 4**. Cobalt was not detected in the surface water samples and the reporting limit was below the surface water human health screening level. Therefore, cobalt was not retained as a human health COPI in surface water and is not expected to pose a risk to human health

4.2.3 Ecological Screening

Surface water screening values for aquatic ecological receptors were selected from the following order of hierarchy for the COPIs:

- Chronic freshwater Georgia ISWQC (EPD, 2015), when available.
- USEPA Region 4 chronic freshwater screening levels (USEPA, 2018).
- Maximum detected upstream concentration if the maximum upstream surface water concentration is greater than the surface water screening value.

Because cobalt does not have chronic freshwater Georgia ISWQC for ecological receptors (EPD, 2015), USEPA Region 4 chronic freshwater screening levels for total concentrations (USEPA, 2018) were used in the surface water ecological screening for aquatic ecological receptors.

The ecological surface water screening level (0.019 mg/L) was compared to the maximum reporting limit for cobalt (<0.005 mg/L) in surface water, as shown in **Table 5**. Cobalt was not detected in surface water and the analytical reporting limits for all samples were lower than the ecological screening criteria. Therefore, cobalt was not retained as a COPI in surface water for further evaluation and is not expected to pose a risk to ecological receptors.

4.2.4 Refined Groundwater and Surface Water Risk Evaluation Summary and Conclusions

Detections of cadmium and cobalt were reported at concentrations above the corresponding groundwater screening values. The results of the refined groundwater and surface water risk evaluations indicate the following:

- Cadmium was not identified as a groundwater COI for hypothetical off-site residential receptors and is not expected to pose a risk to human health.
- Cobalt was identified as a groundwater COI for hypothetical off-site residential receptors and was evaluated further in adjacent surface water in Lake Sinclair for potential exposure of human and ecological receptors.
- Cobalt was not detected in surface water samples from Lake Sinclair and the analytical reporting limits were below health-protective surface water screening

criteria for human and ecological receptors. Therefore, cobalt was not retained as a COPI in surface water for further evaluation and is not expected to pose a risk to human health or ecological receptors.

Based on the multiple lines of evidence and various conservative assumptions, further risk evaluation for groundwater and surface water is not warranted. Compliance monitoring under the State CCR rule will continue.

5 UNCERTAINTY ASSESSMENT

USEPA guidance stresses the importance of providing an analysis of uncertainties so that risk managers are better informed when evaluating risk assessment conclusions (USEPA, 1989). The uncertainty assessment provides a better understanding of the key uncertainties that are most likely to affect the risk assessment results and conclusions.

The potential uncertainties associated with the risk evaluation are as follows:

Health-Protective Screening Criteria Uncertainties:

The potential uncertainties associated with the risk evaluation are as follows:

- In accordance with standard methodologies approved by the Georgia EPD, an equivalent Type 2 risk-based value was selected as the screening criterion for cadmium. Selection of the screening criteria is considered appropriate for risk quantification for AP-BCD. The Hazardous Site Response Act, Rule 391-3-19.07(1) notes that “[a]ll risk reduction standards will, when implemented, provide adequate protection of human health and the environment.” Thus, this approach is likely to overestimate hypothetical risks for off-site receptors.
- Screening criteria based on RRS, including cadmium, represent the reasonable maximum exposure (RME), which are the highest exposures that are reasonably expected to occur at a site. The RME is defined as “the highest exposure that is reasonably expected to occur at a site but that is still within the range of possible exposures” (USEPA, 1989). USEPA (1989) states that the “intent of the RME is to estimate a conservative exposure case (i.e., well above the average case) that is still within the range of possible exposures.” Potential receptors will likely have lower exposures than those presented in this risk evaluation (i.e., a majority of the site concentrations will be less than the UCL), which overestimates potential exposure.

Exposure Uncertainties:

- The maximum detected concentrations of cadmium and cobalt were compared to conservative risk-based screening criteria to identify the COPIs. Use of the maximum detected concentration is consistent with standard practice; however, use of the maximum detected concentration for exposure likely overestimates potential risk.

- The constituents included in the risk evaluation, cadmium and cobalt, may occur naturally in the site geologic setting. Although background concentrations were evaluated and used in the screening process, contributions to exposure and risk were assumed to be entirely CCR-related and natural background sources were not quantified. Thus, cadmium and cobalt exposures were likely overestimated.
- Hypothetical off-site residential exposure was evaluated using on-site groundwater data from wells around the perimeter and downgradient of AP-BCD. This comparison makes the conservative assumption that on-site groundwater may potentially migrate to off-site drinking water wells through advective transport in groundwater, but without any attenuation within the aquifer media through factors such as dilution, dispersion, or adsorption. This assumption may overestimate potential exposure and risk to hypothetical off-site receptors.
- EPCs for metals in groundwater were assumed to be 100 percent bioavailable by ingestion and dermal contact. This assumption may tend to overestimate risk.
- A well survey of potential groundwater wells within a three-mile radius of the site was conducted by NewFields in 2019 and consisted of reviewing publicly available federal, state, and county records as well as a windshield survey of the area (**Appendix A**). Geosyntec relied on the data collected by NewFields.
- The evaluation used on-site groundwater data to represent hypothetical off-site exposure, which is a conservative approach that likely results in overestimation of assumed exposure and assumed potential risk. Although off-site potable wells identified in the well survey were not included in the risk evaluation, the presence of these wells do not appear to impact the conclusions of the risk evaluation because concentrations of COPs are either delineated in on-site groundwater or adjacent surface water.

Toxicity Uncertainties:

- Toxicity factors used to calculate health-protective criteria are established at conservative levels to account for uncertainties and often result in criteria that are many times lower than the levels observed to cause effects in human or animal studies. Therefore, a screening level exceedance does not necessarily equate to an adverse effect.

6 CONCLUSIONS

This human health and ecological risk evaluation for CCR constituents in groundwater exhibiting SSLs was conducted using methods consistent with Georgia EPD and USEPA guidance and included multiple conservative assumptions. As noted above, this risk evaluation addressed only cadmium and cobalt because they were the only CCR constituents identified as SSL-related constituents during compliance groundwater monitoring. Based on this evaluation, cadmium and cobalt are not expected to pose a risk to human health or the environment.

Accordingly, no further assessment of groundwater or surface water is recommended. Compliance monitoring for AP-BCD under the State CCR rule will continue. Georgia Power will proactively evaluate the data and update this evaluation, if necessary.

7 REFERENCES

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TABLES

Table 1
SSL-Related Constituent Groundwater Screening
Plant Branch AP-BCD Risk Evaluation Report^[1]
Plant Branch, Milledgeville, GA

CCR Rule Designation	Constituent	CAS No.	Detection Frequency	Exceedance Frequency ^[2]	Maximum Concentration (mg/L)	Screening Level (mg/L)	Source ^[3]	Site-Specific Background (mg/L)	COPI? (Y/N)	Rationale ^[4]
Appendix IV	Cadmium ^[5]	7440-43-9	29 / 114	9 / 114	0.087	0.0092	Type 2 RRS	0.003	Y	ASL ^[6]
	Cobalt	7440-48-4	85 / 114	19 / 114	1.5	0.0135	Background	0.0135	Y	ASL ^[6]

Notes:

[1] Evaluation includes March 2018 through March 2020 groundwater analytical data from downgradient well BRGWC-50.

[2] Selected exceedance frequency is for the specific constituent that exceeds the screening value.

[3] The screening values are the maximum value from the following sources:

- Type 1 RRSs listed in HSRA Appendix III, Table 1 (HSRA-regulated substances only).
- Type 2 RRSs are calculated by the EPA RSL calculator with exposure factors inputs from HSRA Appendix III.
- Site-Specific values calculated using the USEPA RSL calculator with default residential exposure factor listed in the RSL Users Guide.
- Site-specific background levels for Antimony and Cobalt were calculated as described in Georgia EPD rule 391-3-4-.10(6)(a).

[4] Rationale for classification of constituent as a COPI or exclusion as a COPI:

ASL = Above respective screening level

BSL = Equal to or below respective screening level

[5] The Type 2 RRS for cadmium is based on the "cadmium (water)" parameter in the EPA RSL calculator.

[6] Cadmium exceedances located at BRGWC-50 (2018-2020), Cobalt exceedances located at BRGWC-50 (2018-2020).

Definitions:

Grey shading = Constituent concentration(s) exceeded its respective screening level in the dataset.

CAS = Chemical Abstract Service

CCR = Coal Combustion Residuals

COPI = Constituent of Potential Interest

EPA = United States Environmental Protection Agency

GA EPD= Georgia Environmental Protection Division

HSRA = [GA EPD] Hazardous Site Response Act

mg/L = milligram(s) per liter

RRS = [GA EPD] Risk Reduction Standard

RSL = [EPA] Regional Screening Level

Table 2
Groundwater Exposure Point Concentration Summary
Plant Branch AP-BCD Risk Evaluation Report
Plant Branch, Milledgeville, GA

CCR Rule Designation	Constituent	CAS No.	Exposure Unit	Detection Frequency	Maximum Concentration (mg/L)	95% UCL (mg/L)	Recommended UCL Method	Selected EPC ^[1] (mg/L)
Appendix IV	Cadmium	7440-43-9	Pond B	3 / 6	0.0016	0.00149	95% KM (t) UCL	0.00149
	Cobalt	7440-48-4	Pond B	6 / 6	0.041	0.0271	95% Student's-t UCL	0.0271

Notes:

[1] Groundwater exposure point concentrations (EPCs) calculated in accordance with EPA, 2014. Memorandum for Determining Groundwater Exposure Point Concentrations, Supplemental Guidance. OSWER Directive 9283.1-42, February 2014. Located at: <https://cfpub.epa.gov/ncea/risk/recorddisplay.cfm?deid=236917>. For further detail on the selected EPC, refer to Appendix D.

Definitions:

CAS = Chemical Abstract Service
 CCR = Coal Combustion Residuals
 mg/L = milligrams per liter
 95% UCL = 95 percent upper confidence limit
 EPC = Exposure Point Concentration

Table 3
Downgradient Groundwater Residential Refined Evaluation
Plant Branch AP-BCD Risk Evaluation Report
Plant Branch, Milledgeville, GA

CCR Rule Designation	Constituent	CAS No.	Exposure Unit	Detection Frequency	Exceedance Frequency ^[1]	Selected EPC (mg/L)	Screening Level (mg/L)	Source ^[2]	Site-Specific Background (mg/L)	COI? (Y/N)	Rationale ^[3]
Appendix IV	Cadmium ^[4]	7440-43-9	Pond B	3 / 6	0 / 6	0.00149	0.0092	Type 2 RRS	0.001	N	BSL
	Cobalt	7440-48-4	Pond B	6 / 6	3 / 6	0.0271	0.014	Background	0.014	Y	ASL

Notes:

[1] The exceedance frequency is based on the number of samples with detected concentrations that exceed the identified screening level.

[2] The screening values are the maximum value from the following sources:

- Type 1 RRSs listed in HSRA Appendix III, Table 1 (HSRA-regulated substances only).
- Type 2 RRSs calculated using the USEPA RSL calculator with default residential exposure factor listed in the RSL Users Guide (HSRA-regulated substances only).
- Site-Specific values calculated using the USEPA RSL calculator with default residential exposure factor listed in the RSL Users Guide.
- Site-specific background levels for each constituent were calculated as described in Georgia EPD rule 391-3-4-.10(6)(a)

[3] Rationale for classification of constituent as a COI or exclusion as a COI:

- ASL = Above respective screening level
- BSL = Below respective screening level

[4] The Type 2 RRS for cadmium is based on the "cadmium (water)" parameter in the EPA RSL calculator.

Definitions:

Grey shading = Constituent concentration(s) exceeded its respective screening level in the dataset.

CAS = Chemical Abstract Service

CCR = Coal Combustion Residuals

COPI = Constituent of Potential Interest

EPA = United States Environmental Protection Agency

GA EPD= Georgia Environmental Protection Division

HSRA = [GA EPD] Hazardous Site Response Act

mg/L = milligram(s) per liter

RRS = [GA EPD] Risk Reduction Standard

RSL = [EPA] Regional Screening Level

Table 4
Surface Water Human Health Screening
Plant Branch AP-BCD Risk Evaluation Report
Plant Branch, Milledgeville, GA

CCR Rule Designation	Constituents	CAS No.	Detection Frequency ^[1]	Exceedance Frequency ^[2]	Maximum Concentration ^[3] (mg/L)	Screening Level (mg/L)	Source ^[4]	Site-Specific Background (mg/L)	COPI? (Y/N)	Rationale ^[5]
Appendix IV	Cobalt	7440-48-4	0 / 5	0 / 5	<0.005	0.006	Type 2 RRS	<0.005	N	ND/BSL

Notes:

- [1] Evaluation includes 2018 surface water analytical data from LR-1, LR+7A, LR+7B, LR+7.5, and LR+8B.
- [2] Selected exceedance frequency is for the specific constituent that exceeds the screening value.
- The hierarchy of screening values is GA ISWQC > NRWQC > The maximum between the Type 1 and Type 2 RRS.
 - If site-specific surface water background concentrations are greater than other applicable screening values, the site-specific background value will be used for screening.
- [3] Values have been adjusted as stated in the GA ISWQC to compare dissolved concentrations to dissolved screening values and total concentrations to total screening values when appropriate. Conversion factors used to calculate dissolved criteria are found in the EPA document – National Recommended Water Quality Criteria – EPA 2006.
- [4] Screening levels were selected from the sources listed below, in the order of preference in which they are listed. If site-specific surface water background concentrations are greater than other applicable screening values, the site-specific background value is used for screening.
1. GA ISWQC = Georgia Instream Water Quality Criteria
 2. NRWQC/MCL = National Recommended Water Quality Criteria/EPA Maximum Contaminant Levels (MCLs)
 3. The maximum drinking water screening values from the following sources:
 - Type 1 RRS for drinking water listed in HSRA Appendix III, Table 1 (HSRA-regulated substances only).
 - Type 2 RRS for drinking water that are calculated by the EPA RSL calculator with exposure factors inputs from HSRA Appendix III.
 - Site-Specific values calculated using the EPA Regional Screening Level (RSL) calculator with default residential exposure factor listed in the RSL Users Guide.
- [5] Rationale for classification of constituent as a COPI or exclusion as a COPI:
- ASL = Above respective screening level;
 - BSL = Below respective screening level.
 - ND = Not detected where the maximum detection limit is below the respective screening level.

Definitions:

- = Not applicable, no data available
- CAS = Chemical Abstract Service
- CCR = Coal Combustion Residuals
- COPI = Constituent of Potential Interest
- EPA = United States Environmental Protection Agency
- GA DNR EPD = Georgia Department of Natural Resources Environmental Protection Division
- GA ISWQC = Georgia Instream Water Quality Criteria
- NRWQC = National Recommended Water Quality Criteria
- RRS = Risk Reduction Standard

Table 5
Freshwater Surface Water Ecological Screening
Plant Branch AP-BCD Risk Evaluation Report
Plant Branch, Milledgeville, GA

CCR Rule Designation	Constituents	CAS No.	Detection Frequency	Exceedance Frequency ^[1]	Maximum Concentration (mg/L)	Screening Value (mg/L) ^[2,3]		Hardness Dependent? (Y/N) ^[4]	Source ^[5]	Site-Specific Background (mg/L)	COPI (Y/N)	Rationale ^[6]
						Total	Dissolved					
Appendix IV	Cobalt	7440-48-4	0 / 5	0 / 5	<0.005	0.019	--	N	EPA Reg. 4	<0.005	N	ND/BSL

Notes:

[1] Selected exceedance frequency is for the specific constituent that exceeds the first screening value in the hierarchy of screening values.

- The hierarchy of screening value sources is GA ISWQC > EPA Region 4.

- If site-specific surface water background concentrations are greater than other applicable screening values, the site-specific background value will be used for screening.

[2] The dissolved fraction screening value and the total concentration screening value are presented with the selected screening value used for comparison to the maximum total concentration in bold.

[3] If the screening value listed in the GA ISWQC or EPA Region 4 sources specified that it is applicable to the dissolved metal concentration, a screening level appropriate for comparison to the total metal concentration was calculated using the conversion factors presented in the *National Recommended Water Quality Criteria, Appendix A* (<https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table#a>).

[4] The conversion from dissolved form screening level to total form screening level required use of hardness (CaCO₃) information. A hardness of 50 mg/L was assumed for conversion from dissolved fraction to total concentration.

[5] The screening values are the maximum value from the following sources:

- GA ISWQC screening values are from GA Administrative Code 391-3-6-.0 (5)(e)(iii).

- EPA Region 4 screening values are from Table 1a of the Region 4 Ecological Risk Assessment Supplemental Guidance (EPA, 2018).

[6] Rationale for classification of constituent as a COPI or exclusion as a COPI:

ASL = Above respective screening level

BSL = Below respective screening level

ND = Not detected where the maximum detection limit is below the respective screening level

Definitions:

-- = Not applicable, no data available

CAS = Chemical Abstract Service

CCR = Coal Combustion Residuals

COPI = Constituent of Potential Interest

EPA = United States Environmental Protection Agency

GA DNR EPD = Georgia Department of Natural Resources Environmental Protection Division

GA ISWQC = Georgia Instream Water Quality Criteria

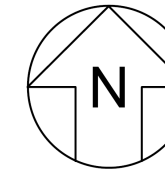
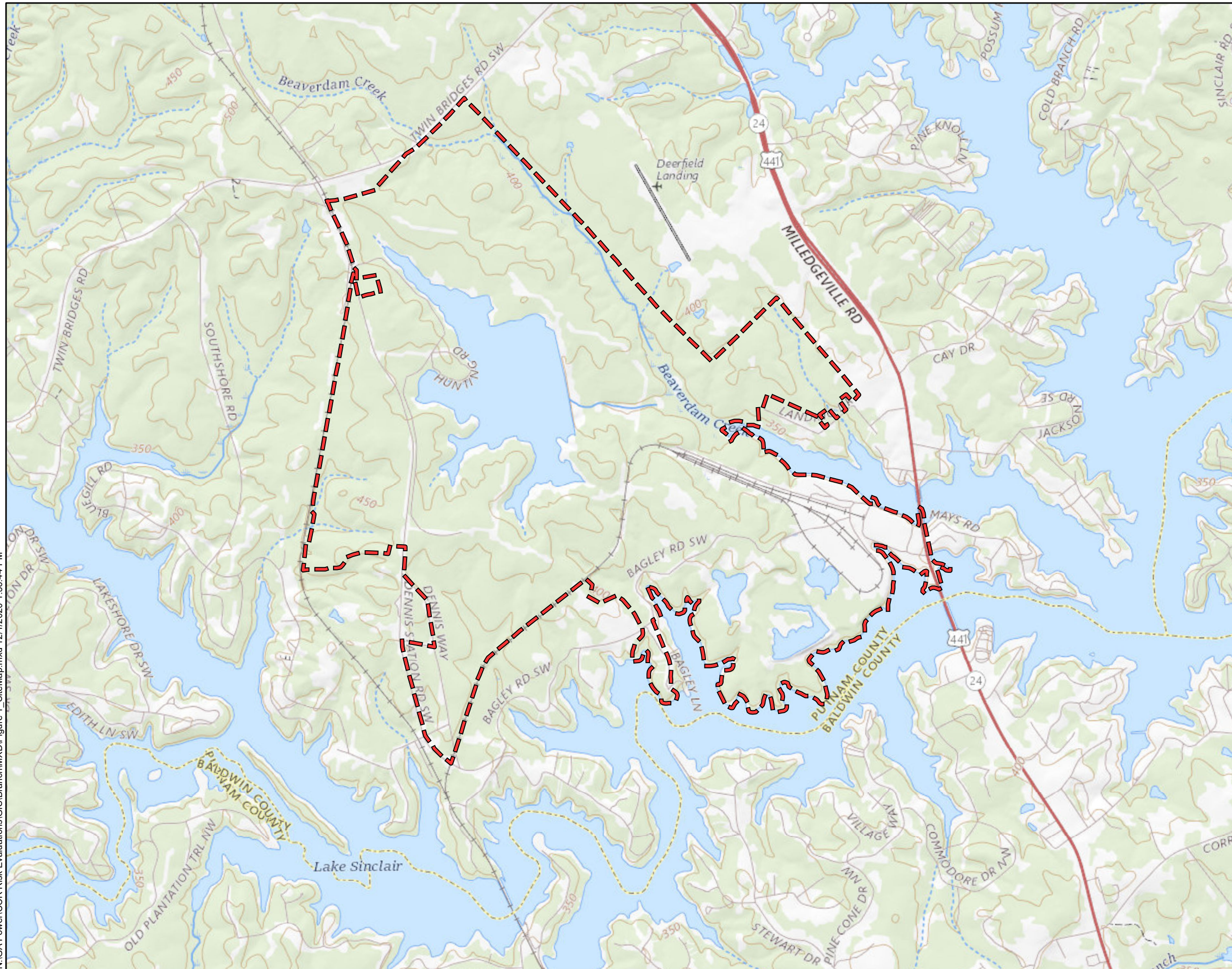
ORNL = Oak Ridge National Laboratory

RRS = Risk Reduction Standard


SWSV = Surface Water Screening Value

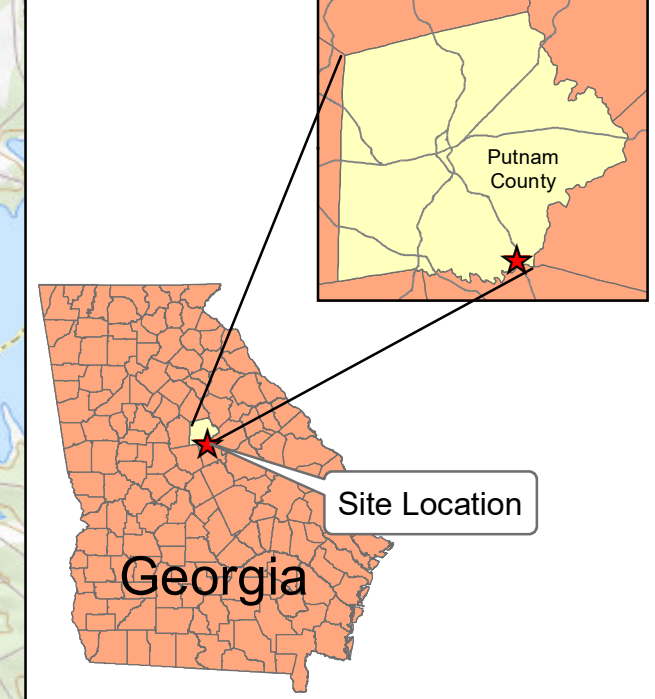
FIGURES

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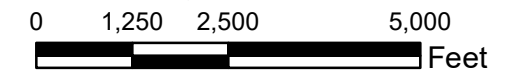


LEGEND

 Approximate Site Boundary



Notes:
 1. Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed May, 2020.



SITE LOCATION

GEORGIA POWER
 PLANT BRANCH
 PUTNAM COUNTY, GEORGIA

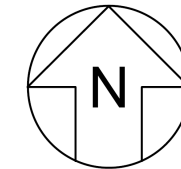
Prepared For:  Georgia Power

Prepared By:  Geosyntec
 consultants

FIGURE
1

KENNESAW, GA DECEMBER 2020

N:\GA Power\CCR Risk Evaluations\GIS\Branch\MXD\Figure 2_Site_Layout_MW_AP_BCD.mxd 12/1/2020 1:40:17 PM

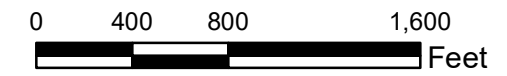


LEGEND

- Pond BCD Monitoring Well
- Piezometer
- Potable Water
- Ash Pond Boundary
- Approximate Site Boundary



- Notes:
1. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
 2. Coordinate System: NAD 1983 State Plane Georgia West (U.S. Feet).
 3. Monitoring Well/Piezometer locations and property line provided by Southern Company Services.

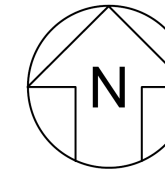


**SITE LAYOUT AND
MONITORING WELL NETWORK
ASH POND BCD**

GEORGIA POWER
PLANT BRANCH
PUTNAM COUNTY, GEORGIA

Prepared For:	FIGURE 2
Prepared By:	
KENNESAW, GA	DECEMBER 2020

N:\GA Power\CCR Risk Evaluations\GIS\Branch\MXD\Figure 3_Pot_AP_BOD.mxd 12/11/2020 1:43:56 PM

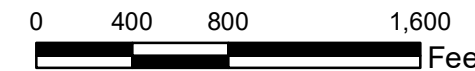


LEGEND

- Pond BCD Monitoring Well
- Piezometer
- Estimated Groundwater Surface Contour (feet AMSL)
- Estimated Groundwater Flow Directions
- Ash Pond Boundary
- Approximate Site Boundary

Notes:

1. Groundwater Surface Contour interval = 10 feet
2. Groundwater contours based on linear interpolation between and extrapolation from known data, and topographic contours. Therefore, contours may not reflect actual conditions.
3. PZ-12D* data not used for contouring.
4. AMSL=above mean sea level.
5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
6. Coordinate System: NAD 1983 State Plane Georgia West (U.S. Feet).
7. Monitoring Well/Piezometer locations, potentiometric surface elevation contours and property line provided by Southern Company Services.



POTENTIOMETRIC SURFACE ELEVATION CONTOURS – ASH POND BCD (JUNE 3, 2020)

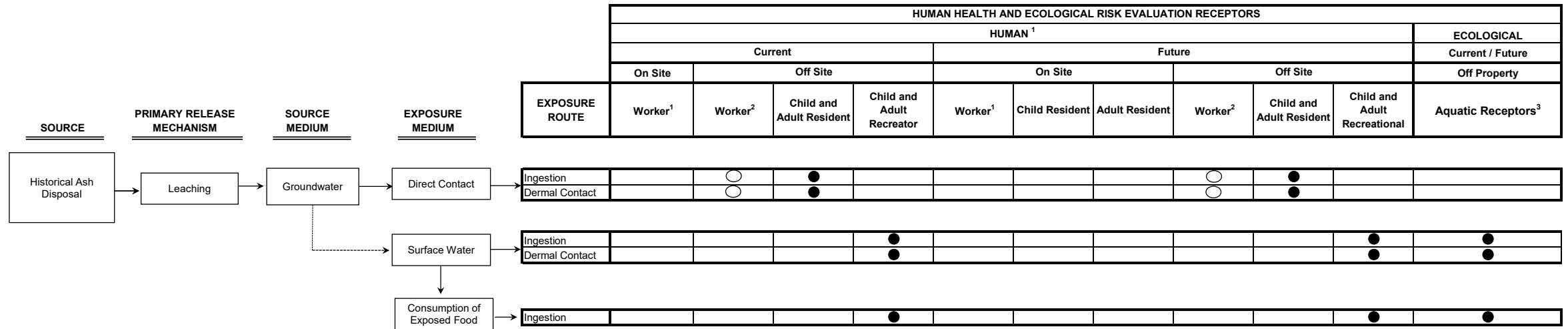
GEORGIA POWER
PLANT BRANCH
PUTNAM COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

FIGURE 3

KENNESAW, GA DECEMBER 2020



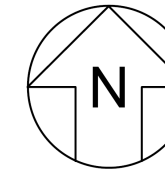
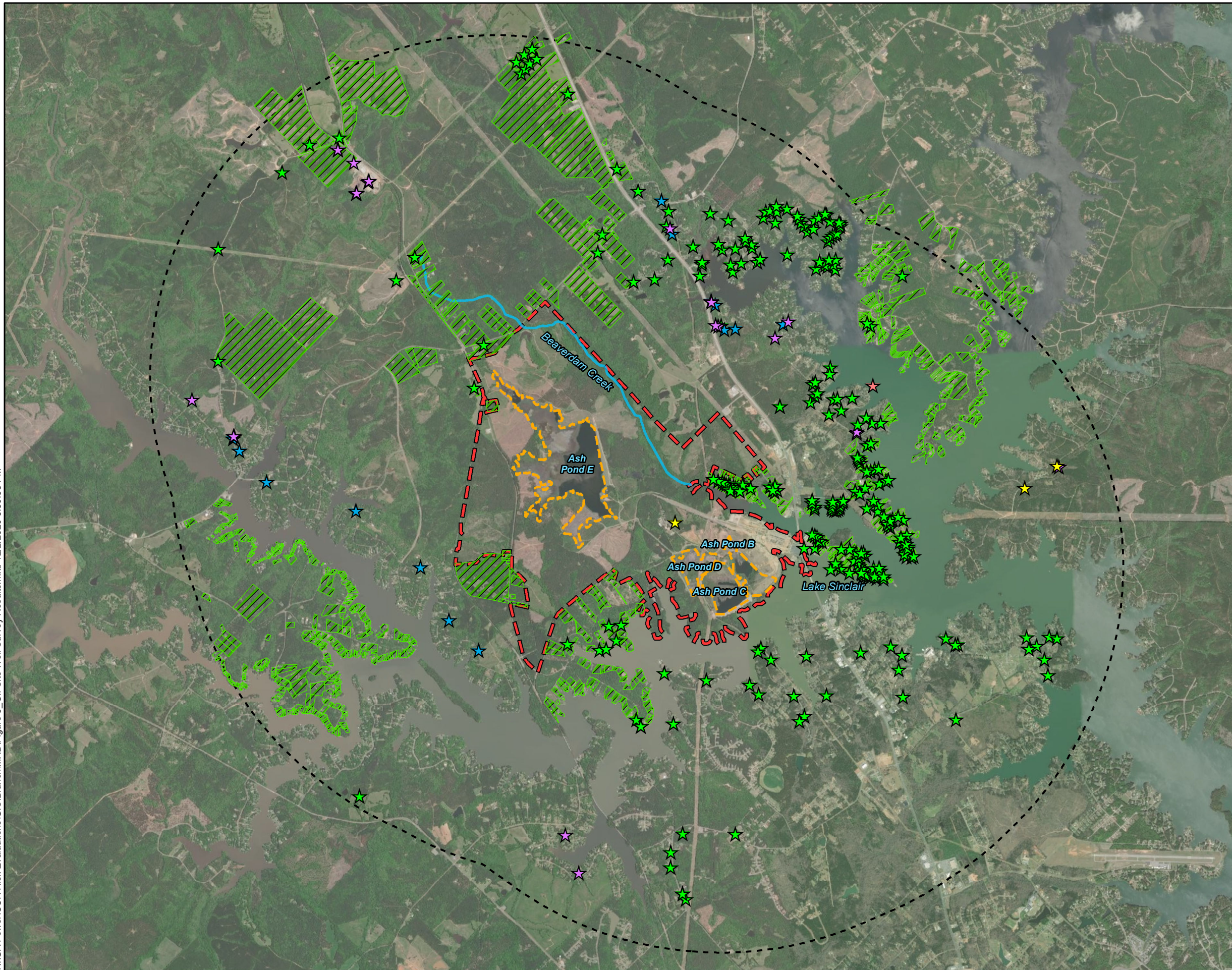
Legend

- > A conservative assumption for this assessment was made that groundwater from the site flows to the downgradient surface water.
- Indicates potentially complete pathway to receptors, which are evaluated quantitatively.
- Indicates potentially complete pathway to receptors, which are evaluated qualitatively.

1. Industrial worker was considered incomplete because there are no wells on-site that are classified for use as potable wells. On-site construction workers would be expected to have little to no direct contact with on-site groundwater due to safety procedures outlined in their site-specific health and safety plans.
 2. Off-site industrial/construction worker addressed through the evaluation of hypothetical off-site residential receptors as health-protective screening levels for residential receptors would be more conservative than industrial and construction worker screening levels.
 3. Generalized receptor for ecological health risk evaluation.

Figure 4 Conceptual Exposure Model		
		PROJ NO. :GZ7112
Kennesaw, GA	December 2020	TASK / PHASE: 5 / 02

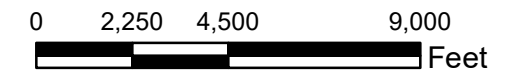
N:\GA Power\CCR Risk Evaluations\GIS\Branch\MXD\Figure 5 - Off-Site Well Survey Results.mxd 12/2/2020 3:50:38 PM



- LEGEND**
- Off Site Wells**
- ★ Private Drinking Well
 - ★ Public Drinking Well
 - ★ Inactive Public Drinking Well
 - ★ Surface Water Intake
 - ★ Monitoring Well
 - ▭ Approximate Ash Pond Boundary
 - ▨ Parcels likely having a Well

Notes:

1. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
2. Coordinate System: NAD 1983 State Plane Georgia West (U.S. Feet).
3. Monitoring Well/Piezometer locations and property line provided by Southern Company Services.



OFF-SITE WELL SURVEY RESULTS

GEORGIA POWER
PLANT BRANCH
PUTNAM COUNTY, GEORGIA

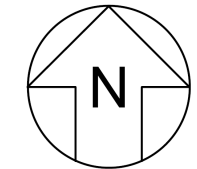
Prepared For:  Georgia Power

Prepared By: 

**FIGURE
5**

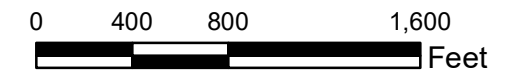
KENNESAW, GA DECEMBER 2020

N:\GA Power\CCR Risk Evaluations\GIS\Branch\MXD\Figure 6_Monitoring Wells Included in Risk Screen_AP_BCD.mxd 12/1/2020 1:46:01 PM



- LEGEND**
- Pond BCD Monitoring Well
 - Monitoring Well Included in Risk Screen
 - Piezometer
 - Piezometer Included in Risk Screen
 - Estimated Groundwater Surface Contour (feet AMSL)
 - Estimated Groundwater Flow Directions
 - Ash Pond Boundary
 - Approximate Site Boundary

- Notes:**
1. Groundwater Surface Contour interval = 10 feet
 2. Groundwater contours based on linear interpolation between and extrapolation from known data, and topographic contours. Therefore, contours may not reflect actual conditions.
 3. PZ-12D* data not used for contouring.
 4. AMSL=above mean sea level.
 5. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
 6. Coordinate System: NAD 1983 State Plane Georgia West (U.S. Feet).
 7. Monitoring Well/Piezometer locations, potentiometric surface elevation contours and property line provided by Southern Company Services.



**MONITORING WELLS
INCLUDED IN RISK SCREEN –
ASH POND BCD**

GEORGIA POWER
PLANT BRANCH
PUTNAM COUNTY, GEORGIA

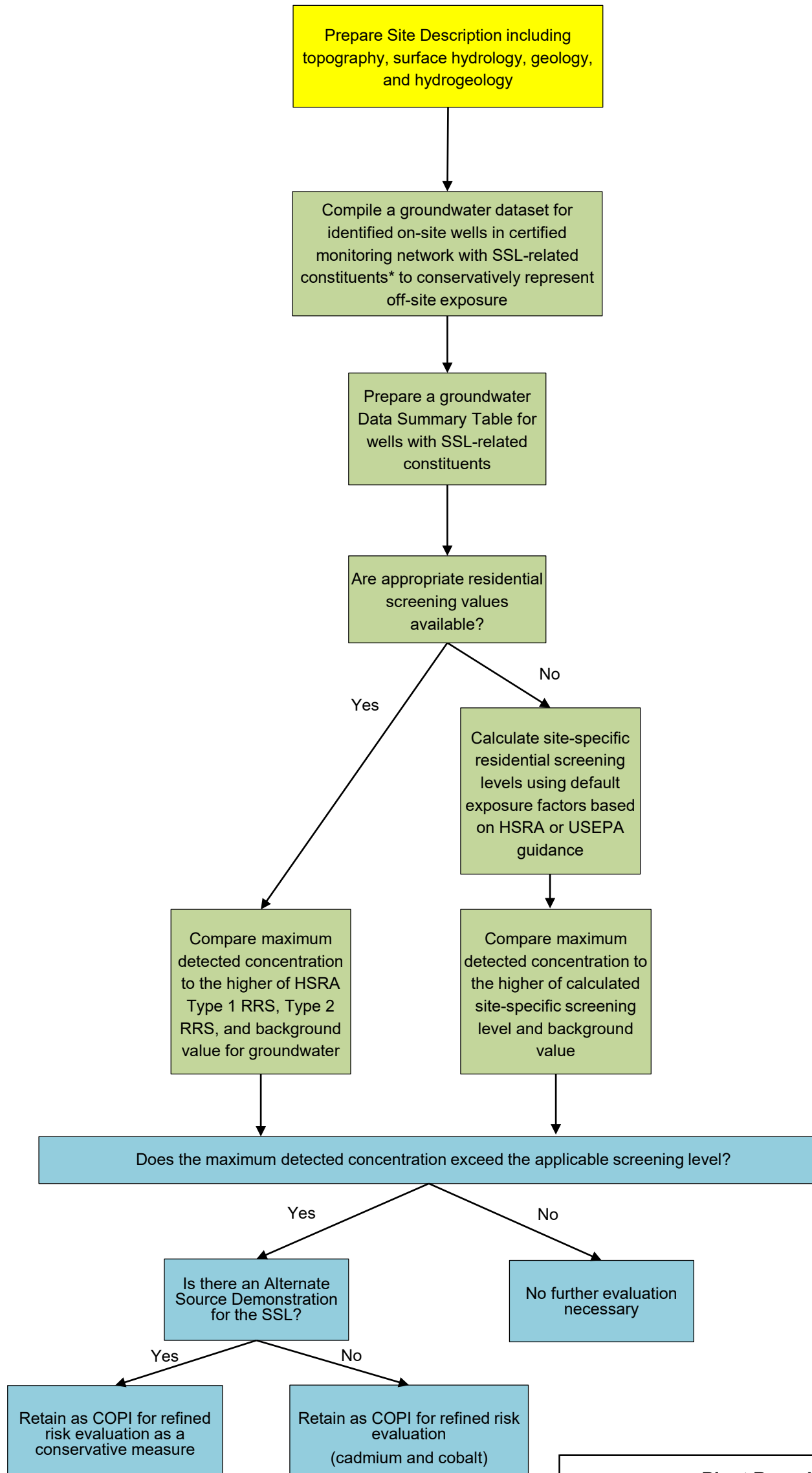
Prepared For: Georgia Power

Prepared By: Geosyntec
consultants

**FIGURE
6**

KENNESAW, GA DECEMBER 2020

Initial Risk Screening Approach (Groundwater) for AP-BCD



Notes:

- Initial screen evaluates wells at AP-BCD with SSLs cadmium and cobalt (BRGWC-50);
- SSL = Statistically Significant Level
- COPI = Constituent of Potential Interest
- HSRA = Hazardous Site Response Act
- RRS = Risk Reduction Standard
- USEPA = United States Environmental Protection Agency

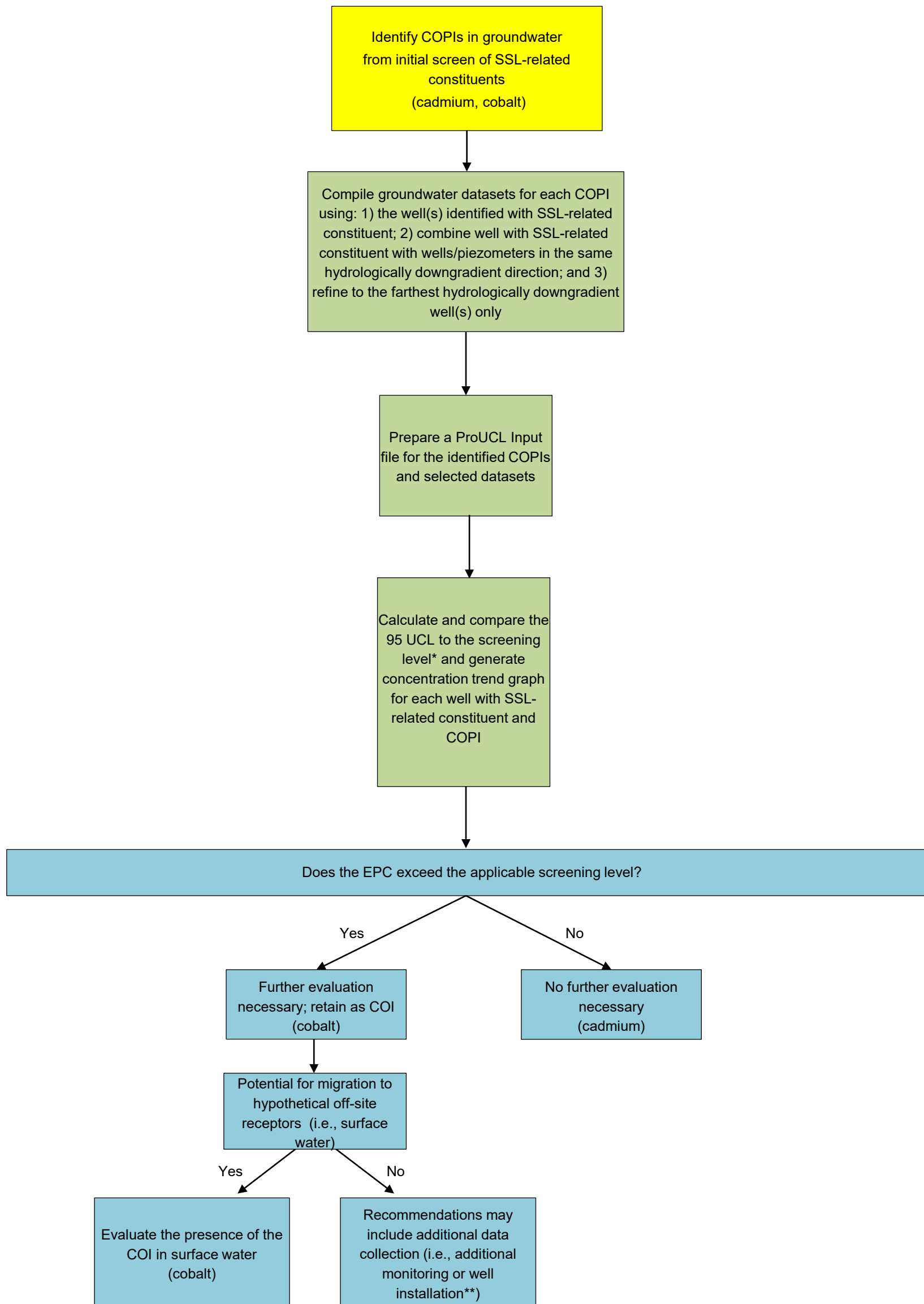
**Plant Branch AP-BCD
Initial Groundwater Risk Screening Approach**

Figure 7

Project Number: GZ7112BR

December 2020

Approach for Refined Risk Evaluation (Groundwater) for AP-BCD



Notes:

*If the 95 UCL exceeds the maximum concentration, use the maximum as the EPC.

**This step is not necessary for Branch AP-BCD.

SSL = Statistically Significant Level

COPI = Constituent of Potential Interest

UCL = Upper Confidence Limit

COI = Constituent of Interest

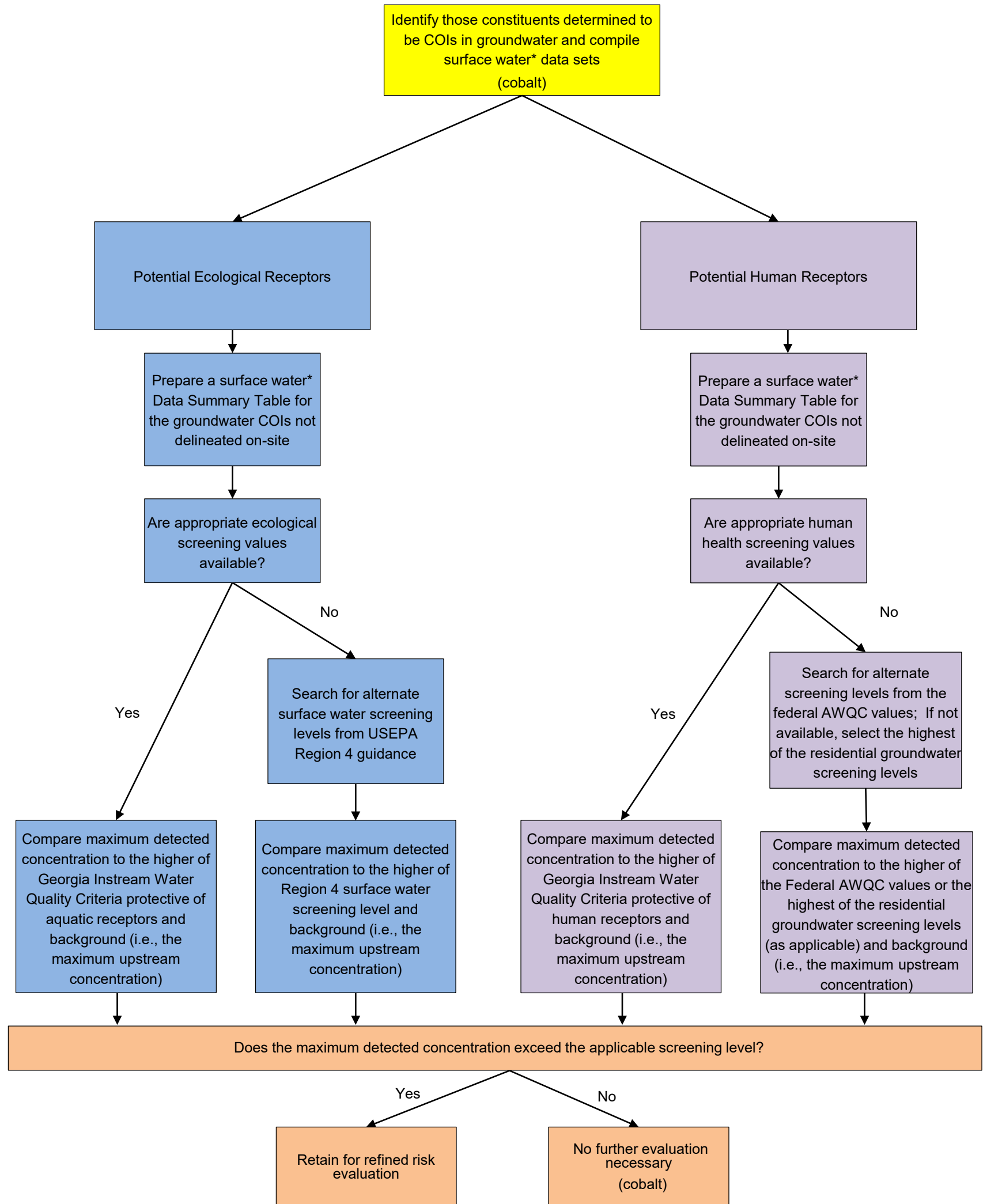
**Plant Branch AP-BCD
Refined Groundwater Risk Evaluation Approach**

Figure 8

Project Number: GZ7112BR

December 2020

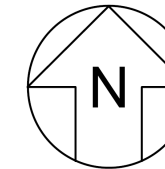
Risk Screening Approach (Surface Water) for AP-BCD



* Surface water data collected from Lake Sinclair.

SSL = Statistically Significant Level
 AWQC = Ambient Water Quality Criteria
 COI = Constituent of Interest
 COPI = Constituent of Potential Interest

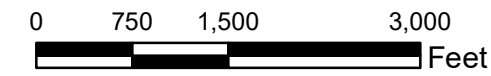
Plant Branch AP-BCD Surface Water Risk Screening Approach	
Figure 9	
Project Number: GZ7112BR	December 2020



LEGEND

- Ash Pond Boundary
- Approximate Site Boundary
- Surface Water Sample Location

- Notes:
1. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
 2. Coordinate System: NAD 1983 State Plane Georgia West (U.S. Feet).
 3. Monitoring Well/Piezometer locations and property line provided by Southern Company Services.



**SURFACE WATER
SAMPLE LOCATION**

GEORGIA POWER
PLANT BRANCH
PUTNAM COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec
consultants

KENNESAW, GA DECEMBER 2020

**FIGURE
10**

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APPENDIX A

Plant Branch Well Survey (Off-Site)

Well Survey

Plant Branch

Ash Ponds B, C, D and E

Putnam County, GA

Prepared for

Georgia Power Company

241 Ralph McGill Blvd., Atlanta, GA 30308

Prepared by

NewFields

1349 W. Peachtree Street, Suite 2000

Atlanta, GA 30309

March 5, 2020

Introduction

Plant Branch is located on the northern shore of Lake Sinclair near Milledgeville and Eatonton in Putnam County.

NewFields conducted a well survey of potential drinking water wells within a three-mile radius of the Coal Combustion Residual (CCR) facilities at Plant Branch: Ash Ponds B, C, D and E. This radius is referred to in this report as the Investigated Area, and is shown on Figure 1.

As part of this survey, NewFields accessed and reviewed information from a number of Federal, State, and County records and online sources, as well as a windshield survey of the Investigated Area. Information from each identified well was then compiled into a geographic information system (GIS) database.

Information Collection

This section summarizes the sources utilized for identifying potential drinking water wells within the Investigated Area.

1. Federal Sources

- a. **United States Geological Survey (USGS).** USGS maintains an inventory database of wells sampled by USGS-affiliated programs for ground-water levels or water quality parameters at any time in the past.¹ Well information and coordinates were downloaded for the state of Georgia and compiled into the GIS database. Wells in this database are labeled 'human drinking water' or 'monitoring wells'; however, many of the monitoring wells appear to be co-located with drinking water wells. Some of these USGS monitoring wells may in fact be private drinking water wells utilized for monitoring purposes by USGS. Some listings in this database are over 50 years old and may be inactive.

In addition, the USGS data contains information about major surface water intakes, including both industrial and municipal drinking water intakes. Specific information about the operator and use of the water is not included, but can be determined using information from other sources. Three surface water intakes are present on Lake Sinclair. One intake is located on Georgia Power property and was assumed to be associated with former plant operations. The others appear to belong to the Sinclair Water Authority.

- b. **Safe Drinking Water Information System (SDWIS).** This EPA database has listings of public water systems but does not have well location information. SDWIS information was used to help identify the suppliers of public water in the vicinity of the facility. Public water in the area is supplied primarily by the Sinclair Water Authority.

2. State Sources

¹ <http://waterdata.usgs.gov/ga/nwis/inventory?introduction>

a. **Georgia Environmental Protection Division**

- i. **Drinking Water Branch.** EPD maintains records about municipal and industrial wells, whose presence or absence within a radius of a site can be ascertained by contacting the agency. An email was sent to Michael Gillis of EPD on October 23rd, 2019 requesting information about wells in the Investigated Area. He confirmed there is one active well at the Georgia Power Skills Development Center at Plant Branch, and two active wells for the Scenic Shores Subdivision. The Skills Development Center well is located on Georgia Power property approximately 0.25 miles northwest of Ash Ponds B, C and D. This well is a transient well serving approximately 60 people annually (i.e., the population changes and the system is not regularly serving the same people). The locations of the two Scenic Shores wells were established using a combination of information from the EPD Drinking Water Branch website, parcel data, and aerial photography. These two wells are 2.3 and 2.6 miles northeast from Ash Ponds B, C and D, across Lake Sinclair. The Scenic Shores system serves a residential population of 1,095.

NewFields also used the Drinking Water Branch website to identify the subdivisions in the Investigated Area that have inactive community water systems. As discussed below, even though these subdivisions are older than the primary public water infrastructure in the area, they were designed to use community systems, not maintain private wells. These systems have since been connected to the Sinclair Water Authority system

- ii. **EPD Pesticide Project.** From 2000 to 2004, EPD undertook a project to sample private drinking water wells for pesticides. EPD solicited volunteers state-wide to participate in the well sampling program. The final report includes the list of private water wells sampled, their coordinates, and depths when available.² Information about wells within the Investigated Area were compiled into the GIS database.
- iii. **Hazardous Site Inventory (HSI) files.** EPD maintains the HSI files for sites which are undergoing state-led corrective action. These files usually contain groundwater data and well surveys. There are no HSI sites or related data or well surveys within the Investigated Area.
- iv. **Hazardous Site Response Act (HSRA) notifications.** EPD maintains non-HSI HSRA notification reports (i.e., notifications submitted after releases of reportable substances). NewFields reviewed reports associated with sites in Carroll and Coweta County. No wells were identified within the Investigated Area.

- b. **Agricultural and Environmental Services Laboratory (AESL) records.** The University of Georgia's AESL Laboratory tests drinking water samples submitted by private individuals to

² https://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/PR-55.pdf

their local county extension service. Maps of these sampling results can be viewed online.³ Precise coordinates are not available, but NewFields was able to use online images to find approximate locations.

3. County Sources

- a. **Health Department Records.** County health departments (DOH) maintain records of the permits for "on-site sewage management systems" (septic tanks). These permits indicate whether the permittee has private or public water supply, and often identify the exact location of the well on a map. Putnam and Branch counties do not maintain these records in a manner where they are easily searchable using geographic criteria and, as a result no wells could be identified from septic records.
- b. **Water Authority Records.** The Sinclair Water Authority stated that water lines in the area were installed approximately 12 years ago. The Authority also confirmed that when the water lines were installed, many smaller community water systems operated by subdivisions stopped using their wells and connected to the Sinclair Water Authority System. Sinclair Water Authority is a surface water system that is drawing their water supply from Lake Sinclair.
- c. **Tax Assessor Records.** NewFields utilized a tax parcel shapefile acquired from a third-party vendor dated January 2019. NewFields joined that information to parcel improvement data provided by the Putnam County Tax Assessor on November 13, 2019. NewFields also acquired a tax parcel shapefile for Baldwin County on October 23, 2019. However, parcel improvement data was not available from Baldwin County. A download of all the parcel data for Hancock County was not available, but parcel was able to use the tax assessors Web site to establish the location of the Scenic Shores Subdivision wells.

4. Windshield Surveys

- a. A windshield survey of the Investigated Area was conducted on November 7, 2019. During the survey wells were visually identified and compiled into the GIS database. The majority of wells identified during the survey were near residences.

Summary

Public water is available throughout the Investigated Area. The water lines are approximately 12 years old; therefore, the majority of the nearby residences were built before municipal water was available. The source of the public water supply in the area is Lake Sinclair. The nearest surface water intake for that system is located approximately 1.75 miles to the northeast of Ash Ponds B, C and D.

There are three active public wells and eleven inactive public wells in the Investigated Area. The active Skills Development Center well is located on Georgia Power property approximately 0.25 miles northeast from Ash Ponds B, C, and D. This well is a transient well serving approximately 60 people

³ <http://aesl.ces.uga.edu/water/map/>

annually. The locations of the two active Scenic Shores wells were established using a combination of information from the EPD Drinking Water Branch website, parcel data, and aerial photography. These two wells are 2.3 and 2.6 miles northeast from Ash Ponds B, C, and D, across Lake Sinclair. The Scenic Shores system serves a residential population of 1,095. Active public wells and the surface water intake are highlighted on Table 1.

Private wells are also present in the Investigated Area. In addition to identifying specific private wells from the above listed sources, NewFields used a combination of parcel data and information about the presence and age of public water infrastructure in Putnam County to identify parcels that may be (or have been) using private well water as their drinking water source. Several subdivisions, including Flat Rock, Forest Village, and Tanglewood, were built with community water systems that are now inactive due the expansion of the Sinclair Water Authority System. These residences were all assumed to now be connected to municipal water and omitted from this analysis regardless of age.

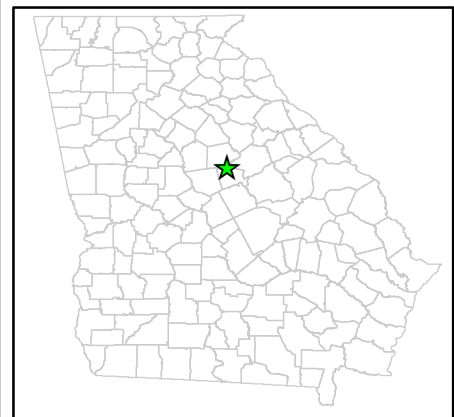
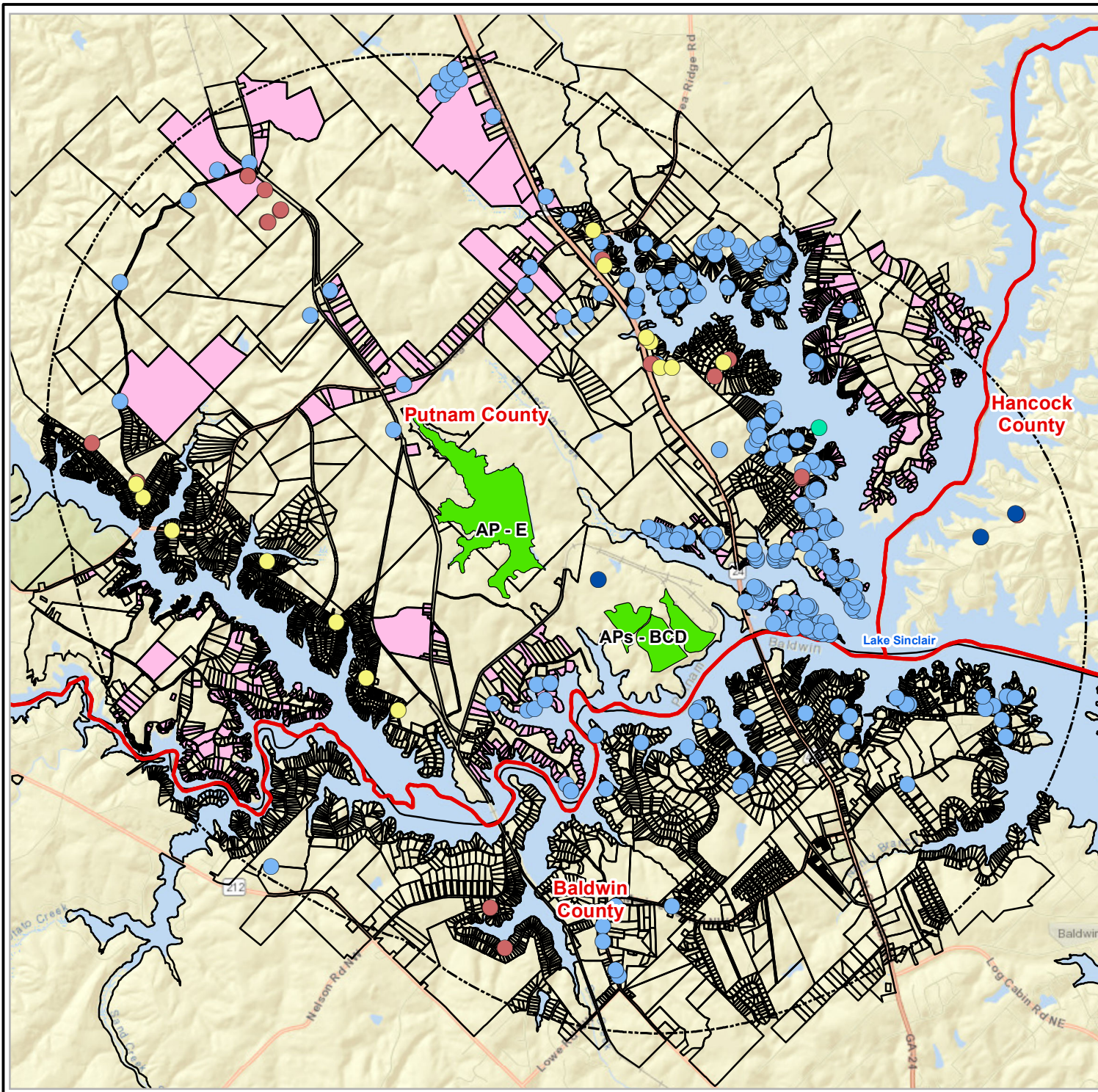
Parcels outside of these subdivisions and built before 2006 were assumed to be associated with a well. Many of these parcels may be (or have been) sharing wells, so a well may not exist for each identified parcel. While these wells are labeled 'drinking water wells' in Table 1, many of those may be inactive.

Parcel improvement data could not be obtained in the Baldwin or Hancock county portions of the Investigated Area, so no parcels were identified in these areas.

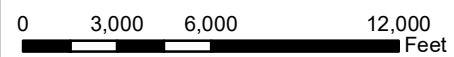
Combining well data from all sources with parcel data, NewFields identified 1,143 total parcels with a potentially active or inactive private well within the Investigated Area. Parcel data identified 999 parcels with a potential well. The windshield survey identified 239 wells. Seventeen wells were identified using USGS sources, five from the UGA Laboratory program, and two from the EPD Pesticide Sampling Project. Many wells were identified by multiple sources.⁴

Figure 1 shows points for identified wells in the Investigated Area. The shaded parcels on Figure 1 are the parcels that were identified from parcel data as likely to contain wells. When viewed as a PDF file, the figure is interactive, and wells identified using different sources can be turned on and off.

⁴ USGS monitoring wells located on Georgia Power property were also considered not to be drinking water wells and omitted.



- SW Intake
- Public Well - active
- Public Well - inactive
- Monitoring Well
- Private Drinking Well
- County Line
- 3-Mile Radius
- Ash Pond
- Parcel
- Parcel Identified as likely having a well



Title		Plant Branch Ash Ponds B, C, D, & E	
Project		GPC Plants Georgia	
		Two Midtown Plaza 1349 W. Peachtree St, #2000 Atlanta, Georgia 30309 Tel: 404-347-9050	
Date	12/01/2020	Rev. No.	2
MXD	gpc_ccr_2019/agis	Figure No.	1



APPENDIX B
Data Used in Risk Evaluation

Appendix B
Appendix B-1
Groundwater Data
Branch AP-BCD Risk Evaluation Report
Plant Branch, Milledgeville, GA

Well ID ^[1]	Sample Date	Constituent	Cadmium	Cobalt
		Units	mg/L	mg/L
		Ash Pond		
BRGWC-50	3/15/2018	AP-B,C,D	0.038	1.3
BRGWC-50	5/1/2018	AP-B,C,D	0.011	1.4
BRGWC-50	6/28/2018	AP-B,C,D	0.087	1.3
BRGWC-50	8/1/2018	AP-B,C,D	0.042	1.4
BRGWC-50	10/29/2018	AP-B,C,D	0.083	1.4
BRGWC-50	11/28/2018	AP-B,C,D	0.031	1.4
BRGWC-50	12/19/2018	AP-B,C,D	0.042	1.5
BRGWC-50	1/16/2019	AP-B,C,D	0.028	1.4
BRGWC-50	8/29/2019	AP-B,C,D	0.0071	1.3
BRGWC-50	10/16/2019	AP-B,C,D	0.014	1.4
BRGWC-50	3/4/2020	AP-B,C,D	0.013	1.5
PZ-51I	8/3/2018	AP-B,C,D	0.0015	0.041
PZ-51I	1/19/2019	AP-B,C,D	0.0016	0.018
PZ-51I	10/18/2019	AP-B,C,D	0.00083 J	0.017
PZ-51S	8/2/2018	AP-B,C,D	<0.001 ND	0.0079 J
PZ-51S	1/18/2019	AP-B,C,D	<0.001 ND	0.0082 J
PZ-51S	10/18/2019	AP-B,C,D	<0.00011 ND	0.0063

Notes:

Bold = the constituent was detected in the sample.

mg/L milligrams(s) per liter

< = Non-detect result; the reporting limit is presented

J = Estimated value; the presented value is below the reporting limit but above the method detection limit.

(ND) = Non-detect result; the reporting limit is presented

Appendix B
Appendix B-2
Surface Water Data
Plant Branch AP-BCD Risk Evaluation Report
Plant Branch, Milledgville, GA

		Constituent	Cobalt
		Units	mg/L
Sample ID	Sample Date	Surface Water Body	
LR+7.5	3/26/2018	Lake Sinclair	<0.005 ND
LR+7A	3/26/2018	Lake Sinclair	<0.005 ND
LR+7B	3/26/2018	Lake Sinclair	<0.005 ND
LR+8B	3/26/2018	Lake Sinclair	<0.005 ND
LR-1	3/26/2018	Lake Sinclair	<0.005 ND

Notes:

mg/L milligrams(s) per liter

< = Non-detect result; the reporting limit is presented

(ND) = Non-detect result; the reporting limit is presented

APPENDIX C

USEPA RSL Calculator Generated Residential Screening Levels

Appendix C
USEPA RSL Calculator Generated Residential Screening Levels
Plant Branch AP-BCD Risk Evaluation Report
Plant Branch, Milledgeville, GA

Variable	Value
THQ (target hazard quotient) unitless	1
TR (target risk) unitless	0.00001
LT (lifetime) years	70
K (volatilization factor of Andelman) L/m3	0.5
Isc (apparent thickness of stratum corneum) cm	0.001
EDres (exposure duration - resident) years	26
EDres-c (exposure duration - child) years	6
EDres-a (exposure duration - adult) years	20
ED0-2 (mutagenic exposure duration first phase) years	2
ED2-6 (mutagenic exposure duration second phase) years	4
ED6-16 (mutagenic exposure duration third phase) years	10
ED16-26 (mutagenic exposure duration fourth phase) years	10
EFres (exposure frequency) days/year	350
EFres-c (exposure frequency - child) days/year	350
EFres-a (exposure frequency - adult) days/year	350
EF0-2 (mutagenic exposure frequency first phase) days/year	350
EF2-6 (mutagenic exposure frequency second phase) days/year	350
EF6-16 (mutagenic exposure frequency third phase) days/year	350
EF16-26 (mutagenic exposure frequency fourth phase) days/year	350
EEvent-res-adj (age-adjusted exposure time) hours/event	0.67077
EEvent-res-madj (mutagenic age-adjusted exposure time) hours/event	0.67077
ETres (exposure time) hours/day	24
ETres-c (dermal exposure time - child) hours/event	0.54
ETres-a (dermal exposure time - adult) hours/event	0.71
ETres-c (inhalation exposure time - child) hours/day	24
ETres-a (inhalation exposure time - adult) hours/day	24
ET0-2 (mutagenic inhalation exposure time first phase) hours/day	24
ET2-6 (mutagenic inhalation exposure time second phase) hours/day	24
ET6-16 (mutagenic inhalation exposure time third phase) hours/day	24
ET16-26 (mutagenic inhalation exposure time fourth phase) hours/day	24
ETO-2 (mutagenic dermal exposure time first phase) hours/event	0.54
ET2-6 (mutagenic dermal exposure time second phase) hours/event	0.54
ET6-16 (mutagenic dermal exposure time third phase) hours/event	0.71
ET16-26 (mutagenic dermal exposure time fourth phase) hours/event	0.71
BWres-a (body weight - adult) kg	80
BWres-c (body weight - child) kg	15
BW0-2 (mutagenic body weight) kg	15
BW2-6 (mutagenic body weight) kg	15
BW6-16 (mutagenic body weight) kg	80
BW16-26 (mutagenic body weight) kg	80
IFWres-adj (adjusted intake factor) L/kg	327.95
IFWres-adj (adjusted intake factor) L/kg	327.95
IFWMres-adj (mutagenic adjusted intake factor) L/kg	1019.9
IFWMres-adj (mutagenic adjusted intake factor) L/kg	1019.9
IRWres-c (water intake rate - child) L/day	0.78
IRWres-a (water intake rate - adult) L/day	2.5
IRW0-2 (mutagenic water intake rate) L/day	0.78
IRW2-6 (mutagenic water intake rate) L/day	0.78
IRW6-16 (mutagenic water intake rate) L/day	2.5
IRW16-26 (mutagenic water intake rate) L/day	2.5
EVres-a (events - adult) per day	1
EVres-c (events - child) per day	1
EVO-2 (mutagenic events) per day	1
EV2-6 (mutagenic events) per day	1
EV6-16 (mutagenic events) per day	1
EV16-26 (mutagenic events) per day	1
DFWres-adj (age-adjusted dermal factor) cm2-event/kg	2610650
DFWMres-adj (mutagenic age-adjusted dermal factor) cm2-event/kg	8191633
SAres-c (skin surface area - child) cm2	6365
SAres-a (skin surface area - adult) cm2	19652
SA0-2 (mutagenic skin surface area) cm2	6365
SA2-6 (mutagenic skin surface area) cm2	6365
SA6-16 (mutagenic skin surface area) cm2	19652
SA16-26 (mutagenic skin surface area) cm2	19652

Output generated 06NOV2019:16:09:05

Appendix C
USEPA RSL Calculator Generated Residential Screening Levels
Plant Branch AP-BCD Risk Evaluation Report
Plant Branch, Milledgeville, GA

Chemical	Cadmium (Water)	Cobalt
CAS Number	7440-43-9	7440-48-4
Mutagen?	No	No
Volatile?	No	No
Chemical Type	Inorganics	Inorganics
Sfo (mg/kg-day)-1	-	-
Sfo Ref		
IUR (ug/m3)-1	0.0018	0.009
IUR Ref	I	P
RfD (mg/kg-day)	0.0005	0.0003
RfD Ref	I	P
RfC (mg/m3)	0.00001	0.000006
RfC Ref	A	P
GIABS	0.05	1
Kp (cm/hr)	0.001	0.0004
MW	112	58.9
B (unitless)	0.00408	0.00118
t* (hr)	1.08	0.54
tevent (hr/event)	0.448	0.225
FA (unitless)	1	1
In EPD?	Yes	Yes
DAevent (ca)	-	-
DAevent (nc child)	0.0000614	0.000737
DAevent (nc adult)	0.000106	0.00127
MCL (ug/L)	5	-
Ingestion SL TR=1E-05 (ug/L)	-	-
Dermal SL TR=1E-05 (ug/L)	-	-
Inhalation SL TR=1E-05 (ug/L)	-	-
Carcinogenic SL TR=1E-05 (ug/L)	-	-
Ingestion SL Child THQ=1 (ug/L)	10	6.02
Dermal SL Child THQ=1 (ug/L)	114	3410
Inhalation SL Child THQ=1 (ug/L)	-	-
Noncarcinogenic SL Child THI=1 (ug/L)	9.22	6.01
Ingestion SL Adult THQ=1 (ug/L)	16.7	10
Dermal SL Adult THQ=1 (ug/L)	149	4480
Inhalation SL Adult THQ=1 (ug/L)	-	-
Noncarcinogenic SL Adult THI=1 (ug/L)	15	9.99
Screening Level (ug/L)	9.22E+00 nc	6.01E+00 nc

Notes

I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

APPENDIX D

Support for Refined Risk Evaluation

Appendix D-1

Exposure Point Concentration Calculation Results

Appendix D

Appendix D-1

Exposure Point Concentration Calculation Details^[1]

Plant Branch AP-BCD Risk Evaluation Report

Plant Branch, Milledgeville, GA

CCR Rule Designation	Constituent	Well IDs Included	Maximum Concentration (mg/L)	Detection Frequency	Exceedance Frequency	EPC Step 1	EPC Step 2	EPC Step 3
						Individual Target Well(s) March 2018- March 2020 (mg/L)	Target Well(s)& Adjacent Well(s) & Downgradient Well(s) March 2018- March 2020 (mg/L)	Farthest Downgradient Well(s) March 2018- March 2020 (mg/L)
Appendix IV	Cadmium	BRGWC-50	0.087	11 / 11	10 / 11	0.0509		
		BRGWC-50	0.087	13 / 17	9 / 17		0.0354	
		PZ-51S PZ-51I						
		PZ-51S PZ-51I	0.0016	3 / 6	0 / 6			0.00149
	Cobalt	BRGWC-50	1.5	11 / 11	11 / 11	1.429		
		BRGWC-50	1.5	17 / 17	14 / 17		1.5	
		PZ-51S PZ-51I						
		PZ-51S PZ-51I	0.041	6 / 6	3 / 6			0.0271

Notes:

Highlighted value is the EPC selected for the refined screening.

[1] EPCs calculated in accordance with USEPA, 2014. Memorandum for Determining Groundwater Exposure Point Concentrations, Supplemental Guidance. OSWER Directive 9283.1-42, February 2014. Located at <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236917>

Definitions:

EPC = Exposure Point Concentration

mg/L = milligrams per liter

Appendix D-2

Exposure Point Concentration Figures

Appendix D-3

ProUCL Input/Output Files

Appendix D
Appendix D-3
ProUCL Output
Plant Branch AP-BCD Risk Evaluation Report
Plant Branch, Milledgeville, GA

AP-BCD											
Step 1 EPC Calculation Input				Step 2 EPC Calculation Input				Step 3 EPC Calculation Input			
Step1_Cadmium	D_Step1_Cadmium	Step1_Cobalt	D_Step1_Cobalt	Step2_Cadmium	D_Step2_Cadmium	Step2_Cobalt	D_Step2_Cobalt	Step3_Cadmium	D_Step3_Cadmium	Step3_Cobalt	D_Step3_Cobalt
0.038	1	1.3	1	0.038	1	1.3	1	0.0015	1	0.041	1
0.011	1	1.4	1	0.011	1	1.4	1	0.0016	1	0.018	1
0.087	1	1.3	1	0.087	1	1.3	1	0.00083	1	0.017	1
0.042	1	1.4	1	0.042	1	1.4	1	0.001	0	0.0079	1
0.083	1	1.4	1	0.083	1	1.4	1	0.001	0	0.0082	1
0.031	1	1.4	1	0.031	1	1.4	1	0.00011	0	0.0063	1
0.042	1	1.5	1	0.042	1	1.5	1				
0.028	1	1.4	1	0.028	1	1.4	1				
0.0071	1	1.3	1	0.0071	1	1.3	1				
0.014	1	1.4	1	0.014	1	1.4	1				
0.013	1	1.5	1	0.0015	1	0.041	1				
				0.0016	1	0.018	1				
				0.00083	1	0.017	1				
				0.001	0	0.0079	1				
				0.001	0	0.0082	1				
				0.00011	0	0.0063	1				
				0.013	1	1.5	1				

Notes:
EPC= Exposure point Concentration

Appendix D
Appendix D-3
ProUCL Output
Plant Branch AP-BCD Risk Evaluation Report
Plant Branch, Milledgeville, GA

UCL Statistics for Data Sets with Non-Detects

User Selected Options
 Date/Time of Computation ProUCL 5.19/15/2020 12:26:44 PM
 From File WorkSheet.xls
 Full Precision OFF
 Confidence Coefficient 95%
 Number of Bootstrap Operations 2000

Step1_Cadmium

General Statistics			
Total Number of Observations	11	Number of Distinct Observations	10
		Number of Missing Observations	0
Minimum	0.0071	Mean	0.036
Maximum	0.087	Median	0.031
SD	0.0273	Std. Error of Mean	0.00823
Coefficient of Variation	0.758	Skewness	1.043

Normal GOF Test		Shapiro Wilk GOF Test	
Shapiro Wilk Test Statistic	0.856	Data appear Normal at 5% Significance Level	
5% Shapiro Wilk Critical Value	0.85		
Lilliefors Test Statistic	0.231	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.251	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0.0509	95% Adjusted-CLT UCL (Chen-1995)	0.0523
		95% Modified-t UCL (Johnson-1978)	0.0514

Gamma GOF Test		Anderson-Darling Gamma GOF Test	
A-D Test Statistic	0.338	Detected data appear Gamma Distributed at 5% Significance Level	
5% A-D Critical Value	0.739	Kolmogorov-Smirnov Gamma GOF Test	
K-S Test Statistic	0.173	Detected data appear Gamma Distributed at 5% Significance Level	
5% K-S Critical Value	0.259		

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics			
k hat (MLE)	1.927	k star (bias corrected MLE)	1.462
Theta hat (MLE)	0.0187	Theta star (bias corrected MLE)	0.0246
nu hat (MLE)	42.39	nu star (bias corrected)	32.16
MLE Mean (bias corrected)	0.036	MLE Sd (bias corrected)	0.0298
		Approximate Chi Square Value (0.05)	20.2
Adjusted Level of Significance	0.0278	Adjusted Chi Square Value	18.67

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	0.0573	95% Adjusted Gamma UCL (use when n<50)	0.062

Lognormal GOF Test			Shapiro Wilk Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.943		Data appear Lognormal at 5% Significance Level		
5% Shapiro Wilk Critical Value	0.85				
Lilliefors Test Statistic	0.155		Lilliefors Lognormal GOF Test		
5% Lilliefors Critical Value	0.251		Data appear Lognormal at 5% Significance Level		
Data appear Lognormal at 5% Significance Level					

Lognormal Statistics			
Minimum of Logged Data	-4.948	Mean of logged Data	-3.605
Maximum of Logged Data	-2.442	SD of logged Data	0.819

Assuming Lognormal Distribution			
95% H-UCL	0.0758	90% Chebyshev (MVUE) UCL	0.065
95% Chebyshev (MVUE) UCL	0.0779	97.5% Chebyshev (MVUE) UCL	0.0957
99% Chebyshev (MVUE) UCL	0.131		

Nonparametric Distribution Free UCL Statistics
Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs			
95% CLT UCL	0.0495	95% Jackknife UCL	0.0509
95% Standard Bootstrap UCL	0.0489	95% Bootstrap-t UCL	0.0583
95% Hall's Bootstrap UCL	0.0689	95% Percentile Bootstrap UCL	0.0494
95% BCA Bootstrap UCL	0.0508		
90% Chebyshev(Mean, Sd) UCL	0.0607	95% Chebyshev(Mean, Sd) UCL	0.0719
97.5% Chebyshev(Mean, Sd) UCL	0.0874	99% Chebyshev(Mean, Sd) UCL	0.118

Suggested UCL to Use
95% Student's-t UCL 0.0509

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness. These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Step1_Cobalt

General Statistics			
Total Number of Observations	11	Number of Distinct Observations	3
		Number of Missing Observations	0
Minimum	1.3	Mean	1.391
Maximum	1.5	Median	1.4
SD	0.0701	Std. Error of Mean	0.0211
Coefficient of Variation	0.0504	Skewness	0.123

Normal GOF Test			Shapiro Wilk GOF Test		
Shapiro Wilk Test Statistic	0.822		Data Not Normal at 5% Significance Level		
5% Shapiro Wilk Critical Value	0.85				
Lilliefors Test Statistic	0.279		Lilliefors GOF Test		
5% Lilliefors Critical Value	0.251		Data Not Normal at 5% Significance Level		

Data Not Normal at 5% Significance Level

Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1.429	95% Adjusted-CLT UCL (Chen-1995)	1.426
		95% Modified-t UCL (Johnson-1978)	1.429

Gamma GOF Test			Anderson-Darling Gamma GOF Test		
A-D Test Statistic	1.017		Data Not Gamma Distributed at 5% Significance Level		
5% A-D Critical Value	0.726				
K-S Test Statistic	0.288		Kolmogorov-Smirnov Gamma GOF Test		
5% K-S Critical Value	0.254		Data Not Gamma Distributed at 5% Significance Level		

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics			
k hat (MLE)	434	k star (bias corrected MLE)	315.7
Theta hat (MLE)	0.0032	Theta star (bias corrected MLE)	0.00441
nu hat (MLE)	9549	nu star (bias corrected)	6946
MLE Mean (bias corrected)	1.391	MLE Sd (bias corrected)	0.0783
Adjusted Level of Significance	0.0278	Approximate Chi Square Value (0.05)	6753
		Adjusted Chi Square Value	6722

Assuming Gamma Distribution
 95% Approximate Gamma UCL (use when n>=50) 1.431 95% Adjusted Gamma UCL (use when n<50) 1.437

Lognormal GOF Test
 Shapiro Wilk Test Statistic 0.822 **Shapiro Wilk Lognormal GOF Test**
 5% Shapiro Wilk Critical Value 0.85 Data Not Lognormal at 5% Significance Level
 Lilliefors Test Statistic 0.288 **Lilliefors Lognormal GOF Test**
 5% Lilliefors Critical Value 0.251 Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics
 Minimum of Logged Data 0.262 Mean of logged Data 0.329
 Maximum of Logged Data 0.405 SD of logged Data 0.0503

Assuming Lognormal Distribution
 95% H-UCL N/A 90% Chebyshev (MVUE) UCL 1.454
 95% Chebyshev (MVUE) UCL 1.483 97.5% Chebyshev (MVUE) UCL 1.523
 99% Chebyshev (MVUE) UCL 1.601

Nonparametric Distribution Free UCL Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs
 95% CLT UCL 1.426 95% Jackknife UCL 1.429
 95% Standard Bootstrap UCL N/A 95% Bootstrap-t UCL N/A
 95% Hall's Bootstrap UCL N/A 95% Percentile Bootstrap UCL N/A
 95% BCA Bootstrap UCL N/A
 90% Chebyshev(Mean, Sd) UCL 1.454 95% Chebyshev(Mean, Sd) UCL 1.483
 97.5% Chebyshev(Mean, Sd) UCL 1.523 99% Chebyshev(Mean, Sd) UCL 1.601

Suggested UCL to Use
 95% Student's-t UCL 1.429 or 95% Modified-t UCL 1.429

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Step2_Cadmium

General Statistics
 Total Number of Observations 17 Number of Distinct Observations 15
 Number of Detects 14 Number of Non-Detects 3
 Number of Distinct Detects 13 Number of Distinct Non-Detects 2
 Minimum Detect 8.3000E-4 Minimum Non-Detect 1.1000E-4
 Maximum Detect 0.087 Maximum Non-Detect 0.001
 Variance Detects 7.9128E-4 Percent Non-Detects 17.65%
 Mean Detects 0.0286 SD Detects 0.0281
 Median Detects 0.021 CV Detects 0.984
 Skewness Detects 1.142 Kurtosis Detects 0.571
 Mean of Logged Detects -4.264 SD of Logged Detects 1.499

Normal GOF Test on Detects Only
 Shapiro Wilk Test Statistic 0.85 **Shapiro Wilk GOF Test**
 5% Shapiro Wilk Critical Value 0.874 Detected Data Not Normal at 5% Significance Level
 Lilliefors Test Statistic 0.198 **Lilliefors GOF Test**
 5% Lilliefors Critical Value 0.226 Detected Data appear Normal at 5% Significance Level
Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs
 KM Mean 0.0236 KM Standard Error of Mean 0.00676
 KM SD 0.0268 95% KM (BCA) UCL 0.0339
 95% KM (t) UCL 0.0354 95% KM (Percentile Bootstrap) UCL 0.0347
 95% KM (z) UCL 0.0347 95% KM Bootstrap t UCL 0.0407
 90% KM Chebyshev UCL 0.0439 95% KM Chebyshev UCL 0.053
 97.5% KM Chebyshev UCL 0.0658 99% KM Chebyshev UCL 0.0908

Gamma GOF Tests on Detected Observations Only
 A-D Test Statistic 0.318 **Anderson-Darling GOF Test**
 5% A-D Critical Value 0.767 Detected data appear Gamma Distributed at 5% Significance Level
 K-S Test Statistic 0.138 **Kolmogorov-Smirnov GOF**
 5% K-S Critical Value 0.237 Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.833	k star (bias corrected MLE)	0.702
Theta hat (MLE)	0.0343	Theta star (bias corrected MLE)	0.0407
nu hat (MLE)	23.33	nu star (bias corrected)	19.66
Mean (detects)	0.0286		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	8.3000E-4	Mean	0.0253
Maximum	0.087	Median	0.013
SD	0.0264	CV	1.043
k hat (MLE)	0.903	k star (bias corrected MLE)	0.783
Theta hat (MLE)	0.028	Theta star (bias corrected MLE)	0.0323
nu hat (MLE)	30.71	nu star (bias corrected)	26.62
Adjusted Level of Significance (β)	0.0346		
Approximate Chi Square Value (26.62, α)	15.86	Adjusted Chi Square Value (26.62, β)	14.99
95% Gamma Approximate UCL (use when $n \geq 50$)	0.0425	95% Gamma Adjusted UCL (use when $n < 50$)	0.0449

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0236	SD (KM)	0.0268
Variance (KM)	7.2088E-4	SE of Mean (KM)	0.00676
k hat (KM)	0.772	k star (KM)	0.675
nu hat (KM)	26.25	nu star (KM)	22.95
theta hat (KM)	0.0306	theta star (KM)	0.0349
80% gamma percentile (KM)	0.0388	90% gamma percentile (KM)	0.0597
95% gamma percentile (KM)	0.0814	99% gamma percentile (KM)	0.133

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (22.95, α)	13.06	Adjusted Chi Square Value (22.95, β)	12.28
95% Gamma Approximate KM-UCL (use when $n \geq 50$)	0.0415	95% Gamma Adjusted KM-UCL (use when $n < 50$)	0.0441

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.901	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.874	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.177	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.226	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0236	Mean in Log Scale	-4.822
SD in Original Scale	0.0276	SD in Log Scale	1.847
95% t UCL (assumes normality of ROS data)	0.0353	95% Percentile Bootstrap UCL	0.0351
95% BCA Bootstrap UCL	0.0364	95% Bootstrap t UCL	0.0407
95% H-UCL (Log ROS)	0.295		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-5.001	KM Geo Mean	0.00673
KM SD (logged)	2.101	95% Critical H Value (KM-Log)	4.575
KM Standard Error of Mean (logged)	0.543	95% H-UCL (KM -Log)	0.677
KM SD (logged)	2.101	95% Critical H Value (KM-Log)	4.575
KM Standard Error of Mean (logged)	0.543		

DL/2 Statistics**DL/2 Normal**

Mean in Original Scale	0.0236
SD in Original Scale	0.0277
95% t UCL (Assumes normality)	0.0353

DL/2 Log-Transformed

Mean in Log Scale	-4.983
SD in Log Scale	2.143
95% H-Stat UCL	0.823

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.0354
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When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test

When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
 Recommendations are based upon data size, data distribution, and skewness.
 These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
 However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Step2_Cobalt

General Statistics			
Total Number of Observations	17	Number of Distinct Observations	9
		Number of Missing Observations	0
Minimum	0.0063	Mean	0.906
Maximum	1.5	Median	1.3
SD	0.679	Std. Error of Mean	0.165
Coefficient of Variation	0.75	Skewness	-0.654

Normal GOF Test		Shapiro Wilk GOF Test	
Shapiro Wilk Test Statistic	0.674	Data Not Normal at 5% Significance Level	
5% Shapiro Wilk Critical Value	0.892		
Lilliefors Test Statistic	0.366	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.207	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1.193	95% Adjusted-CLT UCL (Chen-1995)	1.149
		95% Modified-t UCL (Johnson-1978)	1.189

Gamma GOF Test		Anderson-Darling Gamma GOF Test	
A-D Test Statistic	2.978	Data Not Gamma Distributed at 5% Significance Level	
5% A-D Critical Value	0.796		
K-S Test Statistic	0.415	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.221	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics			
k hat (MLE)	0.519	k star (bias corrected MLE)	0.466
Theta hat (MLE)	1.746	Theta star (bias corrected MLE)	1.942
nu hat (MLE)	17.64	nu star (bias corrected)	15.86
MLE Mean (bias corrected)	0.906	MLE Sd (bias corrected)	1.326
		Approximate Chi Square Value (0.05)	7.862
Adjusted Level of Significance	0.0346	Adjusted Chi Square Value	7.277

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	1.827	95% Adjusted Gamma UCL (use when n<50)	1.974

Lognormal GOF Test		Shapiro Wilk Lognormal GOF Test	
Shapiro Wilk Test Statistic	0.679	Data Not Lognormal at 5% Significance Level	
5% Shapiro Wilk Critical Value	0.892		
Lilliefors Test Statistic	0.398	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.207	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics			
Minimum of Logged Data	-5.067	Mean of logged Data	-1.317
Maximum of Logged Data	0.405	SD of logged Data	2.33

Assuming Lognormal Distribution			
95% H-UCL	74.74	90% Chebyshev (MVUE) UCL	7.845
95% Chebyshev (MVUE) UCL	10.21	97.5% Chebyshev (MVUE) UCL	13.5
99% Chebyshev (MVUE) UCL	19.95		

Nonparametric Distribution Free UCL Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	1.177	95% Jackknife UCL	1.193
95% Standard Bootstrap UCL	1.169	95% Bootstrap-t UCL	1.156
95% Hall's Bootstrap UCL	1.124	95% Percentile Bootstrap UCL	1.153
95% BCA Bootstrap UCL	1.15		
90% Chebyshev(Mean, Sd) UCL	1.4	95% Chebyshev(Mean, Sd) UCL	1.624
97.5% Chebyshev(Mean, Sd) UCL	1.935	99% Chebyshev(Mean, Sd) UCL	2.545

Suggested UCL to Use

99% Chebyshev (Mean, Sd) UCL 2.545

Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positively skewed data sets.

Step3_Cadmium

General Statistics

Total Number of Observations	6	Number of Distinct Observations	5
Number of Detects	3	Number of Non-Detects	3
Number of Distinct Detects	3	Number of Distinct Non-Detects	2
Minimum Detect	8.3000E-4	Minimum Non-Detect	1.1000E-4
Maximum Detect	0.0016	Maximum Non-Detect	0.001
Variance Detects	1.7530E-7	Percent Non-Detects	50%
Mean Detects	0.00131	SD Detects	4.1869E-4
Median Detects	0.0015	CV Detects	0.32
Skewness Detects	-1.622	Kurtosis Detects	N/A
Mean of Logged Detects	-6.678	SD of Logged Detects	0.362

Warning: Data set has only 3 Detected Values.

This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.

For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).

Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.846	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.342	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	8.3000E-4	KM Standard Error of Mean	3.2895E-4
KM SD	5.8859E-4	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.00149	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.00137	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.00182	95% KM Chebyshev UCL	0.00226
97.5% KM Chebyshev UCL	0.00288	99% KM Chebyshev UCL	0.0041

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	12.57	k star (bias corrected MLE)	N/A
Theta hat (MLE)	1.0424E-4	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	75.4	nu star (bias corrected)	N/A
Mean (detects)	0.00131		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	8.3000E-4	Mean	0.00566
Maximum	0.01	Median	0.0058
SD	0.00477	CV	0.843
k hat (MLE)	1.212	k star (bias corrected MLE)	0.717
Theta hat (MLE)	0.00467	Theta star (bias corrected MLE)	0.00789
nu hat (MLE)	14.54	nu star (bias corrected)	8.603
Adjusted Level of Significance (β)	0.0122		
Approximate Chi Square Value (8.60, α)	3.089	Adjusted Chi Square Value (8.60, β)	2.025
95% Gamma Approximate UCL (use when $n \geq 50$)	0.0157	95% Gamma Adjusted UCL (use when $n < 50$)	N/A

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	8.3000E-4	SD (KM)	5.8859E-4
Variance (KM)	3.4643E-7	SE of Mean (KM)	3.2895E-4
k hat (KM)	1.989	k star (KM)	1.105
nu hat (KM)	23.86	nu star (KM)	13.26
theta hat (KM)	4.1739E-4	theta star (KM)	7.5087E-4
80% gamma percentile (KM)	0.00132	90% gamma percentile (KM)	0.00186
95% gamma percentile (KM)	0.0024	99% gamma percentile (KM)	0.00364

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (13.26, α)	6.071	Adjusted Chi Square Value (13.26, β)	4.434
95% Gamma Approximate KM-UCL (use when $n \geq 50$)	0.00181	95% Gamma Adjusted KM-UCL (use when $n < 50$)	0.00248

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.823	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.353	Lilliefors GOF Test
5% Lilliefors Critical Value	0.425	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	9.6662E-4	Mean in Log Scale	-7.039
SD in Original Scale	4.7070E-4	SD in Log Scale	0.482
95% t UCL (assumes normality of ROS data)	0.00135	95% Percentile Bootstrap UCL	0.00127
95% BCA Bootstrap UCL	0.00129	95% Bootstrap t UCL	0.00183
95% H-UCL (Log ROS)	0.00172		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-7.56	KM Geo Mean	5.2103E-4
KM SD (logged)	1.129	95% Critical H Value (KM-Log)	4.578

KM Standard Error of Mean (logged)	0.699	95% H-UCL (KM -Log)	0.00995
KM SD (logged)	1.129	95% Critical H Value (KM-Log)	4.578
KM Standard Error of Mean (logged)	0.699		

DL/2 Statistics

DL/2 Normal

Mean in Original Scale	8.3083E-4
SD in Original Scale	6.0995E-4
95% t UCL (Assumes normality)	0.00133

DL/2 Log-Transformed

Mean in Log Scale	-7.507
SD in Log Scale	1.236
95% H-Stat UCL	0.0181

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.00149
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Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness. These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Step3_Cobalt

General Statistics

Total Number of Observations	6	Number of Distinct Observations	6
		Number of Missing Observations	0
Minimum	0.0063	Mean	0.0164
Maximum	0.041	Median	0.0126
SD	0.013	Std. Error of Mean	0.00532
Coefficient of Variation	0.795	Skewness	1.72

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.791
5% Shapiro Wilk Critical Value	0.788
Lilliefors Test Statistic	0.284
5% Lilliefors Critical Value	0.325

Shapiro Wilk GOF Test

Data appear Normal at 5% Significance Level

Lilliefors GOF Test

Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL

95% Student's-t UCL	0.0271
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95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL (Chen-1995)	0.0291
95% Modified-t UCL (Johnson-1978)	0.0277

Gamma GOF Test

A-D Test Statistic	0.448
5% A-D Critical Value	0.703
K-S Test Statistic	0.269

Anderson-Darling Gamma GOF Test

Detected data appear Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

5% K-S Critical Value 0.335 Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.401	k star (bias corrected MLE)	1.311
Theta hat (MLE)	0.00683	Theta star (bias corrected MLE)	0.0125
nu hat (MLE)	28.81	nu star (bias corrected)	15.74
MLE Mean (bias corrected)	0.0164	MLE Sd (bias corrected)	0.0143
Adjusted Level of Significance	0.0122	Approximate Chi Square Value (0.05)	7.777
		Adjusted Chi Square Value	5.873

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.0332	95% Adjusted Gamma UCL (use when n<50)	0.0439
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Lognormal GOF Test

Shapiro Wilk Test Statistic	0.906	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.248	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-5.067	Mean of logged Data	-4.333
Maximum of Logged Data	-3.194	SD of logged Data	0.705

Assuming Lognormal Distribution

95% H-UCL	0.0459	90% Chebyshev (MVUE) UCL	0.0298
95% Chebyshev (MVUE) UCL	0.0361	97.5% Chebyshev (MVUE) UCL	0.0447
99% Chebyshev (MVUE) UCL	0.0618		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.0252	95% Jackknife UCL	0.0271
95% Standard Bootstrap UCL	0.0244	95% Bootstrap-t UCL	0.0404
95% Hall's Bootstrap UCL	0.0562	95% Percentile Bootstrap UCL	0.025
95% BCA Bootstrap UCL	0.0275		
90% Chebyshev(Mean, Sd) UCL	0.0324	95% Chebyshev(Mean, Sd) UCL	0.0396
97.5% Chebyshev(Mean, Sd) UCL	0.0496	99% Chebyshev(Mean, Sd) UCL	0.0693

Suggested UCL to Use

95% Student's-t UCL 0.0271

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

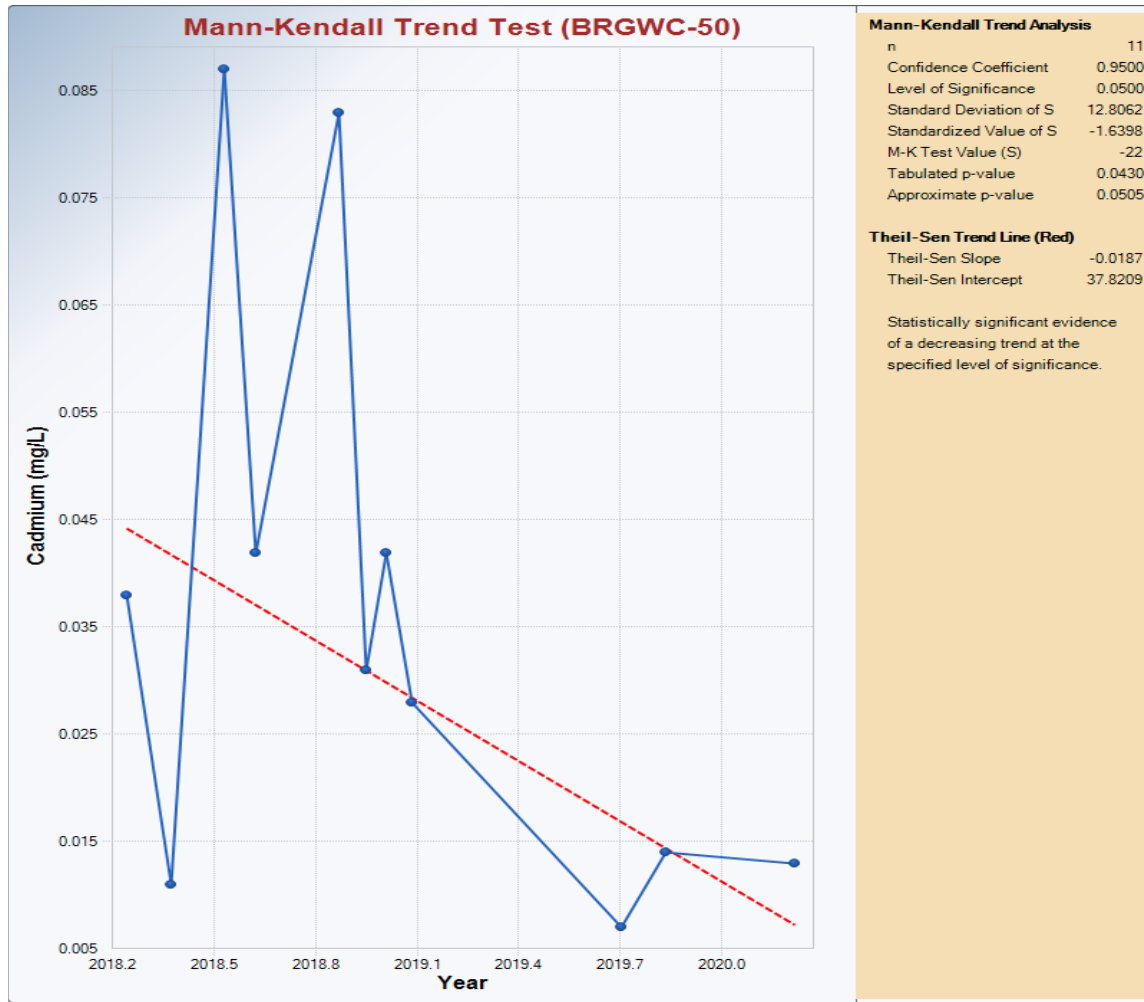
Recommendations are based upon data size, data distribution, and skewness.

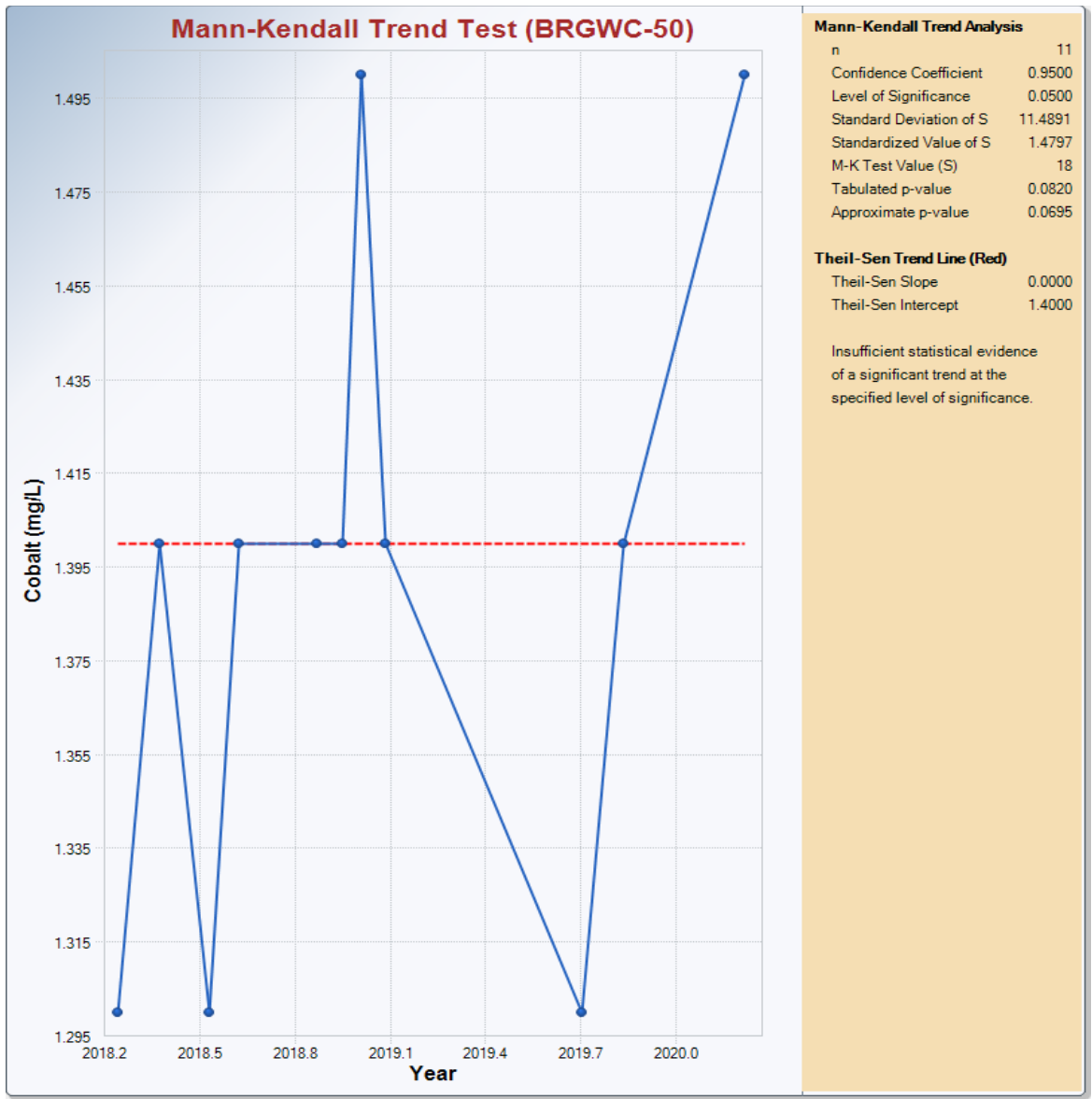
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix D-4
Groundwater Trend Graphs

Appendix D
Appendix D-4
Groundwater Trend Graphics
Branch AP-BCD Risk Evaluation Report
Plant Branch, Milledgeville, GA





APPENDIX B

Piezometer Installation Report

November 20, 2020

Project No. 166625418

Mr. Joju Abraham, PG

Southern Company Services, Inc.
241 Ralph McGill Blvd NE
Atlanta GA 30308

JAbraham@southerco.com

**PIEZOMETER INSTALLATION REPORT FOR SURFACE IMPOUNDMENT ASH POND BCD (AP-BCD)
GEORGIA POWER PLANT BRANCH, MILLEDGEVILLE, GEORGIA**

Dear Mr. Abraham:

Golder Associates Inc. (Golder) is submitting this *Piezometer Installation Report* to Southern Company Services, Inc. (SCS) and Georgia Power Company (GPC), which documents the construction of piezometers at surface impoundment Ash Pond BCD (AP-BCD) at Plant Branch in Milledgeville, Georgia (Site). Piezometer construction activities were performed in general accordance with the standards described in the *RCRA Technical Enforcement Guidance Document* (1986) and the *Georgia Water Wells Standards Act of 1985*. The installation of the piezometers was conducted under the oversight and direction of Brian Steele, a Georgia-registered Professional Geologist (PG).

The field activities for this investigation were performed in October and November 2020. The field work consisted of the installation and development of two (2) piezometers in October 2020. Metro Engineering & Surveying Co., Inc. (Metro) conducted a survey of the installed piezometers in November 2020. A summary of the activities is presented below. Figure 1, Site Plan and Piezometer Location Map, presents the location of each of the newly installed piezometers.

Piezometer Drilling and Construction Activities

Piezometers PZ-50D and PZ-51D were drilled and installed by Cascade Drilling, LP, who was contracted through SCS, at the facility in October 2020. Cascade had a current and valid bond with the Water Wells Standards Advisory Council for the state of Georgia at the time of drilling (Appendix A). The driller's name is provided on the boring/construction diagrams presented in Appendix B.

An experienced Golder geologist was present on site to oversee and record the drilling and piezometer construction under the supervision of a professional geologist registered to practice in Georgia (Brian Steele). Drilling methods employed for borehole advancement were rotosonic drilling techniques with continuous core collected. The drilling equipment consisted of a full-sized TSI 150T Truck-Mounted Sonic drilling rig, equipped

with 4-inch sonic rods with an outer-casing sleeve. During the drilling, continuous core samples were logged in the field for lithologic and geotechnical properties.

Prior to use, and between boreholes, downhole equipment was steam cleaned. The boring (lithologic) logs and piezometer construction records for the newly installed piezometers are included in Appendix B. The construction data are summarized in Table 1, and the locations of the piezometers are provided on Figure 1.

Piezometers were constructed within the borehole using factory-cleaned and sealed Schedule 40 polyvinyl chloride (PVC) products with flush-threaded fittings. Specifically, piezometers were constructed with a 10-foot section of 4-inch outer diameter (OD) and 2-inch inner diameter (ID), flush-threaded, 0.010-inch factory-slotted PVC U-Pack screen. The drillers filled the annulus of each U-Pack screen section with No. 1 filter sand. Prior to setting the wells, packer testing was performed in each borehole where water producing zones were identified in the bedrock core during drilling, beginning at 96 feet below ground surface (bgs). This depth was chosen based on the screened interval of each adjacent, shallow well. Two zones were packer tested in each borehole: 96 to 106 feet bgs and 112 to 122 feet bgs in PZ-50D, and 96 to 106 feet bgs and 106 to 114 feet bgs in PZ-51D). The purpose of the packer testing was to identify the greatest potentially water-producing zones within each 10-foot bedrock interval. The most promising water-producing zones were identified at approximately 96-106 feet bgs in each borehole. The boreholes were backfilled to 106 feet bgs, and the screen was placed at the bottom of the backfilled borehole, with the remainder of the piezometer constructed from 10-foot sections of 2-inch ID, flush-threaded, PVC casing riser. A flush-threaded PVC end cap was placed on the bottom of each piezometer to provide a 0.4-foot sump/sediment trap, and the top of the piezometers to extend to approximately 2.6 feet above grade. Construction details for the piezometers are shown on the boring/construction logs in Appendix B. The PVC products used were American Society for Testing and Materials (ASTM) and National Sanitation Foundation (NSF) rated.

Following placement of the screen and casing, the annular space in each borehole adjacent to the screen was filled with U.S. Standard Sieve size No. 1 filter pack sand as appropriate for the formation. The filter pack sand was placed into the borehole and extends approximately 2 feet above the depth of the top of the screen. Immediately following placement of the filter pack, each piezometer was pumped using a portable submersible pump until visibly clear water was discharged. If settling occurred during pumping, additional sand was placed so that the filter sand thickness was approximately 2 feet above the screen. A filter pack seal, composed of approximately 4 feet of hydrated 3/8" coated bentonite pellets, was then placed on top of the filter pack by slowly pouring the material down the borehole and tamping it into place. The bentonite was hydrated using potable water and allowed to cure for two hours prior to grouting the piezometer.

Following hydration of the bentonite, the remaining annular space was grouted with an AquaGuard® bentonite grout mixture to approximately 2 feet below ground surface using a tremie method. Based on information provided by the product manufacturer, AquaGuard® is a bentonite grout consisting of bentonite and additives that allow for a mixture of 30% solids by weight to facilitate grouting via tremie pipe, with additives that slow the bentonite curing so that proper placement can be achieved. Each piezometer surface completion consists of a locked, anodized aluminum protective casing and a 4-foot by 4-foot by 4-inch concrete pad. The annular space of the aluminum protective casing was filled with pea gravel to approximately 2 inches from top of PVC.

Piezometer Development Activities

The newly installed piezometers were developed in October 2020 in accordance with the Monitoring Well Development Procedures prepared by SCS (March 2016). The piezometers were surged using a Reclaimer pump system. During development, water quality measurements of pH, temperature, specific conductance, oxidation reduction potential (ORP), dissolved oxygen (DO), and turbidity were periodically collected using field-calibrated water quality equipment after the piezometer responded to improving conditions. Due to poor recovery, PZ-50D was surged by adding 25 gallons of deionized (DI) water during development. The volume of DI water added was removed in addition to recharged groundwater in the piezometer, as recorded on the development logs. Development activities were conducted utilizing a SmarTroll® multimeter and a Lamotte 2020 turbidimeter, and for monitoring water quality measurements. Equipment calibration forms and development forms are included in Appendix B with development details summarized in Table 2.

As presented on Table 2, between approximately 61 gallons (PZ-50D) and approximately 75 gallons (PZ-51D) of water were removed from each piezometer during development. During development, a turbidity value below 10 nephelometric turbidity units (NTUs) was achieved. Water level measurements were collected using a decontaminated electronic water level indicator, referenced to a notch (or permanent marking) at the top of the casing and recorded to within 0.01 foot.

Piezometer Survey

The newly installed piezometers were surveyed on November 3, 2020 by Metro Survey and Engineering. The survey was completed using Leica DNA10 digital level with a network of closed level loops with a positional tolerance of 0.5/0.01' H:V. The surveyed point on the top of the casing was used as reference, and the measurements were recorded to within 0.01 foot. Surveyed locations and elevations are presented on the boring/construction diagrams and a site map showing the locations of the newly installed piezometers is presented in Figure 1. The certified surveyor's report is attached as Appendix C.

Closing

We appreciate the opportunity to assist SCS and GPC with this project. Should you have any questions or require additional information, please contact the undersigned at (770) 496-1893.

Sincerely,

Golder Associates Inc.



Brian Steele, PG
Senior Project Geologist

Rachel P. Kirkman, PG
Principal and Senior Consultant

Attachments: Figure 1 Piezometer Location Map
Table 1 Piezometer Installation Summary
Table 2 Summary of Piezometer Development Data

Appendix A Cascade Drilling Bond
Appendix B Boring Logs/Construction Diagrams, Development Forms, and
Calibration Logs
Appendix C Surveyor's Report

[https://golderassociates.sharepoint.com/sites/11952g/shared documents/200 reports/well installation/pz-50d though pz-51d installation report/bcd piezometer 50d-51d installation report_draft.docx](https://golderassociates.sharepoint.com/sites/11952g/shared%20documents/200%20reports/well%20installation/pz-50d%20through%20pz-51d%20installation%20report/bcd%20piezometer%2050d-51d%20installation%20report_draft.docx)





FIGURE 1

**SITE PLAN AND PIEZOMETER
LOCATION MAP**



Path: C:\GIS\Southern Company\PlantBranch\Environmental - CCR\Figures\PZ-50D through PZ-58 Installation Report\Figures 1 - Piezometer Location Map.mxd

LEGEND

-  PIEZOMETER
-  PROPERTY BOUNDARY
-  APPROXIMATE ASH POND BOUNDARY
-  APPROXIMATE SURFACE WATER LIMITS

REFERENCE

1. SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AERGRID, IGN, AND THE GIS USER COMMUNITY ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
2. COORDINATE SYSTEM: NAD 1983 STATE PLAN GEORGIA WEST (U.S. FEET).
3. PROPERTY LINE PROVIDED BY SOUTHERN COMPANY SERVICES.
4. PIEZOMETER LOCATIONS PROVIDED BY METRO ENGINEERING.
5. SURFACE IMPOUNDMENT EXTENT PROVIDED BY SOUTHERN COMPANY SERVICES.




CLIENT
GEORGIA POWER COMPANY
 PLANT BRANCH



PROJECT
GROUNDWATER MONITORING PROGRAM

TITLE
PIEZOMETER LOCATION MAP

CONSULTANT	YYYY-MM-DD	2020-11-12
	PREPARED	DJC
	DESIGN	BS
	REVIEW	RK
	APPROVED	

PROJECT No. 166625418 CONTROL 1666254V001-GIS.mxd Rev. 0 FIGURE 1

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANS/B

TABLE 1

SUMMARY OF PIEZOMETER CONSTRUCTION DETAILS

Table 1
Summary of Piezometer Construction Details
Georgia Power Company - Plant Branch
Milledgeville, Georgia

Borehole ID	Latitude	Longitude	NAD 83 Northing	NAD 83 Easting	Elevation On Top Of PVC (feet NAVD88)	Elevation Ground Surface (feet NAVD88)	Rock Type	Total Depth (feet bgs)	Depth to Bedrock (feet bgs)	Screened Interval (feet bgs)	Core Available	Water Level (feet bTOC)	Date Installed
PZ-50D	33.190410	83.297817	1161588.9	2562381.2	380.86	378.3	Gneiss	136	66.0	96-106	Sonic Core	21.72	10/8/2020
PZ-51D	33.190548	83.297643	1161639.8	2562434.0	380.75	378.1	Gneiss	126	74.1	96-106	Sonic Core	38.36	10/9/2020

Notes:

NAD - North American Datum

NAVD88 - North American Vertical Datum 1988

bgs - Below ground surface

bTOC - Below Top of Casing

Survey Data from Metro Engineering & Surveying Co., Inc.

TABLE 2

SUMMARY OF PIEZOMETER DEVELOPMENT DATA

Table 2
Summary of Piezometer Development
Georgia Power Company - Plant Branch
Milledgeville, Georgia

Piezometer ID	Date Started	Time Started (hr:min)	Development Method	Measured Total Depth of Well (ft bTOC)	Initial Water level (ft bTOC)	Final Water Level (ft bTOC)	Volume of Casing (gal)	Total Volume Removed (gal)	pH (SU)	Specific Conductance (mS/cm)	Temp (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)
PZ-50D	10/13/2020	13:38	Reclaimer Pump	109.00	37.20	103.30	11.7	61 ^[1]	6.69	1.198	22.84	6.96	81.4	5.81
PZ-51D	10/14/2020	11:30	Reclaimer Pump	110.15	40.86	79.25	11.3	74.5	6.77	1.036	20.86	5.74	69.2	3.17

Notes:

hr:min - hours:minutes

ft bTOC - feet below Top of Casing

gal - gallons

SU - Standard Units

mS/cm - millisiemens per centimeter

°C - degrees Celcius

NTU - nephelometric turbidity units

mV - millivolts

mg/L - milligrams per liter

ORP - oxygen reduction potential

DO - dissolved oxygen

[1]: 55 gallons of water were removed from PZ-50D, which includes approximately 25 gallons of deionized water that was added to facilitate development

APPENDIX A

CADCADE DRILLING BOND

COPY

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company

, Surety upon

a certain Bond No. **800031223**

dated effective June 30, 2017
(MONTH-DAY-YEAR)

on behalf of Michael C. Rice and Cascade Drilling, L.P., any and all employees, officers and partners
(PRINCIPAL)

and in favor of State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2019
(MONTH-DAY-YEAR)

and ending on June 30, 2021
(MONTH-DAY-YEAR)

Amount of bond Thirty Thousand and Zero/100 (\$30,000.00)

Description of bond Water Well Contractor Performance Bond

Premium: \$1,200.00

PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on May 9, 2019
(MONTH-DAY-YEAR)
Atlantic Specialty Insurance Company

By _____
Attorney-in-Fact Elizabeth R. Hahn

Parker, Smith & Feek, Inc.
Agent

2233 112th Ave NE Bellevue, WA 98004
Address of Agent

(425) 709-3600
Telephone Number of Agent

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Deanna M. French, Susan B. Larson, Elizabeth R. Hahn, Jana M. Roy, Scott McGilvray, Mindee L. Rankin, Ronald J. Lange, John R. Claeys, Roger Kaltenbach, Guy Armfield, Scott Fisher, Andrew P. Larsen, Nicholas Fredrickson**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **sixty million dollars (\$60,000,000)** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

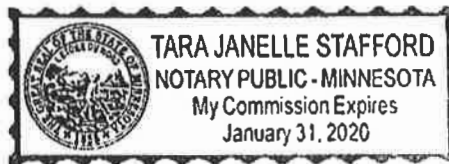
IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this twenty-sixth day of October, 2017.

STATE OF MINNESOTA
HENNEPIN COUNTY



By 
Paul J. Brehm, Senior Vice President

On this twenty-sixth day of October, 2017, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.



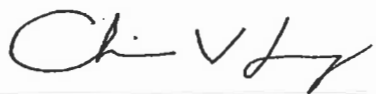

Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 9 day of May 2019

This Power of Attorney expires
October 1, 2019




Christopher V. Jerry, Secretary

APPENDIX B

**BORING LOGS/CONSTRUCTION
DIAGRAMS, DEVELOPMENT
FORMS AND CALIBRATION LOGS**

RECORD OF BOREHOLE PZ-50D

SHEET 1 of 4

PROJECT: Plant Branch
 PROJECT NUMBER: 1666254-01
 DRILLED DEPTH: 136.00 ft
 LOCATION: Adjacent to BRGWC-50

DRILL RIG: TSI 150T Truck Mounted
 DATE STARTED: 10/5/20
 DATE COMPLETED: 10/8/20

NORTHING: 1,161,588.9
 EASTING: 2,562,381.2
 GS ELEVATION: 378.3
 TOC ELEVATION: 380.86 ft

DEPTH W.L.: 21.72
 ELEVATION W.L.: 356.58
 DATE W.L.: 10/8/2020
 TIME W.L.: 12:45

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES PZ-50D	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0		0.00 - 6.00 HYDROVAC HOLE BACKFILL, SM; SILTY SAND, red, micaceous, highly weathered, non-cohesive, loose, wet	SM		372.3 6.00	1	ROTO SONIC	2.00 6.00	<p>WELL CASING Interval: 0'-106' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 96'-106' Material: 0.010" Slotted Schedule 40 PVC U-pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 93.9'-108.1' Type: #1 Sand Quantity: 4 - 50lb bags</p> <p>FILTER PACK SEAL Interval: 89.7'-93.9' Type: 3/8" Pel-Plud Quantity: 1 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0'-89.7' Type: Aquaguard bentonite grout Quantity: ~6 bags Aquaguard + ~100 gallons H2O</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
375		6.00 - 10.50 SC; CLAYEY SAND WITH SILT, red, micaceous, highly weathered, RESIDUUM, non-cohesive, loose to compact, wet	SC		367.8 10.50	2	ROTO SONIC	8.00 10.00	
5		10.50 - 14.00 SM; SILTY SAND WITH SOME CLAY, gray with red/orange clay, micaceous, highly weathered RESIDUUM, non-cohesive, loose, moist to wet	SM		364.3 14.00	3	ROTO SONIC	5.00 10.00	
10		14.00 - 23.00 SC-CL; SANDY CLAY/CLAYEY SAND, red/orange, micaceous, moderately to highly weathered RESIDUUM, cohesive, very soft to firm, w>PL	CL		355.3 23.00	4	ROTO SONIC	9.40 10.00	
15		23.00 - 26.00 SM; SILTY SAND WITH SOME CLAY, grey with red/orange, micaceous, moderately to highly weathered RESIDUUM, non-cohesive, very loose to loose, dry	SM		352.3 26.00	5	ROTO SONIC	10.00 10.00	
20		26.00 - 56.00 SC-CL; SANDY CLAY/CLAYEY SAND, grey with red/orange, micaceous, moderately weathered RESIDUUM, cohesive, very soft to stiff, w~PL	CL						
35									
37.5									
40									

Log continued on next page

BOREHOLE RECORD PLANT_BRANCH_20200603_CT_SURVEY_UPDATED.GPJ PIEDMONT.GDT 11/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Environmental
 DRILLER: Logan Hall

GA INSPECTOR: Chris Tidwell
 CHECKED BY: Brian Steele, PG
 DATE: 11/12/20



RECORD OF BOREHOLE PZ-50D


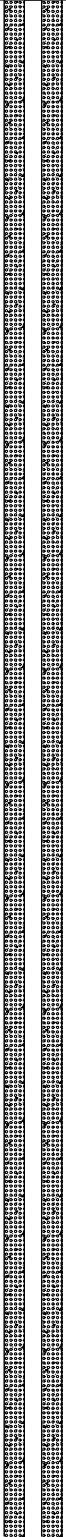
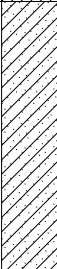


SHEET 2 of 4

PROJECT: Plant Branch
 PROJECT NUMBER: 1666254-01
 DRILLED DEPTH: 136.00 ft
 LOCATION: Adjacent to BRGWC-50

DRILL RIG: TSI 150T Truck Mounted
 DATE STARTED: 10/5/20
 DATE COMPLETED: 10/8/20

NORTHING: 1,161,588.9
 EASTING: 2,562,381.2
 GS ELEVATION: 378.3
 TOC ELEVATION: 380.86 ft

DEPTH W.L.: 21.72
 ELEVATION W.L.: 356.58
 DATE W.L.: 10/8/2020
 TIME W.L.: 12:45

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES PZ-50D	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
40		26.00 - 56.00 SC-CL; SANDY CLAY/CLAYEY SAND, grey with red/orange, micaceous, moderately weathered RESIDUUM, cohesive, very soft to stiff, w~PL (Continued)	CL		322.3	5	ROTO SONIC	10.00 10.00		WELL CASING Interval: 0'-106' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 96'-106' Material: 0.010" Slotted Schedule 40 PVC U-pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 93.9'-108.1' Type: #1 Sand Quantity: 4 - 50lb bags FILTER PACK SEAL Interval: 89.7'-93.9' Type: 3/8" Pel-Plud Quantity: 1 5 gallon bucket ANNULUS SEAL Interval: 0'-89.7' Type: Aquaguard bentonite grout Quantity: ~6 bags Aquaguard + ~100 gallons H2O WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
335	45				56.00 - 63.00 SC-CL; CLAYEY SAND/SANDY CLAY, with silt and trace gravels of gneiss, brown/grey, micaceous, moderately to highly weathered SAPROLITE, non-cohesive, loose to compact, moist	SC		315.3		
350	55	63.00 - 66.00 BIOTITE GNEISS, BEDROCK, trace silt and clay, TWR transitioning to highly weathered Gneiss bedrock, grey with black/white banding, qtz, feldspar, mica and amphibole, non-cohesive, loose to compact; moist	TWR		312.3	8	ROTO SONIC	10.00 10.00		
365	65				66.00 - 106.00 BIOTITE GNEISS, BEDROCK, black/white banded, finely and coarsely crystalline, containing quartz, mica, feldspar, amphibole, trace hornblende, moderately to highly weathered ; strength index: R3-R4	Gneiss		300	9	ROTO SONIC
380	75	Log continued on next page								

BOREHOLE RECORD PLANT_BRANCH_20200603_CT_SURVEY_UPDATED.GPJ PIEDMONT.GDT 11/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Environmental
 DRILLER: Logan Hall

GA INSPECTOR: Chris Tidwell
 CHECKED BY: Brian Steele, PG
 DATE: 11/12/20



RECORD OF BOREHOLE PZ-50D

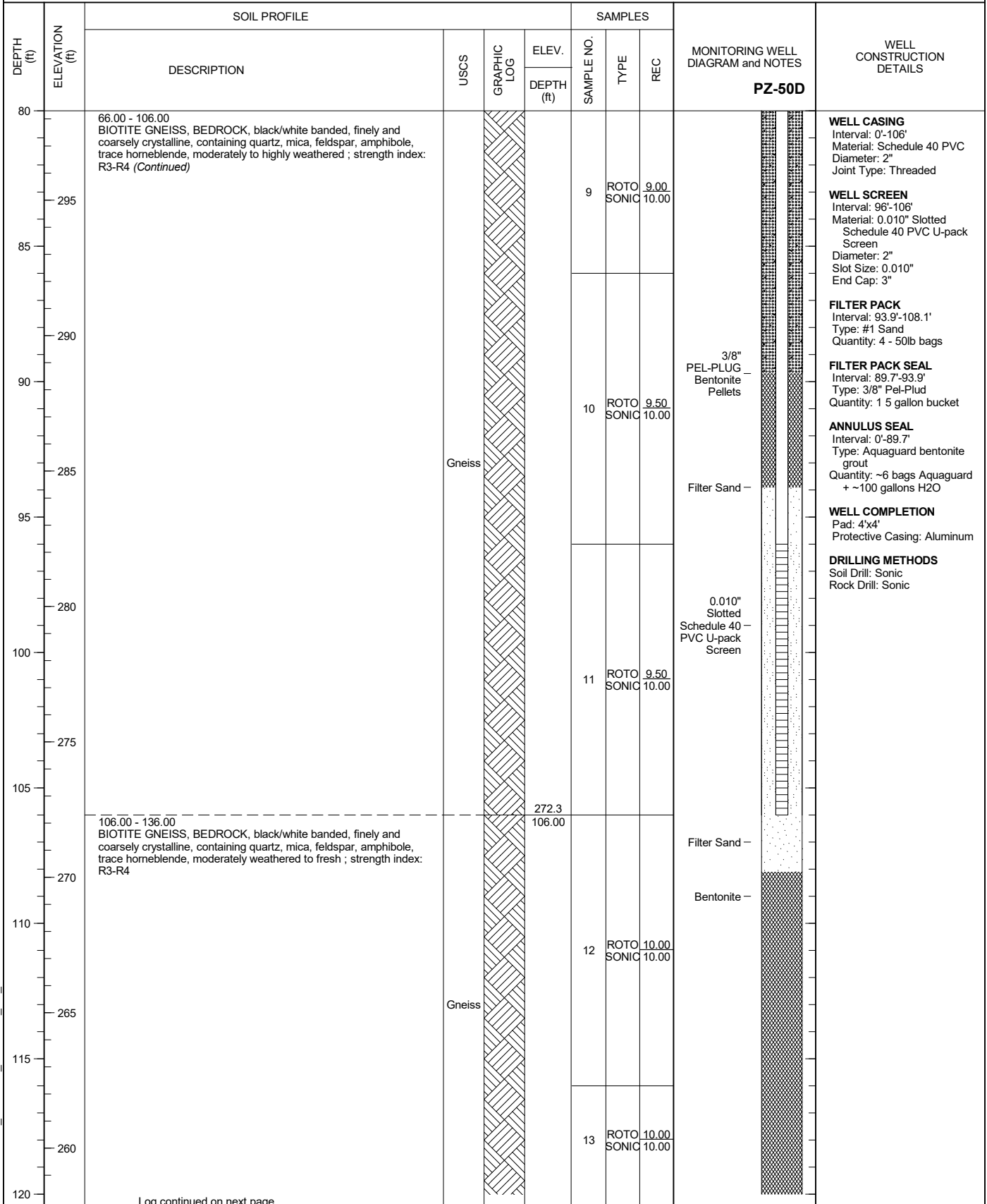
SHEET 3 of 4

PROJECT: Plant Branch
 PROJECT NUMBER: 1666254-01
 DRILLED DEPTH: 136.00 ft
 LOCATION: Adjacent to BRGWC-50

DRILL RIG: TSI 150T Truck Mounted
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NORTHING: 1,161,588.9
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DEPTH W.L.: 21.72
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Log continued on next page

BOREHOLE RECORD PLANT_BRANCH_20200603_CT_SURVEY_UPDATED.GPJ PIEDMONT.GDT 11/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Environmental
 DRILLER: Logan Hall

GA INSPECTOR: Chris Tidwell
 CHECKED BY: Brian Steele, PG
 DATE: 11/12/20



RECORD OF BOREHOLE PZ-50D



SHEET 4 of 4

PROJECT: Plant Branch
 PROJECT NUMBER: 1666254-01
 DRILLED DEPTH: 136.00 ft
 LOCATION: Adjacent to BRGWC-50

DRILL RIG: TSI 150T Truck Mounted
 DATE STARTED: 10/5/20
 DATE COMPLETED: 10/8/20

NORTHING: 1,161,588.9
 EASTING: 2,562,381.2
 GS ELEVATION: 378.3
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DEPTH W.L.: 21.72
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DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
120		106.00 - 136.00 BIOTITE GNEISS, BEDROCK, black/white banded, finely and coarsely crystalline, containing quartz, mica, feldspar, amphibole, trace hornblende, moderately weathered to fresh ; strength index: R3-R4 (Continued)	Gneiss						WELL CASING Interval: 0'-106' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 96'-106' Material: 0.010" Slotted Schedule 40 PVC U-pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 93.9'-108.1' Type: #1 Sand Quantity: 4 - 50lb bags FILTER PACK SEAL Interval: 89.7'-93.9' Type: 3/8" Pel-Plud Quantity: 1 5 gallon bucket ANNULUS SEAL Interval: 0'-89.7' Type: Aquaguard bentonite grout Quantity: ~6 bags Aquaguard + ~100 gallons H2O WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic	
255					13	ROTO SONIC	10.00			10.00
125										
250										
130					14	ROTO SONIC	10.00			
245										
135							242.3			
		Boring completed at 136.00 ft								
240										
140										
235										
145										
230										
150										
225										
155										
220										
160										

BOREHOLE RECORD PLANT_BRANCH_20200603_CT_SURVEY_UPDATED.GPJ PIEDMONT.GDT 11/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Environmental
 DRILLER: Logan Hall

GA INSPECTOR: Chris Tidwell
 CHECKED BY: Brian Steele, PG
 DATE: 11/12/20



RECORD OF BOREHOLE PZ-51D

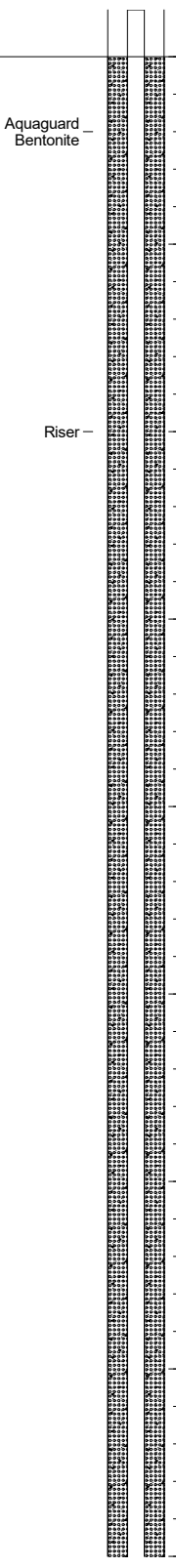
SHEET 1 of 4

PROJECT: Plant Branch
 PROJECT NUMBER: 1666254-01
 DRILLED DEPTH: 126.00 ft
 LOCATION: Adjacent to PZ-511

DRILL RIG: TSI 150T Truck Mounted
 DATE STARTED: 10/8/20
 DATE COMPLETED: 10/9/20

NORTHING: 1,161,639.8
 EASTING: 2,562,434.0
 GS ELEVATION: 378.1
 TOC ELEVATION: 380.75 ft

DEPTH W.L.: 38.36'
 ELEVATION W.L.: 339.74
 DATE W.L.: 10/14/2020
 TIME W.L.: 11:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	375	0.00 - 6.00 HYDROVAC HOLE BACKFILL, SM; SILTY SAND, red, micaceous, highly weathered, non-cohesive, loose, wet	SM	[Cross-hatched pattern]	372.1 6.00	1	ROTO SONIC	2.70 6.00	<p style="text-align: center;">PZ-51D</p>  <p style="text-align: center;">Aquaguard Bentonite</p> <p style="text-align: center;">Riser</p>	<p>WELL CASING Interval: 0'-106' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 96'-106' Material: 0.010" Slotted Schedule 40 PVC U-pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 93.6'-108.2 Type: #1 Sand Quantity: 5 - 50lb bags</p> <p>FILTER PACK SEAL Interval: 89.5'-93.6' Type: 3/8" Pel-Plug Quantity: 1 x 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0'-89.5' Type: Aquaguard bentonite grout Quantity: ~6 bags Aquaguard + ~100 gallons H2O</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
5	370	6.00 - 12.00 CL; SANDY CLAY, red/orange; highly weathered RESIDUUM, cohesive, firm, w-PL	CL	[Diagonal line pattern]	366.1 12.00	2	ROTO SONIC	5.00 10.00		
10	365	12.00 - 36.00 SM; SILTY SAND, trace clay and gravel, gray with red/orange clay, micaceous, highly weathered RESIDUUM, non-cohesive, loose, dry to moist	SM	[Dotted pattern]	342.1 36.00	3	ROTO SONIC	4.10 10.00		
15	360					4	ROTO SONIC	6.20 10.00		
20	355					5	ROTO SONIC	0.00 10.00		
25	350									
30	345									
35	340	36.00 - 46.00 No Recovery	SM	[Dotted pattern]						

Log continued on next page

BOREHOLE RECORD PLANT_BRANCH_20200603_CT_SURVEY_UPDATED.GPJ PIEDMONT.GDT 11/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Environmental
 DRILLER: Logan Hall

GA INSPECTOR: Chris Tidwell
 CHECKED BY: Brian Steele, PG
 DATE: 11/12/20



RECORD OF BOREHOLE PZ-51D

SHEET 2 of 4

PROJECT: Plant Branch
 PROJECT NUMBER: 1666254-01
 DRILLED DEPTH: 126.00 ft
 LOCATION: Adjacent to PZ-511

DRILL RIG: TSI 150T Truck Mounted
 DATE STARTED: 10/8/20
 DATE COMPLETED: 10/9/20

NORTHING: 1,161,639.8
 EASTING: 2,562,434.0
 GS ELEVATION: 378.1
 TOC ELEVATION: 380.75 ft

DEPTH W.L.: 38.36'
 ELEVATION W.L.: 339.74
 DATE W.L.: 10/14/2020
 TIME W.L.: 11:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES PZ-51D	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		36.00 - 46.00 No Recovery (Continued)	SM	[Dotted Pattern]	332.1 46.00	5	ROTO SONIC	0.00 10.00		<p>WELL CASING Interval: 0'-106' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 96'-106' Material: 0.010" Slotted Schedule 40 PVC U-pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 93.6'-108.2 Type: #1 Sand Quantity: 5 - 50lb bags</p> <p>FILTER PACK SEAL Interval: 89.5'-93.6' Type: 3/8" Pel-Plug Quantity: 1 x 5 gallon bucket</p> <p>ANNULUS SEAL Interval: 0'-89.5' Type: Aquaguard bentonite grout Quantity: ~6 bags Aquaguard + ~100 gallons H2O</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
45		46.00 - 57.70 CH; SANDY-SILTY CLAY, dark brown/grey, micaceous, moderately weathered RESIDUUM, cohesive, stiff to very stiff, w<PL to w~PL	CH	[Diagonal Hatching]	320.4 57.70	6	ROTO SONIC	10.00 10.00		
50		57.70 - 65.00 SM; SILTY SAND WITH GRAVEL, trace clay, brown and light tan, micaceous, slightly weathered SAPROLITE, non-cohesive, loose to compact, dry	SM	[Dotted Pattern]	313.1 65.00	7	ROTO SONIC	10.00 10.00		
55		65.00 - 74.10 GM; SILTY-SANDY GRAVEL, gravels of gneiss with black/white banding; highly weathered TWR, non-cohesive, dense, wet (possibly from drilling water), no recovery from 66-74.1.	TWR	[Gravel Pattern]	304 74.10	8	ROTO SONIC	1.90 10.00		
60		74.10 - 96.00 BIOTITE GNEISS, BEDROCK, black/white banded, finely and coarsely crystalline, containing quartz, mica, feldspar, amphibole, trace hornblende, moderately weathered; strength index: R3-R4	Gneiss	[Gneiss Pattern]		9	ROTO SONIC	9.50 10.00		
65		Log continued on next page								

BOREHOLE RECORD PLANT_BRANCH_20200603_CT_SURVEY_UPDATED.GPJ PIEDMONT.GDT 11/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Environmental
 DRILLER: Logan Hall

GA INSPECTOR: Chris Tidwell
 CHECKED BY: Brian Steele, PG
 DATE: 11/12/20



RECORD OF BOREHOLE PZ-51D

SHEET 3 of 4

PROJECT: Plant Branch
 PROJECT NUMBER: 1666254-01
 DRILLED DEPTH: 126.00 ft
 LOCATION: Adjacent to PZ-511

DRILL RIG: TSI 150T Truck Mounted
 DATE STARTED: 10/8/20
 DATE COMPLETED: 10/9/20

NORTHING: 1,161,639.8
 EASTING: 2,562,434.0
 GS ELEVATION: 378.1
 TOC ELEVATION: 380.75 ft

DEPTH W.L.: 38.36'
 ELEVATION W.L.: 339.74
 DATE W.L.: 10/14/2020
 TIME W.L.: 11:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC			
80		74.10 - 96.00 BIOTITE GNEISS, BEDROCK, black/white banded, finely and coarsely crystalline, containing quartz, mica, feldspar, amphibole, trace hornblende, moderately weathered; strength index: R3-R4 <i>(Continued)</i>	Gneiss		282.1	9	ROTO SONIC	9.50 10.00	3/8" PEL-PLUG Bentonite Pellets	Filter Sand	0.010" Slotted Schedule 40 PVC U-pack Screen
295	85				290	90	285	95			
280		96.00 - 106.00 BIOTITE GNEISS, BEDROCK, black/white banded, finely and coarsely crystalline, containing quartz, mica, feldspar, amphibole, trace hornblende, highly weathered; strength index: R2-R3	Gneiss		272.1	11	ROTO SONIC	9.50 10.00	Filter Sand	Bentonite	Filter Sand
100	275				105	110	265	115			
270		106.00 - 126.00 BIOTITE GNEISS, BEDROCK, black/white banded, finely and coarsely crystalline, containing quartz, mica, feldspar, amphibole, trace hornblende, moderately weathered to fresh; strength index: R3-R4	Gneiss		260	13	ROTO SONIC	9.50 10.00	Filter Sand	Bentonite	Filter Sand
110	265				115	260	120	125			

Log continued on next page

BOREHOLE RECORD PLANT_BRANCH_20200603_CT_SURVEY_UPDATED.GPJ_PIEDMONT.GDT 11/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Environmental
 DRILLER: Logan Hall

GA INSPECTOR: Chris Tidwell
 CHECKED BY: Brian Steele, PG
 DATE: 11/12/20



RECORD OF BOREHOLE PZ-51D

SHEET 4 of 4

PROJECT: Plant Branch
 PROJECT NUMBER: 1666254-01
 DRILLED DEPTH: 126.00 ft
 LOCATION: Adjacent to PZ-511

DRILL RIG: TSI 150T Truck Mounted
 DATE STARTED: 10/8/20
 DATE COMPLETED: 10/9/20

NORTHING: 1,161,639.8
 EASTING: 2,562,434.0
 GS ELEVATION: 378.1
 TOC ELEVATION: 380.75 ft

DEPTH W.L.: 38.36'
 ELEVATION W.L.: 339.74
 DATE W.L.: 10/14/2020
 TIME W.L.: 11:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
120		106.00 - 126.00 BIOTITE GNEISS, BEDROCK, black/white banded, finely and coarsely crystalline, containing quartz, mica, feldspar, amphibole, trace hornblende, moderately weathered to fresh; strength index: R3-R4 (Continued)	Gneiss						WELL CASING Interval: 0'-106' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 96'-106' Material: 0.010" Slotted Schedule 40 PVC U-pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 93.6'-108.2 Type: #1 Sand Quantity: 5 - 50lb bags FILTER PACK SEAL Interval: 89.5'-93.6' Type: 3/8" Pel-Plug Quantity: 1 x 5 gallon bucket ANNULUS SEAL Interval: 0'-89.5' Type: Aquaguard bentonite grout Quantity: ~6 bags Aquaguard + ~100 gallons H2O WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
255							13		
125		Boring completed at 126.00 ft			252.1				
250									
130									
245									
135									
240									
140									
235									
145									
230									
150									
225									
155									
220									
160									

BOREHOLE RECORD PLANT_BRANCH_20200603_CT_SURVEY_UPDATED.GPJ_PIEDMONT.GDT 11/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Environmental
 DRILLER: Logan Hall

GA INSPECTOR: Chris Tidwell
 CHECKED BY: Brian Steele, PG
 DATE: 11/12/20



Project Plant Branch
 Field Staff D.Thomas

Instrument Calibration

Date: 10-13-20 Time: 1200

Parameter	Units	Standard	SmarTROLL SN 643819 iPad # 79	SmarTROLL SN _____ iPad # _____	SmarTROLL SN _____ iPad # _____	SmarTROLL SN _____ iPad # _____
DO	% saturation	100	92.7			
Conductivity	us/cm	4490	4485			
pH	S.U.	4.00	4.004.12			
pH	S.U.	7.00	7.02			
pH	S.U.	10.00	9.89			
ORP	mV	228.00	228.00			

Turbidity	Units	Standard	LaMotte SN 2953-0413	LaMotte SN _____	LaMotte SN _____	LaMotte SN _____
	NTU	0.0	0.0			
	NTU	1.0	1.0			
	NTU	10.0	10.0			

Date: 10-14-20 Time: 0810

Parameter	Units	Standard	SmarTROLL SN 643819 iPad # 79	SmarTROLL SN _____ iPad # _____	SmarTROLL SN _____ iPad # _____	SmarTROLL SN _____ iPad # _____
DO	% saturation	100	91.3			
Conductivity	us/cm	4490	4255			
pH	S.U.	4.00	4.20			
pH	S.U.	7.00	7.04			
pH	S.U.	10.00	9.86			
ORP	mV	228.00	232.2			

Turbidity	Units	Standard	LaMotte SN 2953-0413	LaMotte SN _____	LaMotte SN _____	LaMotte SN _____
	NTU	0.0	0.0			
	NTU	1.0	1.0			
	NTU	10.0	10.0			

Notes: DO - Dissolved Oxygen; us/cm - microsiemens/centimeter; ORP - oxidation-reduction potential; mV - millivolts; NTU - Nephelometric Turbidity Units; NC - Not calibrated

2.30



Project Plant Branch
 Field Staff D.Thomas

Instrument Calibration

Date: ~~0830-1015-20~~ ^{DT} 1015-20 Time: ^{DT} 0830

Parameter	Units	Standard	SmarTROLL SN <u>643819</u> iPad # <u>79</u>	SmarTROLL SN _____ iPad # _____	SmarTROLL SN _____ iPad # _____	SmarTROLL SN _____ iPad # _____
DO	% saturation	100	<u>92.30</u>			
Conductivity	us/cm	4490	<u>4288</u>			
pH	S.U.	4.00	<u>4.16</u>			
pH	S.U.	7.00	<u>7.02</u>			
pH	S.U.	10.00	<u>9.90</u>			
ORP	mV	228.00	<u>224.4</u>			

Turbidity	Units	Standard	LaMotte SN <u>2953-043</u>	LaMotte SN	LaMotte SN	LaMotte SN
	NTU	0.0	<u>0.0</u>			
	NTU	1.0	<u>1.0</u>			
	NTU	10.0	<u>10.0</u>			

Date:

Time:

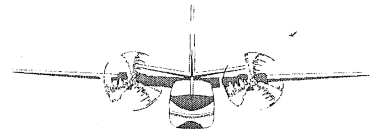
Parameter	Units	Standard	SmarTROLL SN _____ iPad # _____	SmarTROLL SN _____ iPad # _____	SmarTROLL SN _____ iPad # _____	SmarTROLL SN _____ iPad # _____
DO	% saturation	100				
Conductivity	us/cm	4490				
pH	S.U.	4.00				
pH	S.U.	7.00				
pH	S.U.	10.00				
ORP	mV	228.00				

Turbidity	Units	Standard	LaMotte SN	LaMotte SN	LaMotte SN	LaMotte SN
	NTU	0.0				
	NTU	1.0				
	NTU	10.0				

Notes: DO - Dissolved Oxygen; us/cm - microsiemens/centimeter; ORP - oxidation-reduction potential; mV - millivolts; NTU - Nphelometric Turbidity Units; NC - Not calibrated

APPENDIX C

CERTIFIED WELL SURVEY



METRO ENGINEERING & SURVEYING CO., INC.
SURVEYORS - ENGINEERS - PHOTOGRAMMETRISTS
PROVIDING PROFESSIONAL SERVICE SINCE 1967

1469 Highway 20 West • McDonough, GA 30253
phone: 770-707-0777 fax: 770.707-0755
WWW.METRO-ENGINEERING.COM

SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing monitoring wells at Georgia Power Company, Plant Branch in Milledgeville, GA.

Horizontal and vertical datum were derived from RTK GPS observations with corrections from the eGPS network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

Trimble R8 Dual Frequency GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Trimble R8 Dual Frequency RTK (survey-grade) global positioning system receiver referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse kilometer.

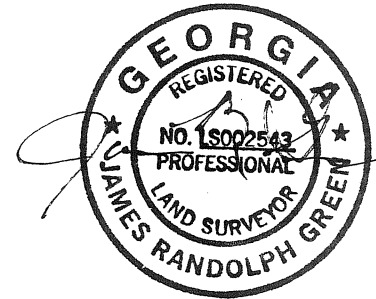

James R. Green R.L.S. No. 2543

Date: 11/4/20



Plant Branch
 Monitoring Well Locations
 November 3, 2020

Well ID	LATITUDE	LONGITUDE	NAIL NORTHING	NAIL EASTING	NAIL ELEVATION	PVC NORTHING	PVC EASTING	PVC ELEVATION	ELEV AT BASE CONC/GRD
IW-E-1	N33.198117	W83.327753	1164319.1	2553199.5	436.39	1164318.5	2553200.4	439.49	436.4
IW-D-2	N33.192791	W83.311136	1162422.3	2558298.6	407.12	1162422.3	2558297.6	409.93	407.1
IW-D-1	N33.191078	W83.310119	1161801.4	2558614.9	403.61	1161801.5	2558614.0	406.44	403.6
IW-C-2	N33.190286	W83.305869	1161524.2	2559917.4	395.11	1161523.0	2559917.3	397.64	395.1
IW-C-1	N33.190367	W83.308256	1161547.4	2559187.0	395.35	1161546.3	2559186.8	398.00	395.4
IW-B-2	N33.193317	W83.304804	1162629.5	2560234.0	378.60	1162630.0	2560233.2	381.32	378.6
PZ-50D	N33.190410	W83.297817	1161589.4	2562380.3	378.32	1161588.9	2562381.2	380.86	378.3
PZ-51D	N33.190548	W83.297643	1161640.3	2562433.0	378.12	1161639.8	2562434.0	380.75	378.1
IW-B-1	N33.189085	W83.300799	1161099.7	2561472.0	376.29	1161100.8	2561471.6	379.01	376.3



APPENDIX C

Laboratory Analytical Results

September 11, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 19, 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
- Pace Analytical Services - Peachtree Corners, GA
- Pace Analytical Services - Greensburg

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: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta
Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

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 #: 191
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 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

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, 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: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92491389001	BRGWA-5I	Water	08/18/20 09:40	08/19/20 10:10
92491389002	BRGWA-5S	Water	08/18/20 10:15	08/19/20 10:10
92491389003	BRGWA-2I	Water	08/18/20 10:45	08/19/20 10:10
92491389004	BRGWA-2S	Water	08/18/20 11:38	08/19/20 10:10
92491389005	BRGWA-6S	Water	08/18/20 12:48	08/19/20 10:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92491389001	BRGWA-5I	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491389002	BRGWA-5S	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491389003	BRGWA-2I	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491389004	BRGWA-2S	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491389005	BRGWA-6S	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A

PASI-A = Pace Analytical Services - Asheville
PASI-C = Pace Analytical Services - Charlotte
PASI-GA = Pace Analytical Services - Peachtree Corners, GA
PASI-PA = Pace Analytical Services - Greensburg

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SUMMARY OF DETECTION

Project: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92491389001	BRGWA-5I					
	pH	6.29	Std. Units		09/09/20 17:00	
EPA 6020B	Barium	0.022	mg/L	0.010	08/21/20 17:42	
EPA 6020B	Chromium	0.0069J	mg/L	0.010	08/21/20 17:42	
EPA 6020B	Cobalt	0.00048J	mg/L	0.0050	08/21/20 17:42	
EPA 6020B	Lithium	0.00095J	mg/L	0.030	08/21/20 17:42	
EPA 6020B	Molybdenum	0.0015J	mg/L	0.010	08/21/20 17:42	
EPA 9315	Radium-226	0.0774 ± 0.196 (0.479)	pCi/L		09/02/20 07:40	
EPA 9320	Radium-228	C:76% T:NA 0.453 ± 0.459 (0.950)	pCi/L		09/09/20 12:05	
		C:53% T:92%				
Total Radium Calculation	Total Radium	0.530 ± 0.655 (1.43)	pCi/L		09/10/20 13:23	
92491389002	BRGWA-5S					
	pH	6.41	Std. Units		09/09/20 17:00	
EPA 6020B	Antimony	0.0016J	mg/L	0.0030	08/21/20 18:05	
EPA 6020B	Barium	0.040	mg/L	0.010	08/21/20 18:05	
EPA 6020B	Chromium	0.0050J	mg/L	0.010	08/21/20 18:05	
EPA 6020B	Lead	0.00010J	mg/L	0.0050	08/21/20 18:05	
EPA 9315	Radium-226	0.241 ± 0.241 (0.446)	pCi/L		09/02/20 07:41	
EPA 9320	Radium-228	C:86% T:NA 0.340 ± 0.449 (0.959)	pCi/L		09/09/20 12:05	
		C:59% T:93%				
Total Radium Calculation	Total Radium	0.581 ± 0.690 (1.41)	pCi/L		09/10/20 13:23	
92491389003	BRGWA-2I					
	pH	6.59	Std. Units		09/09/20 17:00	
EPA 6020B	Antimony	0.00054J	mg/L	0.0030	08/21/20 18:11	
EPA 6020B	Barium	0.010J	mg/L	0.010	08/21/20 18:11	
EPA 6020B	Chromium	0.00096J	mg/L	0.010	08/21/20 18:11	
EPA 6020B	Lithium	0.054	mg/L	0.030	08/21/20 18:11	
EPA 6020B	Molybdenum	0.0011J	mg/L	0.010	08/21/20 18:11	
EPA 9315	Radium-226	0.0861 ± 0.243 (0.593)	pCi/L		09/02/20 07:41	
		C:77% T:NA				

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92491389003	BRGWA-2I					
EPA 9320	Radium-228	-0.176 ± 0.358 (0.872) C:61% T:91%	pCi/L		09/09/20 12:05	
Total Radium Calculation	Total Radium	0.0861 ± 0.601 (1.47)	pCi/L		09/10/20 13:23	
92491389004	BRGWA-2S					
	pH	6.06	Std. Units		09/09/20 17:00	
EPA 6020B	Antimony	0.00042J	mg/L	0.0030	08/21/20 18:17	
EPA 6020B	Barium	0.010	mg/L	0.010	08/21/20 18:17	
EPA 6020B	Chromium	0.0085J	mg/L	0.010	08/21/20 18:17	
EPA 6020B	Cobalt	0.0014J	mg/L	0.0050	08/21/20 18:17	
EPA 9315	Radium-226	0.189 ± 0.267 (0.570) C:70% T:NA	pCi/L		09/02/20 07:41	
EPA 9320	Radium-228	1.03 ± 0.516 (0.891) C:61% T:81%	pCi/L		09/09/20 12:05	
Total Radium Calculation	Total Radium	1.22 ± 0.783 (1.46)	pCi/L		09/10/20 13:23	
92491389005	BRGWA-6S					
	pH	6.33	Std. Units		09/09/20 17:00	
EPA 6020B	Barium	0.014	mg/L	0.010	08/21/20 18:22	
EPA 6020B	Chromium	0.015	mg/L	0.010	08/21/20 18:22	
EPA 6020B	Cobalt	0.00061J	mg/L	0.0050	08/21/20 18:22	
EPA 6020B	Lithium	0.0026J	mg/L	0.030	08/21/20 18:22	
EPA 9315	Radium-226	-0.0918 ± 0.174 (0.573) C:79% T:NA	pCi/L		09/02/20 08:46	
EPA 9320	Radium-228	0.453 ± 0.384 (0.763) C:66% T:81%	pCi/L		09/09/20 12:05	
Total Radium Calculation	Total Radium	0.453 ± 0.558 (1.34)	pCi/L		09/10/20 13:23	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

Sample: BRGWA-5I		Lab ID: 92491389001		Collected: 08/18/20 09:40		Received: 08/19/20 10:10		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.29	Std. Units			1		09/09/20 17:00		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/20/20 14:56	08/21/20 17:42	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/20/20 14:56	08/21/20 17:42	7440-38-2	
Barium	0.022	mg/L	0.010	0.00071	1	08/20/20 14:56	08/21/20 17:42	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/20/20 14:56	08/21/20 17:42	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/20/20 14:56	08/21/20 17:42	7440-43-9	
Chromium	0.0069J	mg/L	0.010	0.00055	1	08/20/20 14:56	08/21/20 17:42	7440-47-3	
Cobalt	0.00048J	mg/L	0.0050	0.00038	1	08/20/20 14:56	08/21/20 17:42	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/20/20 14:56	08/21/20 17:42	7439-92-1	
Lithium	0.00095J	mg/L	0.030	0.00081	1	08/20/20 14:56	08/21/20 17:42	7439-93-2	
Molybdenum	0.0015J	mg/L	0.010	0.00069	1	08/20/20 14:56	08/21/20 17:42	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/20/20 14:56	08/21/20 17:42	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/20/20 14:56	08/21/20 17:42	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/21/20 08:05	08/21/20 12:37	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	ND	mg/L	0.10	0.050	1		08/20/20 17:51	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

Sample: BRGWA-5S		Lab ID: 92491389002		Collected: 08/18/20 10:15		Received: 08/19/20 10:10		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.41	Std. Units			1		09/09/20 17:00		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.0016J	mg/L	0.0030	0.00028	1	08/20/20 14:56	08/21/20 18:05	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/20/20 14:56	08/21/20 18:05	7440-38-2	
Barium	0.040	mg/L	0.010	0.00071	1	08/20/20 14:56	08/21/20 18:05	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/20/20 14:56	08/21/20 18:05	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/20/20 14:56	08/21/20 18:05	7440-43-9	
Chromium	0.0050J	mg/L	0.010	0.00055	1	08/20/20 14:56	08/21/20 18:05	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	08/20/20 14:56	08/21/20 18:05	7440-48-4	
Lead	0.00010J	mg/L	0.0050	0.000036	1	08/20/20 14:56	08/21/20 18:05	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	08/20/20 14:56	08/21/20 18:05	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/20/20 14:56	08/21/20 18:05	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/20/20 14:56	08/21/20 18:05	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/20/20 14:56	08/21/20 18:05	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/21/20 08:05	08/21/20 12:47	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	ND	mg/L	0.10	0.050	1		08/20/20 19:52	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

Sample: BRGWA-2I		Lab ID: 92491389003		Collected: 08/18/20 10:45		Received: 08/19/20 10:10		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		09/09/20 17:00		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.00054J	mg/L	0.0030	0.00028	1	08/20/20 14:56	08/21/20 18:11	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/20/20 14:56	08/21/20 18:11	7440-38-2	
Barium	0.010J	mg/L	0.010	0.00071	1	08/20/20 14:56	08/21/20 18:11	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/20/20 14:56	08/21/20 18:11	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/20/20 14:56	08/21/20 18:11	7440-43-9	
Chromium	0.00096J	mg/L	0.010	0.00055	1	08/20/20 14:56	08/21/20 18:11	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	08/20/20 14:56	08/21/20 18:11	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/20/20 14:56	08/21/20 18:11	7439-92-1	
Lithium	0.054	mg/L	0.030	0.00081	1	08/20/20 14:56	08/21/20 18:11	7439-93-2	
Molybdenum	0.0011J	mg/L	0.010	0.00069	1	08/20/20 14:56	08/21/20 18:11	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/20/20 14:56	08/21/20 18:11	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/20/20 14:56	08/21/20 18:11	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/21/20 08:05	08/21/20 12:49	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	ND	mg/L	0.10	0.050	1		08/20/20 20:06	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

Sample: BRGWA-2S		Lab ID: 92491389004		Collected: 08/18/20 11:38		Received: 08/19/20 10:10		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.06	Std. Units			1		09/09/20 17:00		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.00042J	mg/L	0.0030	0.00028	1	08/20/20 14:56	08/21/20 18:17	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/20/20 14:56	08/21/20 18:17	7440-38-2	
Barium	0.010	mg/L	0.010	0.00071	1	08/20/20 14:56	08/21/20 18:17	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/20/20 14:56	08/21/20 18:17	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/20/20 14:56	08/21/20 18:17	7440-43-9	
Chromium	0.0085J	mg/L	0.010	0.00055	1	08/20/20 14:56	08/21/20 18:17	7440-47-3	
Cobalt	0.0014J	mg/L	0.0050	0.00038	1	08/20/20 14:56	08/21/20 18:17	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/20/20 14:56	08/21/20 18:17	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	08/20/20 14:56	08/21/20 18:17	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/20/20 14:56	08/21/20 18:17	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/20/20 14:56	08/21/20 18:17	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/20/20 14:56	08/21/20 18:17	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/21/20 08:05	08/21/20 12:51	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	ND	mg/L	0.10	0.050	1		08/20/20 20:19	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

Sample: BRGWA-6S Lab ID: 92491389005 Collected: 08/18/20 12:48 Received: 08/19/20 10:10 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		09/09/20 17:00		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/20/20 14:56	08/21/20 18:22	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/20/20 14:56	08/21/20 18:22	7440-38-2	
Barium	0.014	mg/L	0.010	0.00071	1	08/20/20 14:56	08/21/20 18:22	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/20/20 14:56	08/21/20 18:22	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/20/20 14:56	08/21/20 18:22	7440-43-9	
Chromium	0.015	mg/L	0.010	0.00055	1	08/20/20 14:56	08/21/20 18:22	7440-47-3	
Cobalt	0.00061J	mg/L	0.0050	0.00038	1	08/20/20 14:56	08/21/20 18:22	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/20/20 14:56	08/21/20 18:22	7439-92-1	
Lithium	0.0026J	mg/L	0.030	0.00081	1	08/20/20 14:56	08/21/20 18:22	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/20/20 14:56	08/21/20 18:22	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/20/20 14:56	08/21/20 18:22	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/20/20 14:56	08/21/20 18:22	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/21/20 08:05	08/21/20 12:58	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Fluoride	ND	mg/L	0.10	0.050	1		08/20/20 20:33	16984-48-8	

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QUALITY CONTROL DATA

Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

QC Batch: 561324 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92491389001, 92491389002, 92491389003, 92491389004, 92491389005

METHOD BLANK: 2977587 Matrix: Water
Associated Lab Samples: 92491389001, 92491389002, 92491389003, 92491389004, 92491389005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	08/21/20 17:31	
Arsenic	mg/L	ND	0.0050	0.00078	08/21/20 17:31	
Barium	mg/L	ND	0.010	0.00071	08/21/20 17:31	
Beryllium	mg/L	ND	0.0030	0.000046	08/21/20 17:31	
Cadmium	mg/L	ND	0.0025	0.00012	08/21/20 17:31	
Chromium	mg/L	ND	0.010	0.00055	08/21/20 17:31	
Cobalt	mg/L	ND	0.0050	0.00038	08/21/20 17:31	
Lead	mg/L	ND	0.0050	0.000036	08/21/20 17:31	
Lithium	mg/L	ND	0.030	0.00081	08/21/20 17:31	
Molybdenum	mg/L	ND	0.010	0.00069	08/21/20 17:31	
Selenium	mg/L	ND	0.010	0.0016	08/21/20 17:31	
Thallium	mg/L	ND	0.0010	0.00014	08/21/20 17:31	

LABORATORY CONTROL SAMPLE: 2977588

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	0.094	94	80-120	
Barium	mg/L	0.1	0.096	96	80-120	
Beryllium	mg/L	0.1	0.097	97	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Chromium	mg/L	0.1	0.10	100	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	
Lead	mg/L	0.1	0.097	97	80-120	
Lithium	mg/L	0.1	0.10	100	80-120	
Molybdenum	mg/L	0.1	0.096	96	80-120	
Selenium	mg/L	0.1	0.095	95	80-120	
Thallium	mg/L	0.1	0.096	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2977589 2977590

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92491389001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	106	105	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.094	0.095	94	95	75-125	2	20	
Barium	mg/L	0.022	0.1	0.1	0.13	0.12	108	96	75-125	9	20	
Beryllium	mg/L	ND	0.1	0.1	0.095	0.097	95	97	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

Parameter	Units	2977589		2977590		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		92491389001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Cadmium	mg/L	ND	0.1	0.1	0.097	0.10	97	100	75-125	3	20	
Chromium	mg/L	0.0069J	0.1	0.1	0.11	0.11	102	101	75-125	1	20	
Cobalt	mg/L	0.00048J	0.1	0.1	0.10	0.099	99	99	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.098	0.099	98	99	75-125	1	20	
Lithium	mg/L	0.00095J	0.1	0.1	0.098	0.098	97	97	75-125	0	20	
Molybdenum	mg/L	0.0015J	0.1	0.1	0.10	0.10	99	101	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.095	0.091	94	90	75-125	4	20	
Thallium	mg/L	ND	0.1	0.1	0.096	0.097	96	97	75-125	1	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

QC Batch: 561377 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92491389001, 92491389002, 92491389003, 92491389004, 92491389005

METHOD BLANK: 2977870 Matrix: Water
Associated Lab Samples: 92491389001, 92491389002, 92491389003, 92491389004, 92491389005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	08/21/20 12:32	

LABORATORY CONTROL SAMPLE: 2977871

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: 2977872 2977873

Parameter	Units	2977872		2977873		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92491389001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	mg/L	ND	0.0025	0.0025	0.0026	0.0026	104	106	75-125	2	20

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QUALITY CONTROL DATA

Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

QC Batch: 561236 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: 92491389001, 92491389002, 92491389003, 92491389004, 92491389005

METHOD BLANK: 2977010 Matrix: Water
Associated Lab Samples: 92491389001, 92491389002, 92491389003, 92491389004, 92491389005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	0.050	08/20/20 16:29	

LABORATORY CONTROL SAMPLE: 2977011

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2977012 2977013

Parameter	Units	92490037006 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Fluoride	mg/L	0.055J	2.5	2.5	2.7	2.4	107	94	90-110	12	10	R1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2977014 2977015

Parameter	Units	92491455002 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Fluoride	mg/L	ND	2.5	2.5	2.4	2.3	95	92	90-110	4	10	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWA-5I Lab ID: 92491389001 Collected: 08/18/20 09:40 Received: 08/19/20 10:10 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.0774 ± 0.196 (0.479) C:76% T:NA	pCi/L	09/02/20 07:40	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.453 ± 0.459 (0.950) C:53% T:92%	pCi/L	09/09/20 12:05	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.530 ± 0.655 (1.43)	pCi/L	09/10/20 13:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWA-5S Lab ID: 92491389002 Collected: 08/18/20 10:15 Received: 08/19/20 10:10 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.241 ± 0.241 (0.446) C:86% T:NA	pCi/L	09/02/20 07:41	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.340 ± 0.449 (0.959) C:59% T:93%	pCi/L	09/09/20 12:05	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.581 ± 0.690 (1.41)	pCi/L	09/10/20 13:23	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWA-2I Lab ID: 92491389003 Collected: 08/18/20 10:45 Received: 08/19/20 10:10 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.0861 ± 0.243 (0.593) C:77% T:NA	pCi/L	09/02/20 07:41	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	-0.176 ± 0.358 (0.872) C:61% T:91%	pCi/L	09/09/20 12:05	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.0861 ± 0.601 (1.47)	pCi/L	09/10/20 13:23	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

Sample: BRGWA-2S **Lab ID: 92491389004** Collected: 08/18/20 11:38 Received: 08/19/20 10:10 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 ± 0.267 (0.570) C:70% T:NA	pCi/L	09/02/20 07:41	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	1.03 ± 0.516 (0.891) C:61% T:81%	pCi/L	09/09/20 12:05	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	1.22 ± 0.783 (1.46)	pCi/L	09/10/20 13:23	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWA-6S Lab ID: 92491389005 Collected: 08/18/20 12:48 Received: 08/19/20 10:10 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	-0.0918 ± 0.174 (0.573) C:79% T:NA	pCi/L	09/02/20 08:46	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.453 ± 0.384 (0.763) C:66% T:81%	pCi/L	09/09/20 12:05	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.453 ± 0.558 (1.34)	pCi/L	09/10/20 13:23	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

QC Batch: 411435	Analysis Method: EPA 9320
QC Batch Method: EPA 9320	Analysis Description: 9320 Radium 228
	Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92491389001, 92491389002, 92491389003, 92491389004, 92491389005

METHOD BLANK: 1990342 Matrix: Water

Associated Lab Samples: 92491389001, 92491389002, 92491389003, 92491389004, 92491389005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.664 ± 0.374 (0.672) C:70% T:89%	pCi/L	09/09/20 12:03	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

QC Batch: 411373

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92491389001, 92491389002, 92491389003, 92491389004, 92491389005

METHOD BLANK: 1989993

Matrix: Water

Associated Lab Samples: 92491389001, 92491389002, 92491389003, 92491389004, 92491389005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0671 ± 0.195 (0.481) C:88% T:NA	pCi/L	09/02/20 07:31	

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QUALIFIERS

Project: BRANCH BCD/E BACKGROUND WELLS

Pace Project No.: 92491389

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.

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.

ANALYTE QUALIFIERS

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH BCD/E BACKGROUND WELLS
Pace Project No.: 92491389

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92491389001	BRGWA-5I				
92491389002	BRGWA-5S				
92491389003	BRGWA-2I				
92491389004	BRGWA-2S				
92491389005	BRGWA-6S				
92491389001	BRGWA-5I	EPA 3005A	561324	EPA 6020B	561396
92491389002	BRGWA-5S	EPA 3005A	561324	EPA 6020B	561396
92491389003	BRGWA-2I	EPA 3005A	561324	EPA 6020B	561396
92491389004	BRGWA-2S	EPA 3005A	561324	EPA 6020B	561396
92491389005	BRGWA-6S	EPA 3005A	561324	EPA 6020B	561396
92491389001	BRGWA-5I	EPA 7470A	561377	EPA 7470A	561555
92491389002	BRGWA-5S	EPA 7470A	561377	EPA 7470A	561555
92491389003	BRGWA-2I	EPA 7470A	561377	EPA 7470A	561555
92491389004	BRGWA-2S	EPA 7470A	561377	EPA 7470A	561555
92491389005	BRGWA-6S	EPA 7470A	561377	EPA 7470A	561555
92491389001	BRGWA-5I	EPA 9315	411373		
92491389002	BRGWA-5S	EPA 9315	411373		
92491389003	BRGWA-2I	EPA 9315	411373		
92491389004	BRGWA-2S	EPA 9315	411373		
92491389005	BRGWA-6S	EPA 9315	411373		
92491389001	BRGWA-5I	EPA 9320	411435		
92491389002	BRGWA-5S	EPA 9320	411435		
92491389003	BRGWA-2I	EPA 9320	411435		
92491389004	BRGWA-2S	EPA 9320	411435		
92491389005	BRGWA-6S	EPA 9320	411435		
92491389001	BRGWA-5I	Total Radium Calculation	413341		
92491389002	BRGWA-5S	Total Radium Calculation	413341		
92491389003	BRGWA-2I	Total Radium Calculation	413341		
92491389004	BRGWA-2S	Total Radium Calculation	413341		
92491389005	BRGWA-6S	Total Radium Calculation	413341		
92491389001	BRGWA-5I	EPA 300.0 Rev 2.1 1993	561236		
92491389002	BRGWA-5S	EPA 300.0 Rev 2.1 1993	561236		
92491389003	BRGWA-2I	EPA 300.0 Rev 2.1 1993	561236		
92491389004	BRGWA-2S	EPA 300.0 Rev 2.1 1993	561236		
92491389005	BRGWA-6S	EPA 300.0 Rev 2.1 1993	561236		

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Sample Condition Upon Receipt

Client Name: GA Power

WO#: **92491389**



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

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

Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used 233 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 218
Temp should be above freezing to 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/14/2006

		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 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>W</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 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: _____

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)

* 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# : 92491389**
 PM: KLH1 Due Date: 09/02/20
 CLIENT: GA-GA Power

Matrix	Item#	Matrix	Item#	Matrix	Item#	Matrix	Item#	Matrix	Item#	Matrix	Item#
	BP4U-125 mL Plastic Unpreserved (N/A) (C-)		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) (C-)		BP3H-250 mL plastic HNO3 (pH < 2)
	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)		BP4C-125 mL Plastic NaOH (pH > 12) (C-)		WGFU-Wide-mouthed Glass Jar Unpreserved		AG1U-1 liter Amber Unpreserved (N/A) (C-)		AG1H-1 liter Amber HCl (pH < 2)		AG3U-250 mL Amber Unpreserved (N/A) (C-)
	AG1S-1 liter Amber H2SO4 (pH < 2)		AG3S-250 mL Amber H2SO4 (pH < 2)		AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)		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)
	AG9U-100 mL Amber Unpreserved vials (N/A)		VSU-20 mL Scintillation vials (N/A)								

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.



CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY: Affix Workorder/Login Label Here or Use Pace Workorder Number or
MTDL Log-In Number Here

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

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type **

1 1 1 1

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

Lab Project Manager:

Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Maner Road
 Atlanta, GA 30339
 Report To: Jovv Abraham
 Copy To: Golder
 Email: jbrabham@southernco.com
 Phone: (404) 506-7239
 Project Name: Branch B/CVE Background Wells
 Project # CCR
 Purchased Order #
 Collected By (Print): Travis Martinez,
 Andrea McClure
 Collected By (Signature): *[Signature]*
 Turnaround Date Required
 Rush Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite charges apply)
 Site: Georgia City: Milledgeville
 State: GA
 Time Zone: Eastern
 PT MT CT ET
 Pace Project Manager:
 kevin.herring@pacelabs.com
 Invoiced Atey Packed on: Yes No
 Field Filtered (if applicable): Yes No
 Analytic: _____

Lab Profile/Line:

Lab Sample Receipt Checklist:
 Custody Seals Present/Intact Y N NA
 Custody Signatures Present Y N NA
 Collector Signature Present Y N NA
 Bottles Intact Y N NA
 Correct Bottles Y N NA
 Sufficient Volume Y N NA
 Samples Received on Ice Y N NA
 YDA - Headspace Acceptable Y N NA
 USA - Regulated Solids Y N NA
 Samples in Holding Time Y N NA
 Residual Chlorine Present Y N NA
 ID Strips:
 Sample pH Acceptable Y N NA
 pH Strips:
 Sulfide Present Y N NA
 Lead Acetate Strips: _____

* Matrix Codes (insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW),
 Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (T), Slurry (S), Water (WT), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected for Composite		Composite End		pH	# of Cms
			Date	Time	Date	Time		
BRGWA-5I	GW	G	8-18-2020	09:40			6.29	4
BRGWA-5S	GW	G	8-18-2020	10:15			6.41	4
BRGWA-2I	GW	G	8-18-2020	10:45			6.59	4
BRGWA-2S	GW	G	8-18-2020	11:38			6.06	4
BRGWA-6S	GW	G	8-18-2020	12:48			6.33	4

Metals App IV - see comments
 Fluoride
 Radium 226.228
 Mercury

LAB USE ONLY:
 Lab Sample # / Comments:
 424438A

(App IV Metals): Sb, As, Ba, Be, Cd, Cr, Co, Hg, Pb, Li, Mn, Se, Ti
 Type of Ice Used: Wet
 Packing Material Used:
 Padded/m sample(s) screened (<500 gpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A
 Lab Tracking #:
 Samples received via:
 FEDEX UPS Client Courier Pace Courier

LAB Sample Temperature Info:
 Temp Blank Recovery: Y N NA
 Therm ID: 233
 Cooler 1 Therm Corr. Factor: 0.00
 Cooler 2 Connected Temp: 0.00
 Comments:

Relinquished By/Company: (Signature) *[Signature]*
 Date/Time: 8-19-2020/0815
 Relinquished By/Company: (Signature) *[Signature]*
 Date/Time:
 Relinquished By/Company: (Signature)
 Date/Time:

Received By/Company: (Signature) *[Signature]*
 Date/Time: 8-19-2020/1010
 Received By/Company: (Signature)
 Date/Time:
 Received By/Company: (Signature)
 Date/Time:
 MTDL LAB USE ONLY
 Table #:
 Accum: _____
 Template: _____
 PrelogIn: _____
 PVI: _____
 PB: _____
 Trip Blank Received: Y N NA
 HCL MeOH TSP Other
 Non Conformance(s): _____
 Page: 1 of 1

September 15, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory between August 19, 2020 and August 21, 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
- Pace Analytical Services - Peachtree Corners, GA
- Pace Analytical Services - Greensburg

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: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta

Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

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 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

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, 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: BRANCH BCD NETWORK
Pace Project No.: 92491393

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92491393001	BRGWA-12I	Water	08/18/20 13:05	08/19/20 10:10
92491393002	BRGWA-12S	Water	08/18/20 16:25	08/19/20 10:10
92491393003	BRGWA-23S	Water	08/18/20 15:28	08/19/20 10:10
92491393004	BRGWC-25I	Water	08/19/20 09:50	08/20/20 10:03
92491393005	BRGWC-29I	Water	08/19/20 10:50	08/20/20 10:03
92491393006	BRGWC-27I	Water	08/19/20 12:05	08/20/20 10:03
92491393007	BRGWC-32S	Water	08/19/20 13:20	08/20/20 10:03
92491393008	BRGWC-30I	Water	08/19/20 15:05	08/20/20 10:03
92491393009	BRGWC-45	Water	08/20/20 12:12	08/21/20 11:08
92491393010	BRGWC-47	Water	08/20/20 14:00	08/21/20 11:08
92491393011	BRGWC-50	Water	08/20/20 09:32	08/21/20 11:08
92491393012	BRGWC-52I	Water	08/20/20 09:45	08/21/20 11:08
92491393013	DUP-2	Water	08/20/20 00:00	08/21/20 11:08
92491393014	FB-2	Water	08/20/20 09:20	08/21/20 11:08
92491393015	EB-1	Water	08/20/20 12:45	08/21/20 11:08

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92491393001	BRGWA-12I	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491393002	BRGWA-12S	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491393003	BRGWA-23S	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491393004	BRGWC-25I	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491393005	BRGWC-29I	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491393006	BRGWC-27I	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491393007	BRGWC-32S	EPA 6020B	CW1	12	PASI-GA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92491393008	BRGWC-30I	EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
		EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92491393009	BRGWC-45	EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
		EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
		EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
92491393010	BRGWC-47	EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
		EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
		EPA 6020B	CW1	12	PASI-GA
92491393011	BRGWC-50	EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
		EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92491393012	BRGWC-52I	EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
		EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
		EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
92491393013	DUP-2	EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491393013	DUP-2	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491393014	FB-2	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491393015	EB-1	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A

PASI-A = Pace Analytical Services - Asheville
PASI-C = Pace Analytical Services - Charlotte
PASI-GA = Pace Analytical Services - Peachtree Corners, GA
PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92491393001	BRGWA-12I					
	pH	6.25	Std. Units		09/09/20 17:01	
EPA 6020B	Antimony	0.0067	mg/L	0.0030	08/21/20 18:40	
EPA 6020B	Barium	0.053	mg/L	0.010	08/21/20 18:40	
EPA 6020B	Chromium	0.0023J	mg/L	0.010	08/21/20 18:40	
EPA 6020B	Lithium	0.0039J	mg/L	0.030	08/21/20 18:40	
EPA 9315	Radium-226	0.240 ± 0.122 (0.185) C:91% T:NA	pCi/L		09/08/20 17:44	
EPA 9320	Radium-228	0.748 ± 0.489 (0.931) C:70% T:80%	pCi/L		09/09/20 14:47	
Total Radium Calculation	Total Radium	0.988 ± 0.611 (1.12)	pCi/L		09/10/20 15:16	
EPA 300.0 Rev 2.1 1993	Fluoride	0.052J	mg/L	0.10	08/20/20 20:46	
92491393002	BRGWA-12S					
	pH	5.75	Std. Units		09/09/20 17:01	
EPA 6020B	Barium	0.058	mg/L	0.010	08/21/20 18:45	
EPA 6020B	Chromium	0.0029J	mg/L	0.010	08/21/20 18:45	
EPA 9315	Radium-226	0.157 ± 0.111 (0.189) C:90% T:NA	pCi/L		09/08/20 17:44	
EPA 9320	Radium-228	0.812 ± 0.497 (0.953) C:70% T:90%	pCi/L		09/09/20 11:25	
Total Radium Calculation	Total Radium	0.969 ± 0.608 (1.14)	pCi/L		09/10/20 15:16	
92491393003	BRGWA-23S					
	pH	5.56	Std. Units		09/09/20 17:01	
EPA 6020B	Barium	0.067	mg/L	0.010	08/21/20 18:51	
EPA 6020B	Chromium	0.0017J	mg/L	0.010	08/21/20 18:51	
EPA 6020B	Cobalt	0.00067J	mg/L	0.0050	08/21/20 18:51	
EPA 6020B	Lithium	0.0099J	mg/L	0.030	08/21/20 18:51	
EPA 6020B	Selenium	0.0033J	mg/L	0.010	08/21/20 18:51	
EPA 9315	Radium-226	0.197 ± 0.113 (0.177) C:84% T:NA	pCi/L		09/08/20 17:44	
EPA 9320	Radium-228	0.587 ± 0.442 (0.866) C:72% T:79%	pCi/L		09/09/20 11:25	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92491393003	BRGWA-23S					
Total Radium Calculation	Total Radium	0.784 ± 0.555 (1.04)	pCi/L		09/10/20 15:16	
92491393004	BRGWC-25I					
	pH	6.32	Std. Units		09/09/20 17:01	
EPA 6020B	Barium	0.027	mg/L	0.010	08/25/20 17:36	
EPA 6020B	Cobalt	0.0039J	mg/L	0.0050	08/25/20 17:36	
EPA 6020B	Molybdenum	0.00081J	mg/L	0.010	08/25/20 17:36	
EPA 7470A	Mercury	0.000083J	mg/L	0.00020	08/25/20 10:10	
EPA 9315	Radium-226	0.288 ± 0.130 (0.188)	pCi/L		09/08/20 17:44	
EPA 9320	Radium-228	C:86% T:NA 0.179 ± 0.343 (0.752)	pCi/L		09/09/20 11:25	
		C:72% T:90%				
Total Radium Calculation	Total Radium	0.467 ± 0.473 (0.940)	pCi/L		09/10/20 15:16	
EPA 300.0 Rev 2.1 1993	Fluoride	0.17	mg/L	0.10	08/21/20 17:55	M1
92491393005	BRGWC-29I					
	pH	4.67	Std. Units		09/09/20 17:01	
EPA 6020B	Barium	0.019	mg/L	0.010	08/25/20 17:42	
EPA 6020B	Beryllium	0.00074J	mg/L	0.0030	08/25/20 17:42	
EPA 6020B	Cobalt	0.0065	mg/L	0.0050	08/25/20 17:42	
EPA 6020B	Lead	0.00025J	mg/L	0.0050	08/26/20 17:54	
EPA 6020B	Lithium	0.0029J	mg/L	0.030	08/25/20 17:42	
EPA 6020B	Thallium	0.00016J	mg/L	0.0010	08/26/20 17:54	
EPA 7470A	Mercury	0.000098J	mg/L	0.00020	08/25/20 10:13	
EPA 9315	Radium-226	0.299 ± 0.162 (0.267)	pCi/L		09/08/20 17:44	
EPA 9320	Radium-228	C:91% T:NA 0.577 ± 0.428 (0.848)	pCi/L		09/09/20 11:25	
		C:77% T:82%				
Total Radium Calculation	Total Radium	0.876 ± 0.590 (1.12)	pCi/L		09/10/20 15:16	
EPA 300.0 Rev 2.1 1993	Fluoride	0.12	mg/L	0.10	08/21/20 18:35	
92491393006	BRGWC-27I					
	pH	5.81	Std. Units		09/09/20 17:01	
EPA 6020B	Barium	0.016	mg/L	0.010	08/25/20 17:48	
EPA 6020B	Beryllium	0.000099J	mg/L	0.0030	08/25/20 17:48	
EPA 6020B	Cobalt	0.0078	mg/L	0.0050	08/25/20 17:48	
EPA 6020B	Lithium	0.0014J	mg/L	0.030	08/25/20 17:48	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92491393006	BRGWC-271					
EPA 9315	Radium-226	0.260 ± 0.132 (0.203) C:91% T:NA	pCi/L		09/08/20 17:44	
EPA 9320	Radium-228	0.424 ± 0.358 (0.718) C:74% T:87%	pCi/L		09/09/20 11:26	
Total Radium Calculation	Total Radium	0.684 ± 0.490 (0.921)	pCi/L		09/10/20 15:16	
EPA 300.0 Rev 2.1 1993	Fluoride	0.19	mg/L	0.10	08/21/20 18:48	
92491393007	BRGWC-32S					
	pH	5.97	Std. Units		09/09/20 17:01	
EPA 6020B	Barium	0.025	mg/L	0.010	08/25/20 17:53	
EPA 6020B	Chromium	0.0021J	mg/L	0.010	08/25/20 17:53	
EPA 6020B	Lithium	0.0020J	mg/L	0.030	08/25/20 17:53	
EPA 6020B	Selenium	0.099	mg/L	0.010	08/25/20 17:53	
EPA 7470A	Mercury	0.000082J	mg/L	0.00020	08/25/20 10:18	
EPA 9315	Radium-226	0.0531 ± 0.0881 (0.172) C:92% T:NA	pCi/L		09/08/20 17:44	
EPA 9320	Radium-228	0.429 ± 0.407 (0.839) C:75% T:82%	pCi/L		09/09/20 11:26	
Total Radium Calculation	Total Radium	0.482 ± 0.495 (1.01)	pCi/L		09/10/20 15:16	
92491393008	BRGWC-30I					
	pH	6.36	Std. Units		09/09/20 17:01	
EPA 6020B	Barium	0.026	mg/L	0.010	08/25/20 17:59	
EPA 6020B	Cobalt	0.00080J	mg/L	0.0050	08/25/20 17:59	
EPA 6020B	Lithium	0.018J	mg/L	0.030	08/25/20 17:59	
EPA 6020B	Molybdenum	0.00078J	mg/L	0.010	08/25/20 17:59	
EPA 7470A	Mercury	0.000082J	mg/L	0.00020	08/25/20 10:25	
EPA 9315	Radium-226	0.299 ± 0.125 (0.167) C:88% T:NA	pCi/L		09/08/20 17:44	
EPA 9320	Radium-228	0.703 ± 0.450 (0.863) C:72% T:86%	pCi/L		09/09/20 11:26	
Total Radium Calculation	Total Radium	1.00 ± 0.575 (1.03)	pCi/L		09/11/20 08:26	
EPA 300.0 Rev 2.1 1993	Fluoride	0.14	mg/L	0.10	08/21/20 19:15	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92491393009	BRGWC-45					
	pH	5.86	Std. Units		09/09/20 17:01	
EPA 6020B	Antimony	0.0031	mg/L	0.0030	08/27/20 16:48	
EPA 6020B	Barium	0.083	mg/L	0.010	08/27/20 16:48	
EPA 6020B	Beryllium	0.000046J	mg/L	0.0030	08/27/20 16:48	
EPA 6020B	Cadmium	0.00014J	mg/L	0.0025	08/27/20 16:48	
EPA 6020B	Chromium	0.0010J	mg/L	0.010	08/27/20 16:48	
EPA 6020B	Cobalt	0.022	mg/L	0.0050	08/27/20 16:48	
EPA 6020B	Lead	0.00021J	mg/L	0.0050	08/27/20 16:48	
EPA 6020B	Lithium	0.0034J	mg/L	0.030	08/27/20 16:48	
EPA 6020B	Molybdenum	0.00076J	mg/L	0.010	08/27/20 16:48	
EPA 9315	Radium-226	0.194 ± 0.154 (0.275)	pCi/L		09/03/20 18:45	
		C:88% T:NA				
EPA 9320	Radium-228	0.307 ± 0.468 (1.01)	pCi/L		09/09/20 15:08	
		C:62% T:74%				
Total Radium Calculation	Total Radium	0.501 ± 0.622 (1.29)	pCi/L		09/10/20 15:16	
92491393010	BRGWC-47					
	pH	5.75	Std. Units		09/09/20 17:01	
EPA 6020B	Arsenic	0.00089J	mg/L	0.0050	08/27/20 16:53	
EPA 6020B	Barium	0.035	mg/L	0.010	08/27/20 16:53	
EPA 6020B	Beryllium	0.000047J	mg/L	0.0030	08/27/20 16:53	
EPA 6020B	Chromium	0.00064J	mg/L	0.010	08/27/20 16:53	
EPA 6020B	Cobalt	0.00043J	mg/L	0.0050	08/27/20 16:53	
EPA 6020B	Lead	0.000048J	mg/L	0.0050	08/27/20 16:53	
EPA 6020B	Lithium	0.044	mg/L	0.030	08/27/20 16:53	
EPA 6020B	Selenium	0.0016J	mg/L	0.010	08/27/20 16:53	
EPA 9315	Radium-226	0.500 ± 0.164 (0.181)	pCi/L		09/03/20 18:45	
		C:86% T:NA				
EPA 9320	Radium-228	1.14 ± 0.652 (1.17)	pCi/L		09/09/20 15:08	
		C:53% T:73%				
Total Radium Calculation	Total Radium	1.64 ± 0.816 (1.35)	pCi/L		09/10/20 15:16	
92491393011	BRGWC-50					
	pH	5.26	Std. Units		09/09/20 17:01	
EPA 6020B	Barium	0.019	mg/L	0.010	08/27/20 16:59	
EPA 6020B	Beryllium	0.0044	mg/L	0.0030	08/27/20 16:59	
EPA 6020B	Cadmium	0.0079	mg/L	0.0025	08/27/20 16:59	
EPA 6020B	Chromium	0.00065J	mg/L	0.010	08/27/20 16:59	

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SUMMARY OF DETECTION

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92491393011	BRGWC-50					
EPA 6020B	Cobalt	1.4	mg/L	0.025	08/28/20 15:08	
EPA 6020B	Lead	0.000067J	mg/L	0.0050	08/27/20 16:59	
EPA 6020B	Lithium	0.040	mg/L	0.030	08/27/20 16:59	
EPA 6020B	Selenium	0.0037J	mg/L	0.010	08/27/20 16:59	
EPA 9315	Radium-226	0.735 ± 0.193 (0.151) C:89% T:NA	pCi/L		09/03/20 18:18	
EPA 9320	Radium-228	2.04 ± 0.699 (0.948) C:71% T:67%	pCi/L		09/09/20 15:08	
Total Radium Calculation	Total Radium	2.78 ± 0.892 (1.10)	pCi/L		09/10/20 15:16	
EPA 300.0 Rev 2.1 1993	Fluoride	0.39	mg/L	0.10	08/25/20 18:20	
92491393012	BRGWC-52I					
	pH	6.85	Std. Units		09/09/20 17:01	
EPA 6020B	Arsenic	0.0031J	mg/L	0.0050	08/27/20 17:05	
EPA 6020B	Barium	0.017	mg/L	0.010	08/27/20 17:05	
EPA 6020B	Lithium	0.0022J	mg/L	0.030	08/27/20 17:05	
EPA 6020B	Molybdenum	0.0012J	mg/L	0.010	08/27/20 17:05	
EPA 9315	Radium-226	0.684 ± 0.388 (0.589) C:84% T:NA	pCi/L		09/04/20 07:17	
EPA 9320	Radium-228	2.29 ± 0.728 (0.901) C:70% T:69%	pCi/L		09/09/20 14:43	
Total Radium Calculation	Total Radium	2.97 ± 1.12 (1.49)	pCi/L		09/10/20 15:16	
EPA 300.0 Rev 2.1 1993	Fluoride	0.23	mg/L	0.10	08/25/20 19:05	
92491393013	DUP-2					
EPA 6020B	Barium	0.019	mg/L	0.010	08/27/20 17:10	
EPA 6020B	Beryllium	0.0046	mg/L	0.0030	08/27/20 17:10	
EPA 6020B	Cadmium	0.0077	mg/L	0.0025	08/27/20 17:10	
EPA 6020B	Chromium	0.00065J	mg/L	0.010	08/27/20 17:10	
EPA 6020B	Cobalt	1.4	mg/L	0.025	08/28/20 15:13	
EPA 6020B	Lead	0.000050J	mg/L	0.0050	08/27/20 17:10	
EPA 6020B	Lithium	0.041	mg/L	0.030	08/27/20 17:10	
EPA 6020B	Selenium	0.0038J	mg/L	0.010	08/27/20 17:10	
EPA 9315	Radium-226	0.602 ± 0.324 (0.420) C:87% T:NA	pCi/L		09/04/20 07:18	

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SUMMARY OF DETECTION

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92491393013	DUP-2					
EPA 9320	Radium-228	2.11 ± 0.682 (0.878) C:71% T:75%	pCi/L		09/09/20 14:43	
Total Radium Calculation	Total Radium	2.71 ± 1.01 (1.30)	pCi/L		09/10/20 15:16	
EPA 300.0 Rev 2.1 1993	Fluoride	0.38	mg/L	0.10	08/25/20 19:20	
92491393014	FB-2					
EPA 9315	Radium-226	0.0152 ± 0.200 (0.536) C:84% T:NA	pCi/L		09/04/20 07:18	
EPA 9320	Radium-228	0.713 ± 0.432 (0.796) C:69% T:83%	pCi/L		09/09/20 14:43	
Total Radium Calculation	Total Radium	0.728 ± 0.632 (1.33)	pCi/L		09/10/20 15:16	
92491393015	EB-1					
EPA 7470A	Mercury	0.000082J	mg/L	0.00020	08/25/20 09:25	
EPA 9315	Radium-226	0.115 ± 0.167 (0.346) C:89% T:NA	pCi/L		09/04/20 07:51	
EPA 9320	Radium-228	0.206 ± 0.334 (0.724) C:69% T:84%	pCi/L		09/09/20 14:43	
Total Radium Calculation	Total Radium	0.321 ± 0.501 (1.07)	pCi/L		09/10/20 15:16	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: BRGWA-12I		Lab ID: 92491393001		Collected: 08/18/20 13:05		Received: 08/19/20 10:10		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.25	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.0067	mg/L	0.0030	0.00028	1	08/20/20 14:56	08/21/20 18:40	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/20/20 14:56	08/21/20 18:40	7440-38-2	
Barium	0.053	mg/L	0.010	0.00071	1	08/20/20 14:56	08/21/20 18:40	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/20/20 14:56	08/21/20 18:40	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/20/20 14:56	08/21/20 18:40	7440-43-9	
Chromium	0.0023J	mg/L	0.010	0.00055	1	08/20/20 14:56	08/21/20 18:40	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	08/20/20 14:56	08/21/20 18:40	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/20/20 14:56	08/21/20 18:40	7439-92-1	
Lithium	0.0039J	mg/L	0.030	0.00081	1	08/20/20 14:56	08/21/20 18:40	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/20/20 14:56	08/21/20 18:40	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/20/20 14:56	08/21/20 18:40	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/20/20 14:56	08/21/20 18:40	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/21/20 08:05	08/21/20 13:01	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.052J	mg/L	0.10	0.050	1		08/20/20 20:46	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: BRGWA-12S		Lab ID: 92491393002		Collected: 08/18/20 16:25	Received: 08/19/20 10:10	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.75	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/20/20 14:56	08/21/20 18:45	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/20/20 14:56	08/21/20 18:45	7440-38-2	
Barium	0.058	mg/L	0.010	0.00071	1	08/20/20 14:56	08/21/20 18:45	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/20/20 14:56	08/21/20 18:45	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/20/20 14:56	08/21/20 18:45	7440-43-9	
Chromium	0.0029J	mg/L	0.010	0.00055	1	08/20/20 14:56	08/21/20 18:45	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	08/20/20 14:56	08/21/20 18:45	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/20/20 14:56	08/21/20 18:45	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	08/20/20 14:56	08/21/20 18:45	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/20/20 14:56	08/21/20 18:45	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/20/20 14:56	08/21/20 18:45	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/20/20 14:56	08/21/20 18:45	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/21/20 08:05	08/21/20 13:03	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	ND	mg/L	0.10	0.050	1		08/20/20 20:59	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: BRGWA-23S		Lab ID: 92491393003		Collected: 08/18/20 15:28		Received: 08/19/20 10:10		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.56	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/20/20 14:56	08/21/20 18:51	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/20/20 14:56	08/21/20 18:51	7440-38-2	
Barium	0.067	mg/L	0.010	0.00071	1	08/20/20 14:56	08/21/20 18:51	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/20/20 14:56	08/21/20 18:51	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/20/20 14:56	08/21/20 18:51	7440-43-9	
Chromium	0.0017J	mg/L	0.010	0.00055	1	08/20/20 14:56	08/21/20 18:51	7440-47-3	
Cobalt	0.00067J	mg/L	0.0050	0.00038	1	08/20/20 14:56	08/21/20 18:51	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/20/20 14:56	08/21/20 18:51	7439-92-1	
Lithium	0.0099J	mg/L	0.030	0.00081	1	08/20/20 14:56	08/21/20 18:51	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/20/20 14:56	08/21/20 18:51	7439-98-7	
Selenium	0.0033J	mg/L	0.010	0.0016	1	08/20/20 14:56	08/21/20 18:51	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/20/20 14:56	08/21/20 18:51	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/21/20 08:05	08/21/20 13:06	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	ND	mg/L	0.10	0.050	1		08/20/20 21:13	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: BRGWC-25I Lab ID: 92491393004 Collected: 08/19/20 09:50 Received: 08/20/20 10:03 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.32	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 17:36	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 17:36	7440-38-2	
Barium	0.027	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 17:36	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 17:36	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 17:36	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 17:36	7440-47-3	
Cobalt	0.0039J	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 17:36	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 17:49	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 17:36	7439-93-2	
Molybdenum	0.00081J	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 17:36	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 17:36	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 17:49	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.000083J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:10	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Fluoride	0.17	mg/L	0.10	0.050	1		08/21/20 17:55	16984-48-8	M1

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: BRGWC-29I		Lab ID: 92491393005		Collected: 08/19/20 10:50		Received: 08/20/20 10:03		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	4.67	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 17:42	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 17:42	7440-38-2	
Barium	0.019	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 17:42	7440-39-3	
Beryllium	0.00074J	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 17:42	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 17:42	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 17:42	7440-47-3	
Cobalt	0.0065	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 17:42	7440-48-4	
Lead	0.00025J	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 17:54	7439-92-1	
Lithium	0.0029J	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 17:42	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 17:42	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 17:42	7782-49-2	
Thallium	0.00016J	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 17:54	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.000098J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:13	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.12	mg/L	0.10	0.050	1		08/21/20 18:35	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: BRGWC-271		Lab ID: 92491393006		Collected: 08/19/20 12:05	Received: 08/20/20 10:03	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.81	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 17:48	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 17:48	7440-38-2	
Barium	0.016	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 17:48	7440-39-3	
Beryllium	0.000099J	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 17:48	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 17:48	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 17:48	7440-47-3	
Cobalt	0.0078	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 17:48	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 18:00	7439-92-1	
Lithium	0.0014J	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 17:48	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 17:48	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 17:48	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 18:00	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:15	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.19	mg/L	0.10	0.050	1		08/21/20 18:48	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: BRGWC-32S		Lab ID: 92491393007		Collected: 08/19/20 13:20	Received: 08/20/20 10:03	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.97	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 17:53	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 17:53	7440-38-2	
Barium	0.025	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 17:53	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 17:53	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 17:53	7440-43-9	
Chromium	0.0021J	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 17:53	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 17:53	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 18:06	7439-92-1	
Lithium	0.0020J	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 17:53	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 17:53	7439-98-7	
Selenium	0.099	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 17:53	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 18:06	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.000082J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:18	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	ND	mg/L	0.10	0.050	1		08/21/20 19:02	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: BRGWC-30I Lab ID: 92491393008 Collected: 08/19/20 15:05 Received: 08/20/20 10:03 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.36	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 17:59	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 17:59	7440-38-2	
Barium	0.026	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 17:59	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 17:59	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 17:59	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 17:59	7440-47-3	
Cobalt	0.00080J	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 17:59	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 18:12	7439-92-1	
Lithium	0.018J	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 17:59	7439-93-2	
Molybdenum	0.00078J	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 17:59	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 17:59	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 18:12	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.000082J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:25	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Fluoride	0.14	mg/L	0.10	0.050	1		08/21/20 19:15	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: BRGWC-45		Lab ID: 92491393009		Collected: 08/20/20 12:12		Received: 08/21/20 11:08		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.86	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.0031	mg/L	0.0030	0.00028	1	08/24/20 15:10	08/27/20 16:48	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:10	08/27/20 16:48	7440-38-2	
Barium	0.083	mg/L	0.010	0.00071	1	08/24/20 15:10	08/27/20 16:48	7440-39-3	
Beryllium	0.000046J	mg/L	0.0030	0.000046	1	08/24/20 15:10	08/27/20 16:48	7440-41-7	
Cadmium	0.00014J	mg/L	0.0025	0.00012	1	08/24/20 15:10	08/27/20 16:48	7440-43-9	
Chromium	0.0010J	mg/L	0.010	0.00055	1	08/24/20 15:10	08/27/20 16:48	7440-47-3	
Cobalt	0.022	mg/L	0.0050	0.00038	1	08/24/20 15:10	08/27/20 16:48	7440-48-4	
Lead	0.00021J	mg/L	0.0050	0.000036	1	08/24/20 15:10	08/27/20 16:48	7439-92-1	
Lithium	0.0034J	mg/L	0.030	0.00081	1	08/24/20 15:10	08/27/20 16:48	7439-93-2	
Molybdenum	0.00076J	mg/L	0.010	0.00069	1	08/24/20 15:10	08/27/20 16:48	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:10	08/27/20 16:48	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:10	08/27/20 16:48	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:27	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	ND	mg/L	0.10	0.050	1		08/25/20 17:21	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: BRGWC-47		Lab ID: 92491393010		Collected: 08/20/20 14:00		Received: 08/21/20 11:08		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.75	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:10	08/27/20 16:53	7440-36-0	
Arsenic	0.00089J	mg/L	0.0050	0.00078	1	08/24/20 15:10	08/27/20 16:53	7440-38-2	
Barium	0.035	mg/L	0.010	0.00071	1	08/24/20 15:10	08/27/20 16:53	7440-39-3	
Beryllium	0.000047J	mg/L	0.0030	0.000046	1	08/24/20 15:10	08/27/20 16:53	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:10	08/27/20 16:53	7440-43-9	
Chromium	0.00064J	mg/L	0.010	0.00055	1	08/24/20 15:10	08/27/20 16:53	7440-47-3	
Cobalt	0.00043J	mg/L	0.0050	0.00038	1	08/24/20 15:10	08/27/20 16:53	7440-48-4	
Lead	0.000048J	mg/L	0.0050	0.000036	1	08/24/20 15:10	08/27/20 16:53	7439-92-1	
Lithium	0.044	mg/L	0.030	0.00081	1	08/24/20 15:10	08/27/20 16:53	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:10	08/27/20 16:53	7439-98-7	
Selenium	0.0016J	mg/L	0.010	0.0016	1	08/24/20 15:10	08/27/20 16:53	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:10	08/27/20 16:53	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:29	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	ND	mg/L	0.10	0.050	1		08/25/20 18:05	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: BRGWC-50		Lab ID: 92491393011		Collected: 08/20/20 09:32		Received: 08/21/20 11:08		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.26	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:10	08/27/20 16:59	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:10	08/27/20 16:59	7440-38-2	
Barium	0.019	mg/L	0.010	0.00071	1	08/24/20 15:10	08/27/20 16:59	7440-39-3	
Beryllium	0.0044	mg/L	0.0030	0.000046	1	08/24/20 15:10	08/27/20 16:59	7440-41-7	
Cadmium	0.0079	mg/L	0.0025	0.00012	1	08/24/20 15:10	08/27/20 16:59	7440-43-9	
Chromium	0.00065J	mg/L	0.010	0.00055	1	08/24/20 15:10	08/27/20 16:59	7440-47-3	
Cobalt	1.4	mg/L	0.025	0.0019	5	08/24/20 15:10	08/28/20 15:08	7440-48-4	
Lead	0.00067J	mg/L	0.0050	0.000036	1	08/24/20 15:10	08/27/20 16:59	7439-92-1	
Lithium	0.040	mg/L	0.030	0.00081	1	08/24/20 15:10	08/27/20 16:59	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:10	08/27/20 16:59	7439-98-7	
Selenium	0.0037J	mg/L	0.010	0.0016	1	08/24/20 15:10	08/27/20 16:59	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:10	08/27/20 16:59	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:32	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.39	mg/L	0.10	0.050	1		08/25/20 18:20	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: BRGWC-52I		Lab ID: 92491393012		Collected: 08/20/20 09:45		Received: 08/21/20 11:08		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.85	Std. Units			1		09/09/20 17:01		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:10	08/27/20 17:05	7440-36-0	
Arsenic	0.0031J	mg/L	0.0050	0.00078	1	08/24/20 15:10	08/27/20 17:05	7440-38-2	
Barium	0.017	mg/L	0.010	0.00071	1	08/24/20 15:10	08/27/20 17:05	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/24/20 15:10	08/27/20 17:05	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:10	08/27/20 17:05	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	08/24/20 15:10	08/27/20 17:05	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	08/24/20 15:10	08/27/20 17:05	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:10	08/27/20 17:05	7439-92-1	
Lithium	0.0022J	mg/L	0.030	0.00081	1	08/24/20 15:10	08/27/20 17:05	7439-93-2	
Molybdenum	0.0012J	mg/L	0.010	0.00069	1	08/24/20 15:10	08/27/20 17:05	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:10	08/27/20 17:05	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:10	08/27/20 17:05	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:34	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.23	mg/L	0.10	0.050	1		08/25/20 19:05	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: DUP-2 Lab ID: 92491393013 Collected: 08/20/20 00:00 Received: 08/21/20 11:08 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:10	08/27/20 17:10	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:10	08/27/20 17:10	7440-38-2	
Barium	0.019	mg/L	0.010	0.00071	1	08/24/20 15:10	08/27/20 17:10	7440-39-3	
Beryllium	0.0046	mg/L	0.0030	0.000046	1	08/24/20 15:10	08/27/20 17:10	7440-41-7	
Cadmium	0.0077	mg/L	0.0025	0.00012	1	08/24/20 15:10	08/27/20 17:10	7440-43-9	
Chromium	0.00065J	mg/L	0.010	0.00055	1	08/24/20 15:10	08/27/20 17:10	7440-47-3	
Cobalt	1.4	mg/L	0.025	0.0019	5	08/24/20 15:10	08/28/20 15:13	7440-48-4	
Lead	0.000050J	mg/L	0.0050	0.000036	1	08/24/20 15:10	08/27/20 17:10	7439-92-1	
Lithium	0.041	mg/L	0.030	0.00081	1	08/24/20 15:10	08/27/20 17:10	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:10	08/27/20 17:10	7439-98-7	
Selenium	0.0038J	mg/L	0.010	0.0016	1	08/24/20 15:10	08/27/20 17:10	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:10	08/27/20 17:10	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:37	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Fluoride	0.38	mg/L	0.10	0.050	1		08/25/20 19:20	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: FB-2		Lab ID: 92491393014		Collected: 08/20/20 09:20	Received: 08/21/20 11:08	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:10	08/27/20 17:38	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:10	08/27/20 17:38	7440-38-2		
Barium	ND	mg/L	0.010	0.00071	1	08/24/20 15:10	08/27/20 17:38	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000046	1	08/24/20 15:10	08/27/20 17:38	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:10	08/27/20 17:38	7440-43-9		
Chromium	ND	mg/L	0.010	0.00055	1	08/24/20 15:10	08/27/20 17:38	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00038	1	08/24/20 15:10	08/27/20 17:38	7440-48-4		
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:10	08/27/20 17:38	7439-92-1		
Lithium	ND	mg/L	0.030	0.00081	1	08/24/20 15:10	08/27/20 17:38	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:10	08/27/20 17:38	7439-98-7		
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:10	08/27/20 17:38	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:10	08/27/20 17:38	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:39	7439-97-6		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Fluoride	ND	mg/L	0.10	0.050	1		08/25/20 19:35	16984-48-8		

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Sample: EB-1 Lab ID: 92491393015 Collected: 08/20/20 12:45 Received: 08/21/20 11:08 Matrix: Water										
Parameters	Results	Units	Report Limit		MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS										
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA										
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:10	08/27/20 17:43	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:10	08/27/20 17:43	7440-38-2		
Barium	ND	mg/L	0.010	0.00071	1	08/24/20 15:10	08/27/20 17:43	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000046	1	08/24/20 15:10	08/27/20 17:43	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:10	08/27/20 17:43	7440-43-9		
Chromium	ND	mg/L	0.010	0.00055	1	08/24/20 15:10	08/27/20 17:43	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00038	1	08/24/20 15:10	08/27/20 17:43	7440-48-4		
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:10	08/27/20 17:43	7439-92-1		
Lithium	ND	mg/L	0.030	0.00081	1	08/24/20 15:10	08/27/20 17:43	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:10	08/27/20 17:43	7439-98-7		
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:10	08/27/20 17:43	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:10	08/27/20 17:43	7440-28-0		
7470 Mercury										
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA										
Mercury	0.000082J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 09:25	7439-97-6		
300.0 IC Anions 28 Days										
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville										
Fluoride	ND	mg/L	0.10	0.050	1		08/25/20 19:50	16984-48-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

QC Batch: 561324 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92491393001, 92491393002, 92491393003

METHOD BLANK: 2977587 Matrix: Water
Associated Lab Samples: 92491393001, 92491393002, 92491393003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	08/21/20 17:31	
Arsenic	mg/L	ND	0.0050	0.00078	08/21/20 17:31	
Barium	mg/L	ND	0.010	0.00071	08/21/20 17:31	
Beryllium	mg/L	ND	0.0030	0.000046	08/21/20 17:31	
Cadmium	mg/L	ND	0.0025	0.00012	08/21/20 17:31	
Chromium	mg/L	ND	0.010	0.00055	08/21/20 17:31	
Cobalt	mg/L	ND	0.0050	0.00038	08/21/20 17:31	
Lead	mg/L	ND	0.0050	0.000036	08/21/20 17:31	
Lithium	mg/L	ND	0.030	0.00081	08/21/20 17:31	
Molybdenum	mg/L	ND	0.010	0.00069	08/21/20 17:31	
Selenium	mg/L	ND	0.010	0.0016	08/21/20 17:31	
Thallium	mg/L	ND	0.0010	0.00014	08/21/20 17:31	

LABORATORY CONTROL SAMPLE: 2977588

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	0.094	94	80-120	
Barium	mg/L	0.1	0.096	96	80-120	
Beryllium	mg/L	0.1	0.097	97	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Chromium	mg/L	0.1	0.10	100	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	
Lead	mg/L	0.1	0.097	97	80-120	
Lithium	mg/L	0.1	0.10	100	80-120	
Molybdenum	mg/L	0.1	0.096	96	80-120	
Selenium	mg/L	0.1	0.095	95	80-120	
Thallium	mg/L	0.1	0.096	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2977589 2977590

Parameter	Units	2977589		2977590		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.							
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	106	105	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.094	0.095	94	95	75-125	2	20	
Barium	mg/L	0.022	0.1	0.1	0.13	0.12	108	96	75-125	9	20	
Beryllium	mg/L	ND	0.1	0.1	0.095	0.097	95	97	75-125	2	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Parameter	Units	2977589		2977590		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92491389001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Cadmium	mg/L	ND	0.1	0.1	0.097	0.10	97	100	75-125	3	20		
Chromium	mg/L	0.0069J	0.1	0.1	0.11	0.11	102	101	75-125	1	20		
Cobalt	mg/L	0.00048J	0.1	0.1	0.10	0.099	99	99	75-125	1	20		
Lead	mg/L	ND	0.1	0.1	0.098	0.099	98	99	75-125	1	20		
Lithium	mg/L	0.00095J	0.1	0.1	0.098	0.098	97	97	75-125	0	20		
Molybdenum	mg/L	0.0015J	0.1	0.1	0.10	0.10	99	101	75-125	2	20		
Selenium	mg/L	ND	0.1	0.1	0.095	0.091	94	90	75-125	4	20		
Thallium	mg/L	ND	0.1	0.1	0.096	0.097	96	97	75-125	1	20		

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

QC Batch: 561963 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92491393004, 92491393005, 92491393006, 92491393007, 92491393008

METHOD BLANK: 2980652 Matrix: Water
Associated Lab Samples: 92491393004, 92491393005, 92491393006, 92491393007, 92491393008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	08/25/20 16:08	
Arsenic	mg/L	ND	0.0050	0.00078	08/25/20 16:08	
Barium	mg/L	ND	0.010	0.00071	08/25/20 16:08	
Beryllium	mg/L	ND	0.0030	0.000046	08/25/20 16:08	
Cadmium	mg/L	ND	0.0025	0.00012	08/25/20 16:08	
Chromium	mg/L	ND	0.010	0.00055	08/25/20 16:08	
Cobalt	mg/L	ND	0.0050	0.00038	08/25/20 16:08	
Lead	mg/L	ND	0.0050	0.000036	08/26/20 16:20	
Lithium	mg/L	ND	0.030	0.00081	08/25/20 16:08	
Molybdenum	mg/L	ND	0.010	0.00069	08/25/20 16:08	
Selenium	mg/L	ND	0.010	0.0016	08/25/20 16:08	
Thallium	mg/L	ND	0.0010	0.00014	08/26/20 16:20	

LABORATORY CONTROL SAMPLE: 2980653

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	0.096	96	80-120	
Barium	mg/L	0.1	0.097	97	80-120	
Beryllium	mg/L	0.1	0.098	98	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.098	98	80-120	
Lead	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.098	98	80-120	
Molybdenum	mg/L	0.1	0.097	97	80-120	
Selenium	mg/L	0.1	0.098	98	80-120	
Thallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2980654 2980655

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92491455013	Result	Spike Conc.	Spike Conc.							Result
Antimony	mg/L	0.00064J	0.1	0.1	0.10	0.10	101	99	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Barium	mg/L	0.12	0.1	0.1	0.24	0.23	115	114	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.098	0.099	98	99	75-125	0	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Parameter	Units	2980654		2980655		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		92491455013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Cadmium	mg/L	0.00058J	0.1	0.1	0.096	0.096	95	95	75-125	0	20	
Chromium	mg/L	0.0015J	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Cobalt	mg/L	0.00040J	0.1	0.1	0.10	0.10	99	99	75-125	0	20	
Lead	mg/L	0.00035J	0.1	0.1	0.094	0.093	94	93	75-125	1	20	
Lithium	mg/L	ND	0.1	0.1	0.096	0.098	96	97	75-125	1	20	
Molybdenum	mg/L	0.00077J	0.1	0.1	0.10	0.10	102	99	75-125	2	20	
Selenium	mg/L	0.0028J	0.1	0.1	0.10	0.10	99	99	75-125	0	20	
Thallium	mg/L	0.00021J	0.1	0.1	0.094	0.093	94	93	75-125	1	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

QC Batch: 561964 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92491393009, 92491393010, 92491393011, 92491393012, 92491393013, 92491393014, 92491393015

METHOD BLANK: 2980659 Matrix: Water
Associated Lab Samples: 92491393009, 92491393010, 92491393011, 92491393012, 92491393013, 92491393014, 92491393015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	08/27/20 15:08	
Arsenic	mg/L	ND	0.0050	0.00078	08/27/20 15:08	
Barium	mg/L	ND	0.010	0.00071	08/27/20 15:08	
Beryllium	mg/L	ND	0.0030	0.000046	08/27/20 15:08	
Cadmium	mg/L	ND	0.0025	0.00012	08/27/20 15:08	
Chromium	mg/L	ND	0.010	0.00055	08/27/20 15:08	
Cobalt	mg/L	ND	0.0050	0.00038	08/27/20 15:08	
Lead	mg/L	ND	0.0050	0.000036	08/27/20 15:08	
Lithium	mg/L	ND	0.030	0.00081	08/27/20 15:08	
Molybdenum	mg/L	ND	0.010	0.00069	08/27/20 15:08	
Selenium	mg/L	ND	0.010	0.0016	08/27/20 15:08	
Thallium	mg/L	ND	0.0010	0.00014	08/27/20 15:08	

LABORATORY CONTROL SAMPLE: 2980660

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	
Barium	mg/L	0.1	0.099	99	80-120	
Beryllium	mg/L	0.1	0.099	99	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lead	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.10	101	80-120	
Molybdenum	mg/L	0.1	0.099	99	80-120	
Selenium	mg/L	0.1	0.096	96	80-120	
Thallium	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2980661 2980662

Parameter	Units	2980661		2980662		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	ND	0.1	0.10	0.10	103	102	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.10	0.10	101	100	75-125	1	20	
Barium	mg/L	0.047	0.1	0.14	0.14	98	97	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.097	0.096	97	96	75-125	1	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Parameter	Units	2980661		2980662		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		92491663009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Cadmium	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20		
Chromium	mg/L	0.012	0.1	0.1	0.12	0.11	106	102	75-125	4	20		
Cobalt	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20		
Lead	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20		
Lithium	mg/L	0.0010J	0.1	0.1	0.10	0.099	98	98	75-125	0	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	103	100	75-125	2	20		
Selenium	mg/L	0.0030J	0.1	0.1	0.10	0.10	99	102	75-125	3	20		
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	101	102	75-125	1	20		

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

QC Batch: 561377 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92491393001, 92491393002, 92491393003

METHOD BLANK: 2977870 Matrix: Water
Associated Lab Samples: 92491393001, 92491393002, 92491393003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	08/21/20 12:32	

LABORATORY CONTROL SAMPLE: 2977871

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: 2977872 2977873

Parameter	Units	2977872		2977873		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92491389001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Mercury	mg/L	ND	0.0025	0.0025	0.0026	0.0026	104	106	75-125	2	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

QC Batch: 561894

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92491393015

METHOD BLANK: 2980088

Matrix: Water

Associated Lab Samples: 92491393015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	08/25/20 08:19	

LABORATORY CONTROL SAMPLE: 2980089

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: 2980090 2980091

Parameter	Units	2980090		2980091		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	0.0023	0.0026	90	102	75-125	12	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

QC Batch:	561900	Analysis Method:	EPA 7470A
QC Batch Method:	EPA 7470A	Analysis Description:	7470 Mercury
		Laboratory:	Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92491393004, 92491393005, 92491393006, 92491393007, 92491393008, 92491393009, 92491393010, 92491393011, 92491393012, 92491393013, 92491393014

METHOD BLANK: 2980098 Matrix: Water

Associated Lab Samples: 92491393004, 92491393005, 92491393006, 92491393007, 92491393008, 92491393009, 92491393010, 92491393011, 92491393012, 92491393013, 92491393014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	08/25/20 09:32	

LABORATORY CONTROL SAMPLE: 2980099

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2980100 2980101

Parameter	Units	92491663001 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	0.0024	90	94	75-125	3	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

QC Batch: 561236 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: 92491393001, 92491393002, 92491393003

METHOD BLANK: 2977010 Matrix: Water
Associated Lab Samples: 92491393001, 92491393002, 92491393003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	0.050	08/20/20 16:29	

LABORATORY CONTROL SAMPLE: 2977011

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2977012 2977013

Parameter	Units	92490037006 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Fluoride	mg/L	0.055J	2.5	2.5	2.7	2.4	107	94	90-110	12	10	R1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2977014 2977015

Parameter	Units	92491455002 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Fluoride	mg/L	ND	2.5	2.5	2.4	2.3	95	92	90-110	4	10	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

QC Batch: 561506 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: 92491393004, 92491393005, 92491393006, 92491393007, 92491393008

METHOD BLANK: 2978310 Matrix: Water
Associated Lab Samples: 92491393004, 92491393005, 92491393006, 92491393007, 92491393008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	0.050	08/21/20 17:28	

LABORATORY CONTROL SAMPLE: 2978311

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2978312 2978313

Parameter	Units	2978312		2978313		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92491393004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Fluoride	mg/L	0.17	2.5	2.5	3.0	3.0	112	112	90-110	0	10 M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2978314 2978315

Parameter	Units	2978314		2978315		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92491663005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Fluoride	mg/L	0.060J	2.5	2.5	2.7	2.7	105	106	90-110	1	10

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

QC Batch: 562094	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: 92491393009, 92491393010, 92491393011, 92491393012, 92491393013, 92491393014, 92491393015

METHOD BLANK: 2981303 Matrix: Water
Associated Lab Samples: 92491393009, 92491393010, 92491393011, 92491393012, 92491393013, 92491393014, 92491393015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	0.050	08/25/20 12:53	

LABORATORY CONTROL SAMPLE: 2981304

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.7	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2981305 2981306

Parameter	Units	92492088001 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	2.5	2.5	2.6	2.6	104	105	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2981307 2981308

Parameter	Units	92491393009 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	2.5	2.5	2.6	2.6	103	103	90-110	0	10	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: BRGWA-12I **Lab ID: 92491393001** Collected: 08/18/20 13:05 Received: 08/19/20 10:10 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	0.240 ± 0.122 (0.185) C:91% T:NA	pCi/L	09/08/20 17:44	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.748 ± 0.489 (0.931) C:70% T:80%	pCi/L	09/09/20 14:47	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.988 ± 0.611 (1.12)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: BRGWA-12S **Lab ID: 92491393002** Collected: 08/18/20 16:25 Received: 08/19/20 10:10 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	0.157 ± 0.111 (0.189) C:90% T:NA	pCi/L	09/08/20 17:44	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.812 ± 0.497 (0.953) C:70% T:90%	pCi/L	09/09/20 11:25	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.969 ± 0.608 (1.14)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: BRGWA-23S **Lab ID: 92491393003** Collected: 08/18/20 15:28 Received: 08/19/20 10:10 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 ± 0.113 (0.177) C:84% T:NA	pCi/L	09/08/20 17:44	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.587 ± 0.442 (0.866) C:72% T:79%	pCi/L	09/09/20 11:25	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.784 ± 0.555 (1.04)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWC-25I Lab ID: 92491393004 Collected: 08/19/20 09:50 Received: 08/20/20 10:03 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.288 ± 0.130 (0.188) C:86% T:NA	pCi/L	09/08/20 17:44	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.179 ± 0.343 (0.752) C:72% T:90%	pCi/L	09/09/20 11:25	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.467 ± 0.473 (0.940)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWC-29I Lab ID: 92491393005 Collected: 08/19/20 10:50 Received: 08/20/20 10:03 Matrix: Water PWS: Site ID: Sample Type:						
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	0.299 ± 0.162 (0.267) C:91% T:NA	pCi/L	09/08/20 17:44	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.577 ± 0.428 (0.848) C:77% T:82%	pCi/L	09/09/20 11:25	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.876 ± 0.590 (1.12)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: BRGWC-271 **Lab ID: 92491393006** Collected: 08/19/20 12:05 Received: 08/20/20 10:03 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	0.260 ± 0.132 (0.203) C:91% T:NA	pCi/L	09/08/20 17:44	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.424 ± 0.358 (0.718) C:74% T:87%	pCi/L	09/09/20 11:26	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.684 ± 0.490 (0.921)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWC-32S Lab ID: 92491393007 Collected: 08/19/20 13:20 Received: 08/20/20 10:03 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.0531 ± 0.0881 (0.172) C:92% T:NA	pCi/L	09/08/20 17:44	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.429 ± 0.407 (0.839) C:75% T:82%	pCi/L	09/09/20 11:26	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.482 ± 0.495 (1.01)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWC-30I Lab ID: 92491393008 Collected: 08/19/20 15:05 Received: 08/20/20 10:03 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.299 ± 0.125 (0.167) C:88% T:NA	pCi/L	09/08/20 17:44	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.703 ± 0.450 (0.863) C:72% T:86%	pCi/L	09/09/20 11:26	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	1.00 ± 0.575 (1.03)	pCi/L	09/11/20 08:26	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: BRGWC-45 **Lab ID: 92491393009** Collected: 08/20/20 12:12 Received: 08/21/20 11:08 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	0.194 ± 0.154 (0.275) C:88% T:NA	pCi/L	09/03/20 18:45	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.307 ± 0.468 (1.01) C:62% T:74%	pCi/L	09/09/20 15:08	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.501 ± 0.622 (1.29)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: BRGWC-47 **Lab ID: 92491393010** Collected: 08/20/20 14:00 Received: 08/21/20 11:08 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	0.500 ± 0.164 (0.181) C:86% T:NA	pCi/L	09/03/20 18:45	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	1.14 ± 0.652 (1.17) C:53% T:73%	pCi/L	09/09/20 15:08	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	1.64 ± 0.816 (1.35)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: BRGWC-50 **Lab ID: 92491393011** Collected: 08/20/20 09:32 Received: 08/21/20 11:08 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	0.735 ± 0.193 (0.151) C:89% T:NA	pCi/L	09/03/20 18:18	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	2.04 ± 0.699 (0.948) C:71% T:67%	pCi/L	09/09/20 15:08	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	2.78 ± 0.892 (1.10)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: BRGWC-52I **Lab ID: 92491393012** Collected: 08/20/20 09:45 Received: 08/21/20 11:08 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	0.684 ± 0.388 (0.589) C:84% T:NA	pCi/L	09/04/20 07:17	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	2.29 ± 0.728 (0.901) C:70% T:69%	pCi/L	09/09/20 14:43	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	2.97 ± 1.12 (1.49)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: DUP-2 **Lab ID: 92491393013** Collected: 08/20/20 00:00 Received: 08/21/20 11:08 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	0.602 ± 0.324 (0.420) C:87% T:NA	pCi/L	09/04/20 07:18	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	2.11 ± 0.682 (0.878) C:71% T:75%	pCi/L	09/09/20 14:43	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	2.71 ± 1.01 (1.30)	pCi/L	09/10/20 15:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: FB-2 **Lab ID: 92491393014** Collected: 08/20/20 09:20 Received: 08/21/20 11:08 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	0.0152 ± 0.200 (0.536) C:84% T:NA	pCi/L	09/04/20 07:18	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.713 ± 0.432 (0.796) C:69% T:83%	pCi/L	09/09/20 14:43	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.728 ± 0.632 (1.33)	pCi/L	09/10/20 15:16	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Sample: EB-1 **Lab ID: 92491393015** Collected: 08/20/20 12:45 Received: 08/21/20 11:08 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	0.115 ± 0.167 (0.346) C:89% T:NA	pCi/L	09/04/20 07:51	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.206 ± 0.334 (0.724) C:69% T:84%	pCi/L	09/09/20 14:43	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.321 ± 0.501 (1.07)	pCi/L	09/10/20 15:16	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

QC Batch:	411440	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 92491393002, 92491393003, 92491393004, 92491393005, 92491393006, 92491393007, 92491393008

METHOD BLANK: 1990348 Matrix: Water

Associated Lab Samples: 92491393002, 92491393003, 92491393004, 92491393005, 92491393006, 92491393007, 92491393008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.805 ± 0.381 (0.635) C:74% T:86%	pCi/L	09/09/20 11:25	

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.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

QC Batch: 411439

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92491393001, 92491393009, 92491393010, 92491393011, 92491393012, 92491393013, 92491393014, 92491393015

METHOD BLANK: 1990347

Matrix: Water

Associated Lab Samples: 92491393001, 92491393009, 92491393010, 92491393011, 92491393012, 92491393013, 92491393014, 92491393015

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.274 ± 0.326 (0.685) C:63% T:88%	pCi/L	09/09/20 12:01	

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: BRANCH BCD NETWORK
Pace Project No.: 92491393

QC Batch:	412359	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 92491393001, 92491393002, 92491393003, 92491393004, 92491393005, 92491393006, 92491393007, 92491393008

METHOD BLANK: 1994519 Matrix: Water

Associated Lab Samples: 92491393001, 92491393002, 92491393003, 92491393004, 92491393005, 92491393006, 92491393007, 92491393008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0753 ± 0.0856 (0.159) C:96% T:NA	pCi/L	09/08/20 17:44	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

QC Batch: 411375

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92491393009, 92491393010, 92491393011, 92491393012, 92491393013, 92491393014, 92491393015

METHOD BLANK: 1989998

Matrix: Water

Associated Lab Samples: 92491393009, 92491393010, 92491393011, 92491393012, 92491393013, 92491393014, 92491393015

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.135 ± 0.115 (0.203) C:91% T:NA	pCi/L	09/03/20 16:47	

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.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

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.

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.

ANALYTE QUALIFIERS

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

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH BCD NETWORK

Pace Project No.: 92491393

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92491393001	BRGWA-12I				
92491393002	BRGWA-12S				
92491393003	BRGWA-23S				
92491393004	BRGWC-25I				
92491393005	BRGWC-29I				
92491393006	BRGWC-27I				
92491393007	BRGWC-32S				
92491393008	BRGWC-30I				
92491393009	BRGWC-45				
92491393010	BRGWC-47				
92491393011	BRGWC-50				
92491393012	BRGWC-52I				
92491393001	BRGWA-12I	EPA 3005A	561324	EPA 6020B	561396
92491393002	BRGWA-12S	EPA 3005A	561324	EPA 6020B	561396
92491393003	BRGWA-23S	EPA 3005A	561324	EPA 6020B	561396
92491393004	BRGWC-25I	EPA 3005A	561963	EPA 6020B	562039
92491393005	BRGWC-29I	EPA 3005A	561963	EPA 6020B	562039
92491393006	BRGWC-27I	EPA 3005A	561963	EPA 6020B	562039
92491393007	BRGWC-32S	EPA 3005A	561963	EPA 6020B	562039
92491393008	BRGWC-30I	EPA 3005A	561963	EPA 6020B	562039
92491393009	BRGWC-45	EPA 3005A	561964	EPA 6020B	562041
92491393010	BRGWC-47	EPA 3005A	561964	EPA 6020B	562041
92491393011	BRGWC-50	EPA 3005A	561964	EPA 6020B	562041
92491393012	BRGWC-52I	EPA 3005A	561964	EPA 6020B	562041
92491393013	DUP-2	EPA 3005A	561964	EPA 6020B	562041
92491393014	FB-2	EPA 3005A	561964	EPA 6020B	562041
92491393015	EB-1	EPA 3005A	561964	EPA 6020B	562041
92491393001	BRGWA-12I	EPA 7470A	561377	EPA 7470A	561555
92491393002	BRGWA-12S	EPA 7470A	561377	EPA 7470A	561555
92491393003	BRGWA-23S	EPA 7470A	561377	EPA 7470A	561555
92491393004	BRGWC-25I	EPA 7470A	561900	EPA 7470A	562049
92491393005	BRGWC-29I	EPA 7470A	561900	EPA 7470A	562049
92491393006	BRGWC-27I	EPA 7470A	561900	EPA 7470A	562049
92491393007	BRGWC-32S	EPA 7470A	561900	EPA 7470A	562049
92491393008	BRGWC-30I	EPA 7470A	561900	EPA 7470A	562049
92491393009	BRGWC-45	EPA 7470A	561900	EPA 7470A	562049
92491393010	BRGWC-47	EPA 7470A	561900	EPA 7470A	562049
92491393011	BRGWC-50	EPA 7470A	561900	EPA 7470A	562049
92491393012	BRGWC-52I	EPA 7470A	561900	EPA 7470A	562049
92491393013	DUP-2	EPA 7470A	561900	EPA 7470A	562049
92491393014	FB-2	EPA 7470A	561900	EPA 7470A	562049
92491393015	EB-1	EPA 7470A	561894	EPA 7470A	562048
92491393001	BRGWA-12I	EPA 9315	412359		
92491393002	BRGWA-12S	EPA 9315	412359		
92491393003	BRGWA-23S	EPA 9315	412359		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92491393004	BRGWC-25I	EPA 9315	412359		
92491393005	BRGWC-29I	EPA 9315	412359		
92491393006	BRGWC-27I	EPA 9315	412359		
92491393007	BRGWC-32S	EPA 9315	412359		
92491393008	BRGWC-30I	EPA 9315	412359		
92491393009	BRGWC-45	EPA 9315	411375		
92491393010	BRGWC-47	EPA 9315	411375		
92491393011	BRGWC-50	EPA 9315	411375		
92491393012	BRGWC-52I	EPA 9315	411375		
92491393013	DUP-2	EPA 9315	411375		
92491393014	FB-2	EPA 9315	411375		
92491393015	EB-1	EPA 9315	411375		
92491393001	BRGWA-12I	EPA 9320	411439		
92491393002	BRGWA-12S	EPA 9320	411440		
92491393003	BRGWA-23S	EPA 9320	411440		
92491393004	BRGWC-25I	EPA 9320	411440		
92491393005	BRGWC-29I	EPA 9320	411440		
92491393006	BRGWC-27I	EPA 9320	411440		
92491393007	BRGWC-32S	EPA 9320	411440		
92491393008	BRGWC-30I	EPA 9320	411440		
92491393009	BRGWC-45	EPA 9320	411439		
92491393010	BRGWC-47	EPA 9320	411439		
92491393011	BRGWC-50	EPA 9320	411439		
92491393012	BRGWC-52I	EPA 9320	411439		
92491393013	DUP-2	EPA 9320	411439		
92491393014	FB-2	EPA 9320	411439		
92491393015	EB-1	EPA 9320	411439		
92491393001	BRGWA-12I	Total Radium Calculation	413385		
92491393002	BRGWA-12S	Total Radium Calculation	413385		
92491393003	BRGWA-23S	Total Radium Calculation	413385		
92491393004	BRGWC-25I	Total Radium Calculation	413385		
92491393005	BRGWC-29I	Total Radium Calculation	413385		
92491393006	BRGWC-27I	Total Radium Calculation	413385		
92491393007	BRGWC-32S	Total Radium Calculation	413385		
92491393008	BRGWC-30I	Total Radium Calculation	413442		
92491393009	BRGWC-45	Total Radium Calculation	413385		
92491393010	BRGWC-47	Total Radium Calculation	413385		
92491393011	BRGWC-50	Total Radium Calculation	413385		
92491393012	BRGWC-52I	Total Radium Calculation	413385		
92491393013	DUP-2	Total Radium Calculation	413385		
92491393014	FB-2	Total Radium Calculation	413385		
92491393015	EB-1	Total Radium Calculation	413385		
92491393001	BRGWA-12I	EPA 300.0 Rev 2.1 1993	561236		
92491393002	BRGWA-12S	EPA 300.0 Rev 2.1 1993	561236		
92491393003	BRGWA-23S	EPA 300.0 Rev 2.1 1993	561236		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH BCD NETWORK
Pace Project No.: 92491393

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92491393004	BRGWC-25I	EPA 300.0 Rev 2.1 1993	561506		
92491393005	BRGWC-29I	EPA 300.0 Rev 2.1 1993	561506		
92491393006	BRGWC-27I	EPA 300.0 Rev 2.1 1993	561506		
92491393007	BRGWC-32S	EPA 300.0 Rev 2.1 1993	561506		
92491393008	BRGWC-30I	EPA 300.0 Rev 2.1 1993	561506		
92491393009	BRGWC-45	EPA 300.0 Rev 2.1 1993	562094		
92491393010	BRGWC-47	EPA 300.0 Rev 2.1 1993	562094		
92491393011	BRGWC-50	EPA 300.0 Rev 2.1 1993	562094		
92491393012	BRGWC-52I	EPA 300.0 Rev 2.1 1993	562094		
92491393013	DUP-2	EPA 300.0 Rev 2.1 1993	562094		
92491393014	FB-2	EPA 300.0 Rev 2.1 1993	562094		
92491393015	EB-1	EPA 300.0 Rev 2.1 1993	562094		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 92491393

Client Name: GA 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

Thermometer Used 233 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 3.6°C Biological Tissue is Frozen: Yes No Comments: _____

Date and Initials of person examining contents: 5/19/20 OH

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>W</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, W-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 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):		

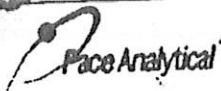
Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

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)



Document Name:
Bottle Identification Form (BIF)
Document No.:
F-CAR-CS-043-Rev.00

Document Issued: March 14, 2019
Page 1 of 1
Issuing Authority:
Pace Carolinas Quality Office

Project #

WO# : 92491393

PM: KLH1 Due Date: 09/02/20
CLIENT: GA-GA Power

• 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/BO15 (water) DOC, LLHg
• Bottom half of box is to list number of bottle

Matrix	Item#	BP4U-125 mL Plastic Unpreserved (N/A) (C-)	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) (C-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (C-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (C-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (C-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)	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)-S03S 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)	BP5A-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																											
	2																											
	3																											
	4																											
	5																											
	6																											
	7																											
	8																											
	9																											
	10																											
	11																											
	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 0
Out of hold, Incorrect preservative, out of temp, incorrect containers.



CHAIN-OF-CUSTODY Analytical Request Document

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

Filing Information:

Company: Georgia Power - Coal Combustion Residuals
Address: 2480 Maner Road
Atlanta, GA 30339
Report To: Joju Abraham
Email: j.abraham@southernco.com

Phone: (404) 506-7239
Email: j.abraham@southernco.com
Project Name: Plant Branch BCD Network

Project # CCR
Purchase Order #
Quote #
Turnaround Date Required:

Collected By (Print): Travis Martinez;
Pace/Project Manager: kevin_herring@pacelabs.com

Collected By (Signature): [Signature]
Field Filtered (if applicable): [] Yes [] No

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

Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Sol d (SU), Oil (OU), Wipe (WP), Air (AR), Tissue (TS), Biossary (B), Water (WT), Other (OT)

Table with columns: Customer Sample ID, Matrix, Comp / Grab, Collected for Composite Start Date, Composite End Date, PH, # of Cms. Rows include BRGWA-12E, BRGWA-12S, BRGWA-23S.

LAB USE ONLY - Attach Workorder/Login Label Here or List Pace Workorder Number or MTL Label Number Here

ALL SHADED AREAS are for LAB USE ONLY

Table with columns: Container Preservative Type, Lab Project Manager, Lab Profile/Line, Lab Sample Receipt Checklist.

Table with columns: Metals App IV - see comments, Fluoride, Radium 226.228, Mercury. Includes checkboxes for presence and analysis.

LAB USE ONLY section containing: Lab Sample # / Comments, Lab Sample Temperature Info, Trip Blank Received, HCL MeOH TSP Other, Non Conformance(s).



CHAIN-OF-CUSTODY Analytical Request Document

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

Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Marner Road
 Atlanta, GA 30339
 Report To: Joju Abraham
 Email To: scsinvoices@southernco.com

Copy To: Golder
 Site Collection Info/Address: Plant Branch

Phone: (404) 506-7239
 Email: jabraham@southernco.com
 Project Name: Plant Branch BCD Network
 Project # CCR
 Purchased Order #
 Quote #
 Turnaround Date Required:

State: Georgia City: Milledgeville Time Zone Collected:
 1 PMT 1 CT 1 X 1 ET
 Pace Profile#
 Pace Project Manager:
 kevin.herring@paceclabs.com
 Immediately Packed on Ice:
 Yes No
 Field Filtered (if applicable):
 Yes No
 Analysis:
 Rush: Same Day Next Day
 1-2 Day 3-4 Day 5 Day
 (Expedite Charges Apply)

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

Customer Sample ID	Matrix *	Comp / Grab	Collected for Composite		Composite End		pH	# of Cms
			Date	Time	Date	Time		
BRGWC-25I	GW	G	8-14-2020	0950			6.32	4
BRGWC-24I	GW	G	8-14-2020	1050			4.67	4
BRGWC-27I	GW	G	8-14-2020	1205			5.81	4
BRGWC-32S	GW	G	8-14-2020	1320			5.47	4
BRGWC-30I	GW	G	8-14-2020	1505			6.36	4

LAB USE ONLY - ATTENTION

LAB USE ONLY - ATTENTION

ALL 5

Container Present: 1

Analyses:

1

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

MO# : 92491393

PM: KLH1 Due Date: 09/02/20

CLIENT: GR-GR Power

Metals App IV - see comments	Fluoride	Radium 226.228	Mercury
X	X	X	X
X	X	X	X
X	X	X	X
X	X	X	X
X	X	X	X

App IV Metals: Sb, As, Ba, Be, Cd, Cr, Co, Hg, Pb, Li, Mo, Se, Tl

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

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

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

Samples received via: FEDEX UPS Client Courier Pace Courier

Date/Time: 8/20/20 1003

Date/Time: 8/20/20 1003

Table #: MTIL LAB USE ONLY

Account: _____
 Template: _____
 Prelogn: _____
 PM: _____
 PB: _____

Lab Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID: TH0230
 Cooler 1 Temp Upon Receipt: 5°C
 Cooler 1 Therm Corr. Factor: Doc
 Cooler 1 Corrected Temp: 1.5°C
 Comments:

Lab Sample # / Comments: 92491393

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

Non Conformance(s): YES / NO

Page: 1 of 1



CHAIN-OF-CUSTODY Analytical Request Document

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

Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Maner Road
 Atlanta, GA 30339
 Report To: Joju Abraham
 Copy To: Golder

Billing Information:
 Email To: scsnvoices@southernco.com
 Site Collection Info/Address: Plant Branch

State: Georgia City: Milledgeville Time Zone Collected:
 | PR | MT | CT | X ET

Project Name: Plant Branch BCD Network
 Project # CCR
 Purchase Order #
 Quote #

Page Project Manager:
 Kevin.herring@pacelabs.com
 Immediately Packed on Ice:
 Yes No

Turnaround Date Required:
 Rush: Same Day Next Day
 2 Day 3 Day 4 Day 5 Day
 Expedite Charges Apply? Yes No

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Composite End Date	pH	# of Ctrs
BRGWC-45	GW	G	8-20-2020 1212		5.86	4
BRGWC-47	GW	G	8-20-2020 1400		5.75	4
BRGWC-50	GW	G	8-20-2020 0932		5.26	4
BRGWC-52I	GW	G	8-20-2020 0945		6.85	6
DVP-2	GW	G	8-20-2020		-	4
FB-2	WT	G	8-20-2020 0920		-	4
EB-1	WT	G	8-20-2020 1245		-	4

Type of Ice Used:	Wet	Blue	Dry	None
Packing Material Used:				
Radchem sample(s) screened (<500 cpm):	Y	N	NA	

Relinquished by/Company (Signature):
 Date/Time:
 Received by/Company (Signature):
 Date/Time:

LAB USE ONLY - Affix Workorder/Login Label Here or Use Pace Workorder Number or MTLJ Log-In Number Here

ALL SHADED AREAS are for LAB USE ONLY

Container Preservation Type **	1	1	1	1
Metals App IV - see comments				
Fluoride				
Radium 226.228				
Mercury				

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

LAB USE ONLY:	LAB USE ONLY:
Lab Sample # / Comments: 92491343	Lab Sample # / Comments: 009 010 011 014 015

LAB Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID#: 233
 Cooler 1 Temp Upon Receipt: 30.0C
 Cooler 1 Therm Corr. Factor: 0.0C
 Cooler 1 Corrected Temp: 30.0C
 Comments:

Relinquished by/Company (Signature):
 Date/Time:
 Received by/Company (Signature):
 Date/Time:
 Trip Blank Received: Y N NA
 HCL MeOH TSP Other
 Non Conformance(s): YES / NO
 Page: 1 of 1

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: LAL
Date: 9/3/2020
Worklist: 55839
Matrix: DW

Method Blank Assessment	
MB Sample ID	1989998
MB concentration:	0.135
MB Counting Uncertainty:	0.113
MB MDC:	0.203
MB Numerical Performance Indicator:	2.34
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
LCS (Y or N)?	N
LCS55839	LCS55839
Count Date:	9/4/2020
Spike I.D.:	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.045
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.502
Target Conc. (pCi/L, g, F):	4.785
Uncertainty (Calculated):	0.057
Result (pCi/L, g, F):	4.098
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.782
Numerical Performance Indicator:	-1.72
Percent Recovery:	85.64%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	125%
Lower % Recovery Limits:	75%

Duplicate Sample Assessment	
Sample I.D.:	92491393012
Duplicate Sample I.D.:	92491393012DUP
Sample Result (pCi/L, g, F):	0.684
Sample Duplicate Result (pCi/L, g, F):	0.375
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.377
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.254
Are sample and/or duplicate results below RL?	See Below #
Duplicate Numerical Performance Indicator:	(1.32) <i>CL</i>
Duplicate RPD:	57.84%
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-processed due to unacceptable precision. N/A
AM 9/4/2020

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 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.:	
Spike I.D.:	
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 9/4/2020

Over time

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: LAL
Date: 9/3/2020
Worklist: 55839
Matrix: DW

Method Blank Assessment	
MB Sample ID	1989998
MB concentration:	0.135
M/B Counting Uncertainty:	0.113
MB MDC:	0.203
MB Numerical Performance Indicator:	2.34
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
LCSD (Y or N)?	N
LCSD55839	LCSD55839
Count Date:	9/4/2020
Spike I.D.:	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.045
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.502
Target Conc. (pCi/L, g, F):	4.785
Uncertainty (Calculated):	0.057
Result (pCi/L, g, F):	4.098
LCSD/LCSD Counting Uncertainty (pCi/L, g, F):	0.782
Numerical Performance Indicator:	-1.72
Percent Recovery:	85.64%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	125%
Lower % Recovery Limits:	75%

Duplicate Sample Assessment	
Sample I.D.:	92491663008
Duplicate Sample I.D.:	92491663008DUP
Sample Result (pCi/L, g, F):	0.467
Sample Result Counting Uncertainty (pCi/L, g, F):	0.143
Sample Duplicate Result (pCi/L, g, F):	0.359
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.256
Are sample and/or duplicate results below RL?	See Below #
Duplicate Numerical Performance Indicator:	0.728
Duplicate RPD:	26.34%
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-prepped due to unacceptable precision: N/A

9/4/2020

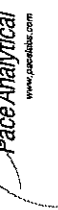
LAL

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 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 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:	

9/4/2020
Total Alpha Radium (R104-3 11Feb2019).xls
LAL

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
Analyst: LAL
Date: 9/8/2020
Worklist: 55962
Matrix: DW

Method Blank Assessment	MB Sample ID	MB Concentration:	M/B Counting Uncertainty:	MB MDC:	MB Numerical Performance Indicator:	MB Status vs Numerical Indicator:	MB Status vs. MDC:
	1994519	0.075	0.085	0.159	1.74	N/A	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	
	LCSS5962	LCSD55962
Count Date:	9/9/2020	9/9/2020
Spike I.D.:	19-033	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.045	24.045
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.506	0.506
Target Conc. (pCi/L, g, F):	4.757	4.755
Uncertainty (Calculated):	0.057	0.057
Result (pCi/L, g, F):	4.703	4.482
Uncertainty (pCi/L, g, F):	0.784	0.767
LCSD/LCSD Counting Uncertainty (pCi/L, g, F):	-0.13	-0.69
Numerical Performance Indicator:	98.88%	94.27%
Status vs Numerical Indicator:	N/A	N/A
Upper % Recovery Limits:	Pass	Pass
Lower % Recovery Limits:	125%	125%
	75%	75%

Duplicate Sample Assessment	LCSS5962	LCSD55962
Sample I.D.:	LCSS5962	LCSD55962
Duplicate Sample I.D.:	4.703	4.703
Sample Result (pCi/L, g, F):	0.784	0.784
Sample Duplicate Result (pCi/L, g, F):	4.482	4.482
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.767	0.767
Are sample and/or duplicate results below RL?	NO	NO
Duplicate Numerical Performance Indicator:	0.395	0.395
Duplicate (Based on the LCSD/LCSD Percent Recoveries) Duplicate RPD:	4.77%	4.77%
Duplicate Status vs Numerical Indicator:	N/A	N/A
Duplicate Status vs RPD:	Pass	Pass
% RPD Limit:	25%	25%

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

Comments:

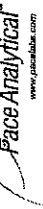
Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D.:		
MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc.(pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Sample Result: Sample 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. 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:

VAM 9/9/2020

[Handwritten signature]

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
Analyst: LAL
Date: 9/8/2020
Worklist: 55962
Matrix: DW

Method Blank Assessment	
MB Sample ID	1994519
MB Concentration:	0.075
M/B Counting Uncertainty:	0.085
MB MDC:	0.159
MB Numerical Performance Indicator:	1.74
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSID (Y or N)?	
	Y	N
Count Date:	9/9/2020	LCSID55962
Spike I.D.:	19-033	
Decay Corrected Spike Concentration (pCi/mL):	24.045	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.506	
Target Conc. (pCi/L, g, F):	4.787	
Uncertainty (Calculated):	0.057	
Result (pCi/L, g, F):	4.703	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.784	
Numerical Performance Indicator:	-0.13	
Percent Recovery:	98.88%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	125%	
Lower % Recovery Limits:	75%	

Duplicate Sample Assessment	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	92491393007
Duplicate Sample I.D.:	92491393007DUP
Sample Result (pCi/L, g, F):	0.063
Sample Duplicate Result (pCi/L, g, F):	0.088
Sample Duplicate Counting Uncertainty (pCi/L, g, F):	0.094
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.086
Are sample and/or duplicate results below RL?	See Below ##
Duplicate Numerical Performance Indicator:	-0.651
Duplicate RPD:	55.49%
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-prepped due to unacceptable precision. N/A
LAL 9/12/2020

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 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.:	
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:	

LAL 9/9/2020

LAL 9/9/2020

Quality Control Sample Performance Assessment

Analyst **Must Manually Enter All Fields Highlighted in Yellow.**



Test: Ra-228
Analyst: VAL
Date: 9/2/2020
Worklist: 55853
Matrix: WT

Method Blank Assessment	
MB Sample ID	1900347
MB concentration:	0.274
M/B 2 Sigma CSU:	0.326
MB MDC:	0.685
MB Numerical Performance Indicator:	1.65
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCS/D (Y or N)?	
	LCS/D55853	Y
Count Date:	9/9/2020	9/9/2020
Spike I.D.:	20-030	20-030
Decay Corrected Spike Concentration (pCi/mL):	38.472	38.472
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.810	0.812
Target Conc. (pCi/L, g, F):	4.748	4.736
Uncertainty (Calculated):	0.233	0.232
Result (pCi/L, g, F):	4.963	5.603
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.118	1.205
Numerical Performance Indicator:	0.37	1.38
Percent Recovery:	104.53%	118.30%
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	LCS/D55853	Y
Sample I.D.:	LCS/D55853	9/9/2020
Duplicate Sample I.D.:	4.963	38.472
Sample Result (pCi/L, g, F):	1.118	0.812
Sample Duplicate Result (pCi/L, g, F):	5.603	4.736
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.205	1.205
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	NO	0.232
Are sample and/or duplicate results below RL?	-0.762	5.603
Duplicate Numerical Performance Indicator:	12.36%	1.205
Duplicate (Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	Pass	1.205
Duplicate Status vs Numerical Indicator:	Pass	1.205
Duplicate Status vs RPD:	Pass	1.205
% RPD Limit:	36%	1.205

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

Comments:

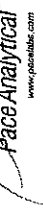
9-10-20
TJ

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: Sample Matrix Spike Duplicate Result: 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 Result 2 Sigma CSU (pCi/L, g, F): Sample 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:

9/2/20
TJ

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 9/3/2020
Worklist: 55854
Matrix: WT

Method Blank Assessment	
MB Sample ID	1990348
MB concentration:	0.805
MB 2 Sigma CSU:	0.381
MB MDC:	0.635
MB Numerical Performance Indicator:	4.14
MB Status vs Numerical Indicator:	Fail*
MB Status vs. MDC:	See Comment*

Laboratory Control Sample Assessment	LCSID (Y or N)?	
	LCS55854	LCS55854
Count Date:	9/9/2020	9/9/2020
Spike I.D.:	20-030	20-030
Decay Corrected Spike Concentration (pCi/mL):	38.472	38.472
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.815	0.812
Target Conc. (pCi/L, g, F):	4.718	4.741
Uncertainty (Calculated):	0.231	0.232
Result (pCi/L, g, F):	5.944	5.257
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.289	1.159
Numerical Performance Indicator:	1.83	0.86
Percent Recovery:	125.98%	110.89%
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.:	LCS55854
Duplicate Sample I.D.:	LCS55854
Sample Result (pCi/L, g, F):	5.944
Sample Result 2 Sigma CSU (pCi/L, g, F):	1.289
Sample Duplicate Result (pCi/L, g, F):	5.257
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.159
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	0.777
Duplicate Percent Recoveries Duplicate RPD:	12.74%
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:		
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:
Sample Matrix Spike Duplicate 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 Percent Recoveries Duplicate RPD:
(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.

DL 9-10-20

September 11, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 20, 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
- Pace Analytical Services - Peachtree Corners, GA
- Pace Analytical Services - Greensburg

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

Sincerely,



Tyler Forney for
Kevin Herring
kevin.herring@pacelabs.com
1(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta

Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

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 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

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, 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: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92491663001	DUP-1	Water	08/19/20 00:00	08/20/20 10:03
92491663002	BRGWC-33S	Water	08/19/20 09:47	08/20/20 10:03
92491663003	BRGWC-34S	Water	08/19/20 10:34	08/20/20 10:03
92491663004	FB-1	Water	08/19/20 10:16	08/20/20 10:03
92491663005	BRGWC-35S	Water	08/19/20 11:25	08/20/20 10:03
92491663006	BRGWC-37S	Water	08/19/20 12:23	08/20/20 10:03
92491663007	BRGWC-38S	Water	08/19/20 13:26	08/20/20 10:03
92491663008	BRGWC-36S	Water	08/19/20 14:58	08/20/20 10:03
92491663009	BRGWC-17S	Water	08/19/20 16:27	08/20/20 10:03

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92491663001	DUP-1	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491663002	BRGWC-33S	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491663003	BRGWC-34S	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491663004	FB-1	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491663005	BRGWC-35S	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491663006	BRGWC-37S	EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
92491663007	BRGWC-38S	EPA 6020B	CW1	12	PASI-GA

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SAMPLE ANALYTE COUNT

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92491663008	BRGWC-36S	EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
		EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92491663009	BRGWC-17S	EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
		EPA 6020B	CW1	12	PASI-GA
		EPA 7470A	VB	1	PASI-GA
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A

PASI-A = Pace Analytical Services - Asheville
PASI-C = Pace Analytical Services - Charlotte
PASI-GA = Pace Analytical Services - Peachtree Corners, GA
PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92491663001	DUP-1					
EPA 6020B	Barium	0.025	mg/L	0.010	08/25/20 18:05	
EPA 6020B	Beryllium	0.00012J	mg/L	0.0030	08/25/20 18:05	
EPA 6020B	Cadmium	0.00016J	mg/L	0.0025	08/25/20 18:05	
EPA 6020B	Cobalt	0.0042J	mg/L	0.0050	08/25/20 18:05	
EPA 9315	Radium-226	0.208 ± 0.117 (0.174) C:77% T:NA	pCi/L		09/02/20 17:59	
EPA 9320	Radium-228	1.08 ± 0.591 (1.08) C:70% T:77%	pCi/L		09/09/20 15:10	
Total Radium Calculation	Total Radium	1.29 ± 0.708 (1.25)	pCi/L		09/10/20 13:24	
EPA 300.0 Rev 2.1 1993	Fluoride	0.065J	mg/L	0.10	08/21/20 19:29	
92491663002	BRGWC-33S					
	pH	4.78	Std. Units		09/09/20 17:02	
EPA 6020B	Barium	0.020	mg/L	0.010	08/25/20 18:11	
EPA 6020B	Beryllium	0.0014J	mg/L	0.0030	08/25/20 18:11	
EPA 6020B	Cadmium	0.00029J	mg/L	0.0025	08/25/20 18:11	
EPA 6020B	Cobalt	0.036	mg/L	0.0050	08/25/20 18:11	
EPA 6020B	Lead	0.000060J	mg/L	0.0050	08/26/20 18:23	
EPA 6020B	Lithium	0.0090J	mg/L	0.030	08/25/20 18:11	
EPA 6020B	Thallium	0.00018J	mg/L	0.0010	08/26/20 18:23	
EPA 9315	Radium-226	0.270 ± 0.129 (0.180) C:84% T:NA	pCi/L		09/02/20 17:59	
EPA 9320	Radium-228	0.866 ± 0.525 (0.981) C:65% T:82%	pCi/L		09/09/20 15:10	
Total Radium Calculation	Total Radium	1.14 ± 0.654 (1.16)	pCi/L		09/10/20 13:24	
EPA 300.0 Rev 2.1 1993	Fluoride	0.11	mg/L	0.10	08/21/20 20:23	
92491663003	BRGWC-34S					
	pH	5.78	Std. Units		09/09/20 17:02	
EPA 6020B	Barium	0.024	mg/L	0.010	08/25/20 18:16	
EPA 6020B	Beryllium	0.00015J	mg/L	0.0030	08/25/20 18:16	
EPA 6020B	Cadmium	0.00018J	mg/L	0.0025	08/25/20 18:16	
EPA 6020B	Cobalt	0.0041J	mg/L	0.0050	08/25/20 18:16	
EPA 6020B	Lithium	0.00082J	mg/L	0.030	08/25/20 18:16	
EPA 7470A	Mercury	0.00012J	mg/L	0.00020	08/25/20 09:49	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92491663003	BRGWC-34S					
EPA 9315	Radium-226	0.344 ± 0.136 (0.166) C:81% T:NA	pCi/L		09/02/20 17:59	
EPA 9320	Radium-228	0.868 ± 0.608 (1.17) C:68% T:59%	pCi/L		09/09/20 15:10	
Total Radium Calculation	Total Radium	1.21 ± 0.744 (1.34)	pCi/L		09/10/20 13:24	
EPA 300.0 Rev 2.1 1993	Fluoride	0.074J	mg/L	0.10	08/21/20 20:36	
92491663004	FB-1					
EPA 7470A	Mercury	0.00012J	mg/L	0.00020	08/25/20 09:51	
EPA 9315	Radium-226	0.0526 ± 0.0700 (0.132) C:81% T:NA	pCi/L		09/02/20 17:59	
EPA 9320	Radium-228	0.705 ± 0.443 (0.820) C:71% T:75%	pCi/L		09/09/20 15:10	
Total Radium Calculation	Total Radium	0.758 ± 0.513 (0.952)	pCi/L		09/10/20 13:29	
92491663005	BRGWC-35S					
	pH	5.97	Std. Units		09/09/20 17:02	
EPA 6020B	Barium	0.040	mg/L	0.010	08/25/20 18:39	
EPA 6020B	Beryllium	0.00015J	mg/L	0.0030	08/25/20 18:39	
EPA 6020B	Chromium	0.0073J	mg/L	0.010	08/25/20 18:39	
EPA 6020B	Lithium	0.0021J	mg/L	0.030	08/25/20 18:39	
EPA 7470A	Mercury	0.00013J	mg/L	0.00020	08/25/20 09:59	
EPA 9315	Radium-226	0.117 ± 0.111 (0.202) C:92% T:NA	pCi/L		09/02/20 18:00	
EPA 9320	Radium-228	0.0450 ± 0.477 (1.10) C:70% T:76%	pCi/L		09/09/20 16:24	
Total Radium Calculation	Total Radium	0.162 ± 0.588 (1.30)	pCi/L		09/10/20 13:29	
EPA 300.0 Rev 2.1 1993	Fluoride	0.060J	mg/L	0.10	08/21/20 21:03	
92491663006	BRGWC-37S					
	pH	5.66	Std. Units		09/09/20 17:02	
EPA 6020B	Barium	0.026	mg/L	0.010	08/25/20 18:45	
EPA 6020B	Chromium	0.0017J	mg/L	0.010	08/25/20 18:45	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92491663006	BRGWC-37S					
EPA 7470A	Mercury	0.00014J	mg/L	0.00020	08/25/20 10:01	
EPA 9315	Radium-226	0.235 ± 0.132 (0.211) C:89% T:NA	pCi/L		09/03/20 16:47	
EPA 9320	Radium-228	0.347 ± 0.444 (0.941) C:70% T:81%	pCi/L		09/09/20 16:46	
Total Radium Calculation	Total Radium	0.582 ± 0.576 (1.15)	pCi/L		09/10/20 13:29	
EPA 300.0 Rev 2.1 1993	Fluoride	0.055J	mg/L	0.10	08/21/20 21:44	
92491663007	BRGWC-38S					
	pH	4.12	Std. Units		09/09/20 17:02	
EPA 6020B	Arsenic	0.0021J	mg/L	0.0050	08/25/20 18:51	
EPA 6020B	Barium	0.016	mg/L	0.010	08/25/20 18:51	
EPA 6020B	Beryllium	0.0079	mg/L	0.0030	08/25/20 18:51	
EPA 6020B	Cadmium	0.00056J	mg/L	0.0025	08/25/20 18:51	
EPA 6020B	Chromium	0.0043J	mg/L	0.010	08/25/20 18:51	
EPA 6020B	Cobalt	0.22	mg/L	0.0050	08/25/20 18:51	
EPA 6020B	Lead	0.00031J	mg/L	0.0050	08/26/20 19:03	
EPA 6020B	Lithium	0.021J	mg/L	0.030	08/25/20 18:51	
EPA 6020B	Selenium	0.041	mg/L	0.010	08/25/20 18:51	
EPA 6020B	Thallium	0.00019J	mg/L	0.0010	08/26/20 19:03	
EPA 7470A	Mercury	0.00018J	mg/L	0.00020	08/25/20 10:03	
EPA 9315	Radium-226	0.832 ± 0.221 (0.210) C:83% T:NA	pCi/L		09/03/20 16:47	
EPA 9320	Radium-228	2.34 ± 0.758 (1.07) C:67% T:86%	pCi/L		09/09/20 15:11	
Total Radium Calculation	Total Radium	3.17 ± 0.979 (1.28)	pCi/L		09/10/20 13:29	
EPA 300.0 Rev 2.1 1993	Fluoride	0.95	mg/L	0.10	08/21/20 21:57	
92491663008	BRGWC-36S					
	pH	5.53	Std. Units		09/09/20 17:02	
EPA 6020B	Barium	0.037	mg/L	0.010	08/25/20 18:56	
EPA 6020B	Beryllium	0.00011J	mg/L	0.0030	08/25/20 18:56	
EPA 6020B	Chromium	0.0094J	mg/L	0.010	08/25/20 18:56	
EPA 6020B	Lead	0.000047J	mg/L	0.0050	08/26/20 19:09	
EPA 6020B	Lithium	0.0024J	mg/L	0.030	08/25/20 18:56	
EPA 6020B	Selenium	0.0020J	mg/L	0.010	08/25/20 18:56	
EPA 7470A	Mercury	0.00013J	mg/L	0.00020	08/25/20 10:06	

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SUMMARY OF DETECTION

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92491663008	BRGWC-36S					
EPA 9315	Radium-226	0.467 ± 0.158 (0.187) C:94% T:NA	pCi/L		09/03/20 16:47	
EPA 9320	Radium-228	0.933 ± 0.441 (0.727) C:68% T:78%	pCi/L		09/09/20 12:01	
Total Radium Calculation	Total Radium	1.40 ± 0.599 (0.914)	pCi/L		09/10/20 15:11	
EPA 300.0 Rev 2.1 1993	Fluoride	0.051J	mg/L	0.10	08/21/20 22:11	
92491663009	BRGWC-17S					
	pH	6.24	Std. Units		09/09/20 17:02	
EPA 6020B	Barium	0.047	mg/L	0.010	08/27/20 15:20	
EPA 6020B	Chromium	0.012	mg/L	0.010	08/27/20 15:20	
EPA 6020B	Lithium	0.0010J	mg/L	0.030	08/27/20 15:20	
EPA 6020B	Selenium	0.0030J	mg/L	0.010	08/27/20 15:20	
EPA 7470A	Mercury	0.000084J	mg/L	0.00020	08/25/20 10:08	
EPA 9315	Radium-226	0.118 ± 0.0995 (0.173) C:88% T:NA	pCi/L		09/03/20 16:47	
EPA 9320	Radium-228	0.867 ± 0.503 (0.914) C:66% T:71%	pCi/L		09/09/20 12:02	
Total Radium Calculation	Total Radium	0.985 ± 0.603 (1.09)	pCi/L		09/10/20 15:11	
EPA 300.0 Rev 2.1 1993	Fluoride	0.10	mg/L	0.10	08/21/20 22:24	

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Sample: DUP-1		Lab ID: 92491663001		Collected: 08/19/20 00:00		Received: 08/20/20 10:03		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 18:05	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 18:05	7440-38-2		
Barium	0.025	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 18:05	7440-39-3		
Beryllium	0.00012J	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 18:05	7440-41-7		
Cadmium	0.00016J	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 18:05	7440-43-9		
Chromium	ND	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 18:05	7440-47-3		
Cobalt	0.0042J	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 18:05	7440-48-4		
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 18:17	7439-92-1		
Lithium	ND	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 18:05	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 18:05	7439-98-7		
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 18:05	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 18:17	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 09:37	7439-97-6		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Fluoride	0.065J	mg/L	0.10	0.050	1		08/21/20 19:29	16984-48-8		

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Sample: BRGWC-33S		Lab ID: 92491663002		Collected: 08/19/20 09:47		Received: 08/20/20 10:03		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	4.78	Std. Units			1		09/09/20 17:02		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 18:11	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 18:11	7440-38-2	
Barium	0.020	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 18:11	7440-39-3	
Beryllium	0.0014J	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 18:11	7440-41-7	
Cadmium	0.00029J	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 18:11	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 18:11	7440-47-3	
Cobalt	0.036	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 18:11	7440-48-4	
Lead	0.000060J	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 18:23	7439-92-1	
Lithium	0.0090J	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 18:11	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 18:11	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 18:11	7782-49-2	
Thallium	0.00018J	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 18:23	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 09:47	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.11	mg/L	0.10	0.050	1		08/21/20 20:23	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Sample: BRGWC-34S		Lab ID: 92491663003		Collected: 08/19/20 10:34		Received: 08/20/20 10:03		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.78	Std. Units			1		09/09/20 17:02		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 18:16	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 18:16	7440-38-2	
Barium	0.024	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 18:16	7440-39-3	
Beryllium	0.00015J	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 18:16	7440-41-7	
Cadmium	0.00018J	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 18:16	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 18:16	7440-47-3	
Cobalt	0.0041J	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 18:16	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 18:29	7439-92-1	
Lithium	0.00082J	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 18:16	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 18:16	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 18:16	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 18:29	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.00012J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 09:49	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.074J	mg/L	0.10	0.050	1		08/21/20 20:36	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Sample: FB-1		Lab ID: 92491663004		Collected: 08/19/20 10:16	Received: 08/20/20 10:03	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 18:34	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 18:34	7440-38-2		
Barium	ND	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 18:34	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 18:34	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 18:34	7440-43-9		
Chromium	ND	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 18:34	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 18:34	7440-48-4		
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 18:34	7439-92-1		
Lithium	ND	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 18:34	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 18:34	7439-98-7		
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 18:34	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 18:34	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	0.00012J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 09:51	7439-97-6		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Fluoride	ND	mg/L	0.10	0.050	1		08/21/20 20:50	16984-48-8		

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Sample: BRGWC-35S		Lab ID: 92491663005		Collected: 08/19/20 11:25		Received: 08/20/20 10:03		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.97	Std. Units			1		09/09/20 17:02		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 18:39	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 18:39	7440-38-2	
Barium	0.040	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 18:39	7440-39-3	
Beryllium	0.00015J	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 18:39	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 18:39	7440-43-9	
Chromium	0.0073J	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 18:39	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 18:39	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 18:52	7439-92-1	
Lithium	0.0021J	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 18:39	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 18:39	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 18:39	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 18:52	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.00013J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 09:59	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.060J	mg/L	0.10	0.050	1		08/21/20 21:03	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Sample: BRGWC-37S		Lab ID: 92491663006		Collected: 08/19/20 12:23		Received: 08/20/20 10:03		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.66	Std. Units			1		09/09/20 17:02		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 18:45	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 18:45	7440-38-2	
Barium	0.026	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 18:45	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 18:45	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 18:45	7440-43-9	
Chromium	0.0017J	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 18:45	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 18:45	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 18:57	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 18:45	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 18:45	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 18:45	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 18:57	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.00014J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:01	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.055J	mg/L	0.10	0.050	1		08/21/20 21:44	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Sample: BRGWC-38S		Lab ID: 92491663007		Collected: 08/19/20 13:26		Received: 08/20/20 10:03		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	4.12	Std. Units			1		09/09/20 17:02		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 18:51	7440-36-0	
Arsenic	0.0021J	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 18:51	7440-38-2	
Barium	0.016	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 18:51	7440-39-3	
Beryllium	0.0079	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 18:51	7440-41-7	
Cadmium	0.00056J	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 18:51	7440-43-9	
Chromium	0.0043J	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 18:51	7440-47-3	
Cobalt	0.22	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 18:51	7440-48-4	
Lead	0.00031J	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 19:03	7439-92-1	
Lithium	0.021J	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 18:51	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 18:51	7439-98-7	
Selenium	0.041	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 18:51	7782-49-2	
Thallium	0.00019J	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 19:03	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.00018J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:03	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.95	mg/L	0.10	0.050	1		08/21/20 21:57	16984-48-8	

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Sample: BRGWC-36S		Lab ID: 92491663008		Collected: 08/19/20 14:58		Received: 08/20/20 10:03		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.53	Std. Units			1		09/09/20 17:02		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:05	08/25/20 18:56	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:05	08/25/20 18:56	7440-38-2	
Barium	0.037	mg/L	0.010	0.00071	1	08/24/20 15:05	08/25/20 18:56	7440-39-3	
Beryllium	0.00011J	mg/L	0.0030	0.000046	1	08/24/20 15:05	08/25/20 18:56	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:05	08/25/20 18:56	7440-43-9	
Chromium	0.0094J	mg/L	0.010	0.00055	1	08/24/20 15:05	08/25/20 18:56	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	08/24/20 15:05	08/25/20 18:56	7440-48-4	
Lead	0.000047J	mg/L	0.0050	0.000036	1	08/24/20 15:05	08/26/20 19:09	7439-92-1	
Lithium	0.0024J	mg/L	0.030	0.00081	1	08/24/20 15:05	08/25/20 18:56	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:05	08/25/20 18:56	7439-98-7	
Selenium	0.0020J	mg/L	0.010	0.0016	1	08/24/20 15:05	08/25/20 18:56	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:05	08/26/20 19:09	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.00013J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:06	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.051J	mg/L	0.10	0.050	1		08/21/20 22:11	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Sample: BRGWC-17S		Lab ID: 92491663009		Collected: 08/19/20 16:27		Received: 08/20/20 10:03		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.24	Std. Units			1		09/09/20 17:02		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/24/20 15:10	08/27/20 15:20	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/24/20 15:10	08/27/20 15:20	7440-38-2	
Barium	0.047	mg/L	0.010	0.00071	1	08/24/20 15:10	08/27/20 15:20	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/24/20 15:10	08/27/20 15:20	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/24/20 15:10	08/27/20 15:20	7440-43-9	
Chromium	0.012	mg/L	0.010	0.00055	1	08/24/20 15:10	08/27/20 15:20	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	08/24/20 15:10	08/27/20 15:20	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/24/20 15:10	08/27/20 15:20	7439-92-1	
Lithium	0.0010J	mg/L	0.030	0.00081	1	08/24/20 15:10	08/27/20 15:20	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/24/20 15:10	08/27/20 15:20	7439-98-7	
Selenium	0.0030J	mg/L	0.010	0.0016	1	08/24/20 15:10	08/27/20 15:20	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/24/20 15:10	08/27/20 15:20	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.000084J	mg/L	0.00020	0.000078	1	08/24/20 11:30	08/25/20 10:08	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.10	mg/L	0.10	0.050	1		08/21/20 22:24	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

QC Batch: 561963 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92491663001, 92491663002, 92491663003, 92491663004, 92491663005, 92491663006, 92491663007, 92491663008

METHOD BLANK: 2980652 Matrix: Water
Associated Lab Samples: 92491663001, 92491663002, 92491663003, 92491663004, 92491663005, 92491663006, 92491663007, 92491663008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	08/25/20 16:08	
Arsenic	mg/L	ND	0.0050	0.00078	08/25/20 16:08	
Barium	mg/L	ND	0.010	0.00071	08/25/20 16:08	
Beryllium	mg/L	ND	0.0030	0.000046	08/25/20 16:08	
Cadmium	mg/L	ND	0.0025	0.00012	08/25/20 16:08	
Chromium	mg/L	ND	0.010	0.00055	08/25/20 16:08	
Cobalt	mg/L	ND	0.0050	0.00038	08/25/20 16:08	
Lead	mg/L	ND	0.0050	0.000036	08/26/20 16:20	
Lithium	mg/L	ND	0.030	0.00081	08/25/20 16:08	
Molybdenum	mg/L	ND	0.010	0.00069	08/25/20 16:08	
Selenium	mg/L	ND	0.010	0.0016	08/25/20 16:08	
Thallium	mg/L	ND	0.0010	0.00014	08/26/20 16:20	

LABORATORY CONTROL SAMPLE: 2980653

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	0.096	96	80-120	
Barium	mg/L	0.1	0.097	97	80-120	
Beryllium	mg/L	0.1	0.098	98	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.098	98	80-120	
Lead	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.098	98	80-120	
Molybdenum	mg/L	0.1	0.097	97	80-120	
Selenium	mg/L	0.1	0.098	98	80-120	
Thallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2980654 2980655

Parameter	Units	92491455013 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result						
Antimony	mg/L	0.00064J	0.1	0.1	0.1	0.10	101	99	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Barium	mg/L	0.12	0.1	0.1	0.24	0.23	115	114	75-125	0	20	

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Parameter	Units	2980654		2980655		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Beryllium	mg/L	ND	0.1	0.1	0.098	0.099	98	99	75-125	0	20		
Cadmium	mg/L	0.00058J	0.1	0.1	0.096	0.096	95	95	75-125	0	20		
Chromium	mg/L	0.0015J	0.1	0.1	0.10	0.10	100	100	75-125	0	20		
Cobalt	mg/L	0.00040J	0.1	0.1	0.10	0.10	99	99	75-125	0	20		
Lead	mg/L	0.00035J	0.1	0.1	0.094	0.093	94	93	75-125	1	20		
Lithium	mg/L	ND	0.1	0.1	0.096	0.098	96	97	75-125	1	20		
Molybdenum	mg/L	0.00077J	0.1	0.1	0.10	0.10	102	99	75-125	2	20		
Selenium	mg/L	0.0028J	0.1	0.1	0.10	0.10	99	99	75-125	0	20		
Thallium	mg/L	0.00021J	0.1	0.1	0.094	0.093	94	93	75-125	1	20		

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

QC Batch: 561964 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92491663009

METHOD BLANK: 2980659 Matrix: Water
Associated Lab Samples: 92491663009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	08/27/20 15:08	
Arsenic	mg/L	ND	0.0050	0.00078	08/27/20 15:08	
Barium	mg/L	ND	0.010	0.00071	08/27/20 15:08	
Beryllium	mg/L	ND	0.0030	0.000046	08/27/20 15:08	
Cadmium	mg/L	ND	0.0025	0.00012	08/27/20 15:08	
Chromium	mg/L	ND	0.010	0.00055	08/27/20 15:08	
Cobalt	mg/L	ND	0.0050	0.00038	08/27/20 15:08	
Lead	mg/L	ND	0.0050	0.000036	08/27/20 15:08	
Lithium	mg/L	ND	0.030	0.00081	08/27/20 15:08	
Molybdenum	mg/L	ND	0.010	0.00069	08/27/20 15:08	
Selenium	mg/L	ND	0.010	0.0016	08/27/20 15:08	
Thallium	mg/L	ND	0.0010	0.00014	08/27/20 15:08	

LABORATORY CONTROL SAMPLE: 2980660

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	
Barium	mg/L	0.1	0.099	99	80-120	
Beryllium	mg/L	0.1	0.099	99	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lead	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.10	101	80-120	
Molybdenum	mg/L	0.1	0.099	99	80-120	
Selenium	mg/L	0.1	0.096	96	80-120	
Thallium	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2980661 2980662

Parameter	Units	2980661		2980662		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	ND	0.1	0.10	0.10	103	102	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.10	0.10	101	100	75-125	1	20	
Barium	mg/L	0.047	0.1	0.14	0.14	98	97	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.097	0.096	97	96	75-125	1	20	

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Parameter	Units	2980661		2980662		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		92491663009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Cadmium	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20	
Chromium	mg/L	0.012	0.1	0.1	0.12	0.11	106	102	75-125	4	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Lithium	mg/L	0.0010J	0.1	0.1	0.10	0.099	98	98	75-125	0	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	103	100	75-125	2	20	
Selenium	mg/L	0.0030J	0.1	0.1	0.10	0.10	99	102	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	101	102	75-125	1	20	

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

QC Batch: 561900 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92491663001, 92491663002, 92491663003, 92491663004, 92491663005, 92491663006, 92491663007, 92491663008, 92491663009

METHOD BLANK: 2980098 Matrix: Water
Associated Lab Samples: 92491663001, 92491663002, 92491663003, 92491663004, 92491663005, 92491663006, 92491663007, 92491663008, 92491663009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	08/25/20 09:32	

LABORATORY CONTROL SAMPLE: 2980099

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2980100 2980101

Parameter	Units	92491663001 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	0.0024	90	94	75-125	3	20	

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

QC Batch: 561506 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: 92491663001, 92491663002, 92491663003, 92491663004, 92491663005, 92491663006, 92491663007, 92491663008, 92491663009

METHOD BLANK: 2978310 Matrix: Water
Associated Lab Samples: 92491663001, 92491663002, 92491663003, 92491663004, 92491663005, 92491663006, 92491663007, 92491663008, 92491663009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	0.050	08/21/20 17:28	

LABORATORY CONTROL SAMPLE: 2978311

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2978312 2978313

Parameter	Units	92491393004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.17	2.5	2.5	3.0	3.0	112	112	90-110	0	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2978314 2978315

Parameter	Units	92491663005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.060J	2.5	2.5	2.7	2.7	105	106	90-110	1	10	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Sample: DUP-1 **Lab ID: 92491663001** Collected: 08/19/20 00:00 Received: 08/20/20 10:03 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	0.208 ± 0.117 (0.174) C:77% T:NA	pCi/L	09/02/20 17:59	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	1.08 ± 0.591 (1.08) C:70% T:77%	pCi/L	09/09/20 15:10	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	1.29 ± 0.708 (1.25)	pCi/L	09/10/20 13:24	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Sample: BRGWC-33S **Lab ID: 92491663002** Collected: 08/19/20 09:47 Received: 08/20/20 10:03 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	0.270 ± 0.129 (0.180) C:84% T:NA	pCi/L	09/02/20 17:59	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.866 ± 0.525 (0.981) C:65% T:82%	pCi/L	09/09/20 15:10	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	1.14 ± 0.654 (1.16)	pCi/L	09/10/20 13:24	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWC-34S Lab ID: 92491663003 Collected: 08/19/20 10:34 Received: 08/20/20 10:03 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.344 ± 0.136 (0.166) C:81% T:NA	pCi/L	09/02/20 17:59	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.868 ± 0.608 (1.17) C:68% T:59%	pCi/L	09/09/20 15:10	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	1.21 ± 0.744 (1.34)	pCi/L	09/10/20 13:24	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Sample: FB-1 **Lab ID: 92491663004** Collected: 08/19/20 10:16 Received: 08/20/20 10:03 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	0.0526 ± 0.0700 (0.132) C:81% T:NA	pCi/L	09/02/20 17:59	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.705 ± 0.443 (0.820) C:71% T:75%	pCi/L	09/09/20 15:10	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.758 ± 0.513 (0.952)	pCi/L	09/10/20 13:29	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWC-35S Lab ID: 92491663005 Collected: 08/19/20 11:25 Received: 08/20/20 10:03 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.117 ± 0.111 (0.202) C:92% T:NA	pCi/L	09/02/20 18:00	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.0450 ± 0.477 (1.10) C:70% T:76%	pCi/L	09/09/20 16:24	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.162 ± 0.588 (1.30)	pCi/L	09/10/20 13:29	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Sample: BRGWC-37S **Lab ID: 92491663006** Collected: 08/19/20 12:23 Received: 08/20/20 10:03 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	0.235 ± 0.132 (0.211) C:89% T:NA	pCi/L	09/03/20 16:47	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.347 ± 0.444 (0.941) C:70% T:81%	pCi/L	09/09/20 16:46	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.582 ± 0.576 (1.15)	pCi/L	09/10/20 13:29	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWC-38S Lab ID: 92491663007 Collected: 08/19/20 13:26 Received: 08/20/20 10:03 Matrix: Water PWS: Site ID: Sample Type:						
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	0.832 ± 0.221 (0.210) C:83% T:NA	pCi/L	09/03/20 16:47	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	2.34 ± 0.758 (1.07) C:67% T:86%	pCi/L	09/09/20 15:11	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	3.17 ± 0.979 (1.28)	pCi/L	09/10/20 13:29	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWC-36S Lab ID: 92491663008 Collected: 08/19/20 14:58 Received: 08/20/20 10:03 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.467 ± 0.158 (0.187) C:94% T:NA	pCi/L	09/03/20 16:47	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.933 ± 0.441 (0.727) C:68% T:78%	pCi/L	09/09/20 12:01	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	1.40 ± 0.599 (0.914)	pCi/L	09/10/20 15:11	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Sample: BRGWC-17S **Lab ID: 92491663009** Collected: 08/19/20 16:27 Received: 08/20/20 10:03 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	0.118 ± 0.0995 (0.173) C:88% T:NA	pCi/L	09/03/20 16:47	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.867 ± 0.503 (0.914) C:66% T:71%	pCi/L	09/09/20 12:02	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.985 ± 0.603 (1.09)	pCi/L	09/10/20 15:11	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

QC Batch: 411439

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92491663008, 92491663009

METHOD BLANK: 1990347

Matrix: Water

Associated Lab Samples: 92491663008, 92491663009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.274 ± 0.326 (0.685) C:63% T:88%	pCi/L	09/09/20 12:01	

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: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

QC Batch: 411436

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92491663001, 92491663002, 92491663003, 92491663004, 92491663005, 92491663006, 92491663007

METHOD BLANK: 1990343

Matrix: Water

Associated Lab Samples: 92491663001, 92491663002, 92491663003, 92491663004, 92491663005, 92491663006, 92491663007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.245 ± 0.335 (0.716) C:71% T:90%	pCi/L	09/09/20 15:09	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

QC Batch: 411375

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92491663006, 92491663007, 92491663008, 92491663009

METHOD BLANK: 1989998

Matrix: Water

Associated Lab Samples: 92491663006, 92491663007, 92491663008, 92491663009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.135 ± 0.115 (0.203) C:91% T:NA	pCi/L	09/03/20 16:47	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

QC Batch: 411374

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92491663001, 92491663002, 92491663003, 92491663004, 92491663005

METHOD BLANK: 1989996

Matrix: Water

Associated Lab Samples: 92491663001, 92491663002, 92491663003, 92491663004, 92491663005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.241 ± 0.165 (0.285) C:87% T:NA	pCi/L	09/02/20 18:01	

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: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

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.

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.

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: BRANCH E NETWORK WELLS
Pace Project No.: 92491663

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92491663002	BRGWC-33S				
92491663003	BRGWC-34S				
92491663005	BRGWC-35S				
92491663006	BRGWC-37S				
92491663007	BRGWC-38S				
92491663008	BRGWC-36S				
92491663009	BRGWC-17S				
92491663001	DUP-1	EPA 3005A	561963	EPA 6020B	562039
92491663002	BRGWC-33S	EPA 3005A	561963	EPA 6020B	562039
92491663003	BRGWC-34S	EPA 3005A	561963	EPA 6020B	562039
92491663004	FB-1	EPA 3005A	561963	EPA 6020B	562039
92491663005	BRGWC-35S	EPA 3005A	561963	EPA 6020B	562039
92491663006	BRGWC-37S	EPA 3005A	561963	EPA 6020B	562039
92491663007	BRGWC-38S	EPA 3005A	561963	EPA 6020B	562039
92491663008	BRGWC-36S	EPA 3005A	561963	EPA 6020B	562039
92491663009	BRGWC-17S	EPA 3005A	561964	EPA 6020B	562041
92491663001	DUP-1	EPA 7470A	561900	EPA 7470A	562049
92491663002	BRGWC-33S	EPA 7470A	561900	EPA 7470A	562049
92491663003	BRGWC-34S	EPA 7470A	561900	EPA 7470A	562049
92491663004	FB-1	EPA 7470A	561900	EPA 7470A	562049
92491663005	BRGWC-35S	EPA 7470A	561900	EPA 7470A	562049
92491663006	BRGWC-37S	EPA 7470A	561900	EPA 7470A	562049
92491663007	BRGWC-38S	EPA 7470A	561900	EPA 7470A	562049
92491663008	BRGWC-36S	EPA 7470A	561900	EPA 7470A	562049
92491663009	BRGWC-17S	EPA 7470A	561900	EPA 7470A	562049
92491663001	DUP-1	EPA 9315	411374		
92491663002	BRGWC-33S	EPA 9315	411374		
92491663003	BRGWC-34S	EPA 9315	411374		
92491663004	FB-1	EPA 9315	411374		
92491663005	BRGWC-35S	EPA 9315	411374		
92491663006	BRGWC-37S	EPA 9315	411375		
92491663007	BRGWC-38S	EPA 9315	411375		
92491663008	BRGWC-36S	EPA 9315	411375		
92491663009	BRGWC-17S	EPA 9315	411375		
92491663001	DUP-1	EPA 9320	411436		
92491663002	BRGWC-33S	EPA 9320	411436		
92491663003	BRGWC-34S	EPA 9320	411436		
92491663004	FB-1	EPA 9320	411436		
92491663005	BRGWC-35S	EPA 9320	411436		
92491663006	BRGWC-37S	EPA 9320	411436		
92491663007	BRGWC-38S	EPA 9320	411436		
92491663008	BRGWC-36S	EPA 9320	411439		
92491663009	BRGWC-17S	EPA 9320	411439		
92491663001	DUP-1	Total Radium Calculation	413343		
92491663002	BRGWC-33S	Total Radium Calculation	413343		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH E NETWORK WELLS

Pace Project No.: 92491663

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92491663003	BRGWC-34S	Total Radium Calculation	413343		
92491663004	FB-1	Total Radium Calculation	413344		
92491663005	BRGWC-35S	Total Radium Calculation	413344		
92491663006	BRGWC-37S	Total Radium Calculation	413344		
92491663007	BRGWC-38S	Total Radium Calculation	413344		
92491663008	BRGWC-36S	Total Radium Calculation	413382		
92491663009	BRGWC-17S	Total Radium Calculation	413382		
92491663001	DUP-1	EPA 300.0 Rev 2.1 1993	561506		
92491663002	BRGWC-33S	EPA 300.0 Rev 2.1 1993	561506		
92491663003	BRGWC-34S	EPA 300.0 Rev 2.1 1993	561506		
92491663004	FB-1	EPA 300.0 Rev 2.1 1993	561506		
92491663005	BRGWC-35S	EPA 300.0 Rev 2.1 1993	561506		
92491663006	BRGWC-37S	EPA 300.0 Rev 2.1 1993	561506		
92491663007	BRGWC-38S	EPA 300.0 Rev 2.1 1993	561506		
92491663008	BRGWC-36S	EPA 300.0 Rev 2.1 1993	561506		
92491663009	BRGWC-17S	EPA 300.0 Rev 2.1 1993	561506		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY Analytical Request Document

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

Billing Information:

Company: Georgia Power Coal Combustion Residuals

Address: 2480 Maner Road
Atlanta, GA 30339

Report To: Joly Abraham

Email To: sscirno ces@southenco.com

Copy To: Goldner

Site Collect on nfo/Address: Plant Branch

Phone: (404) 506-7239

State: Georgia City: Milledgeville Time Zone Collected:

Email: jbraham@southenco.com

Project Name: Branch E Network Wells

Project Profile: | P1 | M1 | CT | X | JT

Collected By (Print): Travis Martinez,

Purchase Order #

Pace Project Manager: kevin.herring@pacelabs.com

Andrea McClure

Quote #

Immediately Packed on Ice:

Collected By (Signature): *Travis Martinez*

Turnaround Date Required:

Field Filtered (if applicable):

Rush: Same Day Next Day 12 Day 3 Day 4 Day 5 Day

(Expedite Charges Apply)

Analysis: Yes No

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

Customer Sample ID	Matrix *	Comp / Grab	Collected for Composite		Composite End		pH	# of Cms
			Date	Time	Date	Time		
DUP-1	GW	G	8-14-2020	—			—	4
BRGWC-333	GW	G	8-14-2020	0947			4.78	4
BRGWC-344	GW	G	8-14-2020	1034			5.78	4
FB-1	WT	G	8-14-2020	1016			—	4
BRGWC-355	GW	G	8-14-2020	1125			5.97	6
BRGWC-375	GW	G	8-14-2020	1223			5.66	4
BRGWC-385	GW	G	8-14-2020	1326			4.12	4
BRGWC-365	GW	G	8-14-2020	1458			5.53	6
BRGWC-175	GW	G	8-14-2020	1627			6.24	4

(App IV Metals): Sb, As, Ba, Be, Cd, Cr, Co, Hg, Pb, Li, Mo, Se, Ti

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

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

Radchem sample(s) screened (<500 qpm):

Relinquished by/Company: (Signature) *Joly Abraham*

Date/Time: 8-20-2020 10815

Received by/Company: (Signature) *Kevin Herring*

Relinquished by/Company: (Signature)

Date/Time:

Received by/Company: (Signature)

Relinquished by/Company: (Signature)

Date/Time:

Received by/Company: (Signature)

ALL SI

Container Present

1 1

** Preservative Types: (1) nitric acid, (2) vanilic
(6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfite
(C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

Analyses

MO# : 92491663



92491663

Lab Profile/Line:

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

Lab Sample #: 92491663

Lab Sample #: 92491663

Rad-1 (+2 Radium)

Rad-2 (+2 Radium)

Lab Sample Temperature Info:

Temp Blank Received: Y N NA
 Therm ID: H00281
 Cooler 1 Temp Upon Receipt: 0.0
 Cooler 1 Therm Corr. Factor: 0.0
 Cooler 1 Corrected Temp: 0.0
 Comments:

Tip Blank Received: Y N NA

HCL MeOH TSP Other

Non-Conformance(s): YES / NO

Page: 1 of 1

Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.



Test: Ra-226
Analyst: LAL
Date: 9/2/2020
Worklist: 55838
Matrix: DW

Method Blank Assessment	
MB Sample ID	1989996
MB concentration:	0.241
M/B Counting Uncertainty:	0.161
MB MDC:	0.285
MB Numerical Performance Indicator:	2.94
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCSD55838	LCSD55838
Count Date:	9/2/2020	
Spike I.D.:	19-033	
Decay Corrected Spike Concentration (pCi/mL):	24.045	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.501	
Target Conc. (pCi/L, g, F):	4.798	
Uncertainty (Calculated):	0.058	
Result (pCi/L, g, F):	4.336	
LCSD/LCSD Counting Uncertainty (pCi/L, g, F):	0.343	
Numerical Performance Indicator:	-2.60	
Percent Recovery:	90.37%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	125%	
Lower % Recovery Limits:	75%	

Duplicate Sample Assessment	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	92491663005
Duplicate Sample I.D.:	92491663005DUP
Sample Result (pCi/L, g, F):	0.117
Sample Result Counting Uncertainty (pCi/L, g, F):	0.110
Sample Duplicate Result (pCi/L, g, F):	0.098
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.087
Ave sample and/or duplicate results below RL?	See Below #
Duplicate Numerical Performance Indicator:	0.253
Duplicate RPD:	16.83%
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): Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result: 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: 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:

Jan 9/3/2020

Qua. 9.3.20

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
Analyst: LAL
Date: 9/2/2020
Worklist: 55838
Matrix: DW

Method Blank Assessment	
MB Sample ID	1989996
MB Concentration:	0.241
M/B Counting Uncertainty:	0.161
MB MDC:	0.285
MB Numerical Performance Indicator:	2.94
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

LCS/D (Y or N)?	Y	LCS/D55838
Decay Corrected Spike Concentration (pCi/mL):		0.10
Volume Used (mL):		0.509
Aliquot Volume (L, g, F):		4.720
Target Conc. (pCi/L, g, F):		0.057
Uncertainty (Calculated):		4.783
Result (pCi/L, g, F):		0.364
LCS/LCSD Counting Uncertainty (pCi/L, g, F):		0.34
Numerical Performance Indicator:		101.35%
Percent Recovery:		N/A
Status vs Numerical Indicator:		Pass
Upper % Recovery Limits:		125%
Lower % Recovery Limits:		75%

LCS/D (Y or N)?	Y	LCS/D55838
Count Date:		9/2/2020
Spike I.D.:		19-033
Volume Used (mL):		0.10
Aliquot Volume (L, g, F):		0.509
Target Conc. (pCi/L, g, F):		4.720
Uncertainty (Calculated):		0.057
Result (pCi/L, g, F):		4.783
LCS/LCSD Counting Uncertainty (pCi/L, g, F):		0.364
Numerical Performance Indicator:		101.35%
Percent Recovery:		N/A
Status vs Numerical Indicator:		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.: 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 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: Duplicate 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:

Jan 9/13/2020

See 9.3.20

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
Analyst: LAL
Date: 9/3/2020
Worklist: 55839
Matrix: DW

Method Blank Assessment	
MB Sample ID	1989998
MB concentration:	0.135
MB Counting Uncertainty:	0.113
MB MDC:	0.203
MB Numerical Performance Indicator:	2.34
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
Count Date:	9/4/2020
Spike I.D.:	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.045
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.502
Target Conc. (pCi/L, g, F):	4.785
Uncertainty (Calculated):	0.057
Result (pCi/L, g, F):	4.098
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.782
Numerical Performance Indicator:	-1.72
Percent Recovery:	85.64%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	125%
Lower % Recovery Limits:	75%

Duplicate Sample Assessment	
Sample I.D.:	92491393012
Duplicate Sample I.D.:	92491393012DUP
Sample Result (pCi/L, g, F):	0.684
Sample Duplicate Result (pCi/L, g, F):	0.375
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.377
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.254
Are sample and/or duplicate results below RL?	See Below #:
Duplicate Numerical Performance Indicator:	(1.32) <i>CL</i>
Duplicate RPD:	57.84%
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:

***Data must be re-typed due to unacceptable precision. N/A
AM 9/4/2020

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 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. Spike I.D.:
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 9/4/2020

Over. 11/10/20

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: LAL
Date: 9/3/2020
Worklist: 55839
Matrix: DW

Method Blank Assessment	
MB Sample ID	1989998
MB Concentration:	0.135
M/B Counting Uncertainty:	0.113
MB MDC:	0.203
MB Numerical Performance Indicator:	2.34
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
LCSD (Y or N)?	N
LCSD55839	LCSD55839
Count Date:	9/4/2020
Spike I.D.:	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.045
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.502
Target Conc. (pCi/L, g, F):	4.785
Uncertainty (Calculated):	0.057
Result (pCi/L, g, F):	4.098
LCSD/LCSD Counting Uncertainty (pCi/L, g, F):	0.782
Numerical Performance Indicator:	-1.72
Percent Recovery:	85.64%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	125%
Lower % Recovery Limits:	75%

Duplicate Sample Assessment	
Sample I.D.:	92491663008
Duplicate Sample I.D.:	92491663008DUP
Sample Result (pCi/L, g, F):	0.467
Sample Result Counting Uncertainty (pCi/L, g, F):	0.143
Sample Duplicate Result (pCi/L, g, F):	0.359
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.256
Are sample and/or duplicate results below RL?	See Below #
Duplicate Numerical Performance Indicator:	0.728
Duplicate RPD:	26.34%
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-prepped due to unacceptable precision: N/A

9/14/2020

9/14/2020

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 Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Duplicate Result:	
Sample 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.:	
Spike I.D.:	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Duplicate Result:	
Sample 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:	

9/14/2020
Total Alpha Radium (R104-3 11Feb2019).xls
Quality

Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 9/2/2020
Worklist: 55852
Matrix: WT



Method Blank Assessment	
MB Sample ID	1990343
MB Concentration:	0.245
M/B 2 Sigma CSU:	0.335
MB MDC:	0.716
MB Numerical Performance Indicator:	1.43
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment		LCSD (Y or N)?	Y
Count Date:		LCS55852	9/9/2020
Spike I.D.:		20-030	20-030
Decay Corrected Spike Concentration (pCi/mL):		38.470	38.470
Volume Used (mL):		0.10	0.10
Aliquot Volume (L, g, F):		0.801	0.802
Target Conc. (pCi/L, g, F):		4.804	4.799
Uncertainty (Calculated):		0.235	0.235
Result (pCi/L, g, F):		4.151	5.838
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):		1.079	1.360
Numerical Performance Indicator:		-1.16	1.47
Percent Recovery:		86.42%	121.64%
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
Sample I.D.:		LCS55852	9/9/2020
Duplicate Sample I.D.:		LCS55852	
Sample Result (pCi/L, g, F):		4.151	
Sample Result 2 Sigma CSU (pCi/L, g, F):		1.079	
Sample Duplicate Result (pCi/L, g, F):		5.838	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):		1.360	
Are sample and/or duplicate results below RL?		NO	
Duplicate Numerical Performance Indicator:		-1.903	
Duplicate (Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:		33.85%	
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): 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 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.:	
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:	

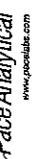
Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

9/10/20

9/10/20

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 9/2/2020
Worklist: 55853
Matrix: WT

Method Blank Assessment	
MB Sample ID	1900347
MB concentration:	0.274
M/B 2 Sigma CSU:	0.326
MB MDC:	0.685
MB Numerical Performance Indicator:	1.65
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCS/CSU (Y or N)?	
	LCS/CSU	Y
Count Date:	9/2/2020	9/2/2020
Spike I.D.:	20-030	20-030
Decay Corrected Spike Concentration (pCi/mL):	38.472	38.472
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.810	0.812
Target Conc. (pCi/L, g, F):	4.748	4.736
Uncertainty (Calculated):	0.233	0.232
Result (pCi/L, g, F):	4.963	5.603
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.118	1.205
Numerical Performance Indicator:	0.37	1.38
Percent Recovery:	104.53%	118.30%
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	LCS/CSU	Y
Sample I.D.:	LCS/CSU	Y
Duplicate Sample I.D.:	LCS/CSU	Y
Sample Result (pCi/L, g, F):	4.963	
Sample Duplicate Result (pCi/L, g, F):	1.118	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	5.603	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.205	
Are sample and/or duplicate results below RL?	NO	
Duplicate Numerical Performance Indicator:	-0.762	
Duplicate Numerical Performance Indicator:	12.36%	
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:

Handwritten: 9-10-20

Handwritten: 9/20/20/10/10

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:		
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 Result 2 Sigma CSU (pCi/L, g, F):
Sample Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):
Duplicate Numerical Performance Indicator:
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:

September 11, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH BCD ASSESSMENT RADS
Pace Project No.: 92491914

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 21, 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,



Kevin Herring
kevin.herring@pacelabs.com
1(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta
Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BRANCH BCD ASSESSMENT RADS
Pace Project No.: 92491914

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: BRANCH BCD ASSESSMENT RADS
Pace Project No.: 92491914

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92491914001	PZ-51S	Water	08/20/20 13:30	08/21/20 11:08
92491914002	PZ-51I	Water	08/20/20 11:45	08/21/20 11:08

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD ASSESSMENT RADS
Pace Project No.: 92491914

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92491914001	PZ-51S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92491914002	PZ-51I	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92491914

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92491914001	PZ-51S					
EPA 9315	Radium-226	0.0795 ± 0.170 (0.400) C:94% T:NA	pCi/L		09/04/20 07:31	
EPA 9320	Radium-228	1.11 ± 0.491 (0.779) C:66% T:80%	pCi/L		09/09/20 14:43	
Total Radium Calculation	Total Radium	1.19 ± 0.661 (1.18)	pCi/L		09/10/20 15:16	
92491914002	PZ-51I					
EPA 9315	Radium-226	0.237 ± 0.130 (0.209) C:87% T:NA	pCi/L		09/08/20 17:44	
EPA 9320	Radium-228	0.700 ± 0.436 (0.811) C:69% T:82%	pCi/L		09/09/20 14:43	
Total Radium Calculation	Total Radium	0.937 ± 0.566 (1.02)	pCi/L		09/10/20 15:16	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92491914

Sample: PZ-51S **Lab ID: 92491914001** Collected: 08/20/20 13:30 Received: 08/21/20 11:08 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	0.0795 ± 0.170 (0.400) C:94% T:NA	pCi/L	09/04/20 07:31	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	1.11 ± 0.491 (0.779) C:66% T:80%	pCi/L	09/09/20 14:43	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	1.19 ± 0.661 (1.18)	pCi/L	09/10/20 15:16	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92491914

Sample: PZ-511 **Lab ID: 92491914002** Collected: 08/20/20 11:45 Received: 08/21/20 11:08 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	0.237 ± 0.130 (0.209) C:87% T:NA	pCi/L	09/08/20 17:44	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.700 ± 0.436 (0.811) C:69% T:82%	pCi/L	09/09/20 14:43	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.937 ± 0.566 (1.02)	pCi/L	09/10/20 15:16	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92491914

QC Batch: 411439

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92491914001, 92491914002

METHOD BLANK: 1990347

Matrix: Water

Associated Lab Samples: 92491914001, 92491914002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.274 ± 0.326 (0.685) C:63% T:88%	pCi/L	09/09/20 12:01	

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: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92491914

QC Batch: 412359

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92491914002

METHOD BLANK: 1994519

Matrix: Water

Associated Lab Samples: 92491914002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0753 ± 0.0856 (0.159) C:96% T:NA	pCi/L	09/08/20 17:44	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92491914

QC Batch:	411375	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 92491914001

METHOD BLANK:	1989998	Matrix:	Water
---------------	---------	---------	-------

Associated Lab Samples: 92491914001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.135 ± 0.115 (0.203) C:91% T:NA	pCi/L	09/03/20 16:47	

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: BRANCH BCD ASSESSMENT RADS
Pace Project No.: 92491914

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.

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH BCD ASSESSMENT RADS
Pace Project No.: 92491914

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92491914001	PZ-51S	EPA 9315	411375		
92491914002	PZ-51I	EPA 9315	412359		
92491914001	PZ-51S	EPA 9320	411439		
92491914002	PZ-51I	EPA 9320	411439		
92491914001	PZ-51S	Total Radium Calculation	413385		
92491914002	PZ-51I	Total Radium Calculation	413385		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: GA Power

WO#: **92491914**



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

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

Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used 230 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 2.6 Biological Tissue is Frozen: Yes No
Temp should be above freezing to 6°C

Date and Initials of person examining contents: 8/21/2004

		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:	<u>W</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 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: _____

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)



Document Name:
Bottle Identification Form (BIF)
Document No.:
F-CAR-CS-043-Rev.00

Document Issued: March 14, 2019
Page 1 of 1

Issuing Authority:
Pace Analytical

WO#: 92491914

Project #

PM: KLH1

Due Date: 09/14/20

CLIENT: GA-GA Power

• 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/B015 (water) DOC, LLHg

• Bottom half of box is to list number of bottle

Matrix	Item#	Matrix	Item#	Matrix	Item#	Matrix	Item#	Matrix	Item#	Matrix	Item#	Matrix	Item#	Matrix	Item#	Matrix	Item#
	BP4U-125 mL Plastic Unpreserved (N/A) (C-)		BP3U-250 mL Plastic Unpreserved (N/A)		BP2U-500 mL Plastic Unpreserved (N/A)		BP3U-1 liter Plastic Unpreserved (N/A)		BP4S-125 mL Plastic H2SO4 (pH < 2) (C-)		BP3N-250 mL plastic HNO3 (pH < 2)		BP4Z-125 mL Plastic Zn Acetate & NaOH (>9)		BP4C-125 mL Plastic NaOH (pH > 12) (C-)		WGFL-Wide-mouthed Glass Jar Unpreserved
	AG1U-1 liter Amber Unpreserved (N/A) (C-)		AG1H-1 liter Amber HCl (pH < 2)		AG3U-250 mL Amber Unpreserved (N/A) (C-)		AG1S-1 liter Amber H2SO4 (pH < 2)		AG3S-250 mL Amber H2SO4 (pH < 2)		AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)		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)		SPST-125 mL Sterile Plastic (N/A - lab)		SP2T-250 mL Sterile Plastic (N/A - lab)		BP9A-250 mL Plastic (NH2)2SO4 (9-3-9-7)		AG0U-100 mL Amber Unpreserved vials (N/A)		VSGU-20 mL Sterilization vials (N/A)		
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
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	LC

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

September 09, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92491917

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 21, 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
- Pace Analytical Services - Peachtree Corners, GA

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: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta
Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BRANCH BCD ASSESSMENT

Pace Project No.: 92491917

Pace Analytical Services Charlotte

9800 Kinsey 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

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, 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: BRANCH BCD ASSESSMENT
Pace Project No.: 92491917

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92491917001	PZ-51S	Water	08/20/20 13:30	08/21/20 11:08
92491917002	PZ-51I	Water	08/20/20 11:45	08/21/20 11:08

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD ASSESSMENT

Pace Project No.: 92491917

Lab ID	Sample ID	Method	Analysts	Analytes Reported
92491917001	PZ-51S	EPA 6020B	CW1	12
		EPA 7470A	VB	1
		EPA 300.0 Rev 2.1 1993	CDC	1
92491917002	PZ-51I	EPA 6020B	CW1	12
		EPA 7470A	VB	1
		EPA 300.0 Rev 2.1 1993	CDC	1

PASI-A = Pace Analytical Services - Asheville

PASI-C = Pace Analytical Services - Charlotte

PASI-GA = Pace Analytical Services - Peachtree Corners, GA

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92491917

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92491917001	PZ-51S					
	pH	6.15	Std. Units		09/09/20 17:02	
EPA 6020B	Barium	0.030	mg/L	0.010	08/28/20 15:53	
EPA 6020B	Chromium	0.00063J	mg/L	0.010	08/28/20 15:53	
EPA 6020B	Cobalt	0.0039J	mg/L	0.0050	08/28/20 15:53	
EPA 300.0 Rev 2.1 1993	Fluoride	0.056J	mg/L	0.10	08/25/20 20:05	
92491917002	PZ-51I					
	pH	5.57	Std. Units		09/09/20 17:02	
EPA 6020B	Antimony	0.0017J	mg/L	0.0030	08/28/20 16:16	
EPA 6020B	Barium	0.013	mg/L	0.010	08/28/20 16:16	
EPA 6020B	Beryllium	0.000077J	mg/L	0.0030	08/28/20 16:16	
EPA 6020B	Cadmium	0.0019J	mg/L	0.0025	08/28/20 16:16	
EPA 6020B	Cobalt	0.020	mg/L	0.0050	08/28/20 16:16	
EPA 6020B	Lithium	0.019J	mg/L	0.030	08/28/20 16:16	
EPA 7470A	Mercury	0.000099J	mg/L	0.00020	08/27/20 10:24	

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ANALYTICAL RESULTS

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92491917

Sample: PZ-51S		Lab ID: 92491917001		Collected: 08/20/20 13:30		Received: 08/21/20 11:08		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.15	Std. Units			1		09/09/20 17:02		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	08/27/20 17:10	08/28/20 15:53	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/27/20 17:10	08/28/20 15:53	7440-38-2	
Barium	0.030	mg/L	0.010	0.00071	1	08/27/20 17:10	08/28/20 15:53	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/27/20 17:10	08/28/20 15:53	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/27/20 17:10	08/28/20 15:53	7440-43-9	
Chromium	0.00063J	mg/L	0.010	0.00055	1	08/27/20 17:10	08/28/20 15:53	7440-47-3	
Cobalt	0.0039J	mg/L	0.0050	0.00038	1	08/27/20 17:10	08/28/20 15:53	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/27/20 17:10	08/28/20 15:53	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	08/27/20 17:10	08/28/20 15:53	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/27/20 17:10	08/28/20 15:53	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/27/20 17:10	08/28/20 15:53	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/27/20 17:10	08/28/20 15:53	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00020	0.000078	1	08/26/20 12:00	08/27/20 10:14	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	0.056J	mg/L	0.10	0.050	1		08/25/20 20:05	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH BCD ASSESSMENT

Pace Project No.: 92491917

Sample: PZ-511 Lab ID: 92491917002 Collected: 08/20/20 11:45 Received: 08/21/20 11:08 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.57	Std. Units			1		09/09/20 17:02		
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.0017J	mg/L	0.0030	0.00028	1	08/27/20 17:10	08/28/20 16:16	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/27/20 17:10	08/28/20 16:16	7440-38-2	
Barium	0.013	mg/L	0.010	0.00071	1	08/27/20 17:10	08/28/20 16:16	7440-39-3	
Beryllium	0.000077J	mg/L	0.0030	0.000046	1	08/27/20 17:10	08/28/20 16:16	7440-41-7	
Cadmium	0.0019J	mg/L	0.0025	0.00012	1	08/27/20 17:10	08/28/20 16:16	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	08/27/20 17:10	08/28/20 16:16	7440-47-3	
Cobalt	0.020	mg/L	0.0050	0.00038	1	08/27/20 17:10	08/28/20 16:16	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	08/27/20 17:10	08/28/20 16:16	7439-92-1	
Lithium	0.019J	mg/L	0.030	0.00081	1	08/27/20 17:10	08/28/20 16:16	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	08/27/20 17:10	08/28/20 16:16	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/27/20 17:10	08/28/20 16:16	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/27/20 17:10	08/28/20 16:16	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.000099J	mg/L	0.00020	0.000078	1	08/26/20 12:00	08/27/20 10:24	7439-97-6	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Fluoride	ND	mg/L	0.10	0.050	1		08/25/20 20:20	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD ASSESSMENT

Pace Project No.: 92491917

QC Batch: 562831	Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A	Analysis Description: 6020 MET
	Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92491917001, 92491917002

METHOD BLANK: 2984655 Matrix: Water

Associated Lab Samples: 92491917001, 92491917002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	08/28/20 15:42	
Arsenic	mg/L	ND	0.0050	0.00078	08/28/20 15:42	
Barium	mg/L	ND	0.010	0.00071	08/28/20 15:42	
Beryllium	mg/L	ND	0.0030	0.000046	08/28/20 15:42	
Cadmium	mg/L	ND	0.0025	0.00012	08/28/20 15:42	
Chromium	mg/L	ND	0.010	0.00055	08/28/20 15:42	
Cobalt	mg/L	ND	0.0050	0.00038	08/28/20 15:42	
Lead	mg/L	ND	0.0050	0.000036	08/28/20 15:42	
Lithium	mg/L	ND	0.030	0.00081	08/28/20 15:42	
Molybdenum	mg/L	ND	0.010	0.00069	08/28/20 15:42	
Selenium	mg/L	ND	0.010	0.0016	08/28/20 15:42	
Thallium	mg/L	ND	0.0010	0.00014	08/28/20 15:42	

LABORATORY CONTROL SAMPLE: 2984656

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.095	95	80-120	
Arsenic	mg/L	0.1	0.094	94	80-120	
Barium	mg/L	0.1	0.093	93	80-120	
Beryllium	mg/L	0.1	0.096	96	80-120	
Cadmium	mg/L	0.1	0.096	96	80-120	
Chromium	mg/L	0.1	0.097	97	80-120	
Cobalt	mg/L	0.1	0.095	95	80-120	
Lead	mg/L	0.1	0.089	89	80-120	
Lithium	mg/L	0.1	0.094	94	80-120	
Molybdenum	mg/L	0.1	0.094	94	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Thallium	mg/L	0.1	0.089	89	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2984657 2984658

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92491917001	Result	Conc.	Conc.							Result
Antimony	mg/L	ND	0.1	0.1	0.097	0.095	97	95	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.094	0.094	94	94	75-125	0	20	
Barium	mg/L	0.030	0.1	0.1	0.12	0.12	94	89	75-125	4	20	
Beryllium	mg/L	ND	0.1	0.1	0.098	0.096	98	96	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92491917

Parameter	Units	2984657		2984658		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92491917001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Cadmium	mg/L	ND	0.1	0.1	0.097	0.095	97	95	75-125	3	20		
Chromium	mg/L	0.00063J	0.1	0.1	0.098	0.095	98	94	75-125	4	20		
Cobalt	mg/L	0.0039J	0.1	0.1	0.10	0.098	96	94	75-125	3	20		
Lead	mg/L	ND	0.1	0.1	0.090	0.088	90	88	75-125	2	20		
Lithium	mg/L	ND	0.1	0.1	0.098	0.096	97	96	75-125	2	20		
Molybdenum	mg/L	ND	0.1	0.1	0.097	0.095	97	95	75-125	2	20		
Selenium	mg/L	ND	0.1	0.1	0.093	0.093	93	93	75-125	1	20		
Thallium	mg/L	ND	0.1	0.1	0.090	0.089	90	89	75-125	1	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD ASSESSMENT

Pace Project No.: 92491917

QC Batch: 562436

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92491917001, 92491917002

METHOD BLANK: 2982834

Matrix: Water

Associated Lab Samples: 92491917001, 92491917002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	08/27/20 10:10	

LABORATORY CONTROL SAMPLE: 2982835

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0025	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2982836 2982837

Parameter	Units	2982836		2982837		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	0.0025	0.0025	0.0024	97	96	75-125	1	20

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QUALITY CONTROL DATA

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92491917

QC Batch: 562094 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: 92491917001, 92491917002

METHOD BLANK: 2981303 Matrix: Water

Associated Lab Samples: 92491917001, 92491917002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	0.050	08/25/20 12:53	

LABORATORY CONTROL SAMPLE: 2981304

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.7	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2981305 2981306

Parameter	Units	2981305		2981306		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92492088001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Fluoride	mg/L	ND	2.5	2.5	2.6	2.6	104	105	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2981307 2981308

Parameter	Units	2981307		2981308		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92491393009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Fluoride	mg/L	ND	2.5	2.5	2.6	2.6	103	103	90-110	0	10	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: BRANCH BCD ASSESSMENT

Pace Project No.: 92491917

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH BCD ASSESSMENT

Pace Project No.: 92491917

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92491917001	PZ-51S				
92491917002	PZ-51I				
92491917001	PZ-51S	EPA 3005A	562831	EPA 6020B	562944
92491917002	PZ-51I	EPA 3005A	562831	EPA 6020B	562944
92491917001	PZ-51S	EPA 7470A	562436	EPA 7470A	562585
92491917002	PZ-51I	EPA 7470A	562436	EPA 7470A	562585
92491917001	PZ-51S	EPA 300.0 Rev 2.1 1993	562094		
92491917002	PZ-51I	EPA 300.0 Rev 2.1 1993	562094		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 92491917

Client Name: GA Power



Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

Proj. Name: _____

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

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 2.30
2.6

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/21/2004

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 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 type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A 11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A 12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>
All containers needing preservation have been checked.	<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
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input 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: _____

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)



Document Name:
Bottle Identification Form (BIF)
Document No.:
F-CAR-CS-043-Rev.00

Document Issued: March 14, 2019
Page 1 of 1
Issuing Authority:
Pace Carolinas Quality Office

Project #

WO#: 92491917

PM: KLH1

Due Date: 09/04/20

CLIENT: GA-GA Power

• 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

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-)	BP3H-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)	BP9A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Sterilization vials (N/A)	
1																												
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
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 Out of hold, incorrect preservative, out of temp, incorrect containers.



CHAIN-OF-CUSTODY Analytical Request Document

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

Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Maner Road
 Atlanta, GA 30339
 Report To: Joji Abraham
 Copy To: Golder

Billing Information:
 Email To: sct.rnoicest@southernco.com
 Site Collection Info/Address: Plant Branch

Phone: (404) 506-7239
 Email: jbrabham@southernco.com
 Phone: (404) 506-7239
 Email: jbrabham@southernco.com

Project Name: Plant Branch BCD Assessment
 Project # CCR
 Purchase Order #
 Turnaround Date Required:

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

Matrix *
 P2-S1S
 P2-S1T

Comp / Grab
 G W
 G W

Collected (or Composite Start) Date
 8-20-2020
 8-20-2020

Composite End Date
 1330
 1145

pH
 6.15
 5.57

of Cms
 4
 4

Metals App IV - see comments
 Fluoride
 Radium 226.228
 Mercury

Type of Ice Used: Wet Blue Dry None
 Packing Material Used:
 Radchem sample(s) screened (<500 gpm): Y N NA

Relinquished by/Company: (Signature)
[Signature]
 Date/Time: 8/21/20 1108

Relinquished by/Company: (Signature)
[Signature]
 Date/Time: 8/21/20 1108

Relinquished by/Company: (Signature)
 Date/Time: Received by/Company: (Signature)

LAB USE ONLY: Affix Workorder/Login Label Here or List Pace Workorder Number or MTR/L Log-In Number Here

ALL SHADED AREAS are for LAB USE ONLY

Container/Preservative Type **
 1 1 1 1

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

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

LAB USE ONLY:
 Lab Sample # / Comments:
 6241417

LAB Sample Temperature Info:
 Temp Blank Rechecked: Y N NA
 Therm ID#
 Cooler 1 Temp Upon Receipt: 20.0C
 Cooler 1 Temp Corr. Factor: 0.0C
 Cooler 1 Corrected Temp: 20.0C
 Comments:

MTLL LAB USE ONLY
 Table #:
 Accrulum:
 Template:
 Prelogin:
 PM:
 PB:

Short Holds Present (<72 hours): Y N N/A
 Lab Tracking #:
 Samples received via:
 FEDEX UPS Client Courier Pace Courier

Non Conformance(s): Page: 1
 YES / NO of: 1

September 30, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory between September 16, 2020 and September 18, 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
- Pace Analytical Services - Peachtree Corners, GA

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: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta
Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

Pace Analytical Services Charlotte

9800 Kinsey 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

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, 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: BRANCH BCD NETWORK
Pace Project No.: 92495653

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92495653001	BRGWA-12S	Water	09/15/20 13:15	09/16/20 09:45
92495653002	BRGWA-12I	Water	09/15/20 11:13	09/16/20 09:45
92495653003	BRGWA-23S	Water	09/15/20 16:10	09/16/20 09:45
92495653004	BRGWC-25I	Water	09/15/20 17:20	09/16/20 09:45
92495653005	BRGWC-29I	Water	09/15/20 17:41	09/16/20 09:45
92495653006	BRGWC-32S	Water	09/16/20 09:16	09/17/20 10:00
92495653007	BRGWC-30I	Water	09/16/20 10:16	09/17/20 10:00
92495653008	BRGWC-47	Water	09/16/20 11:39	09/17/20 10:00
92495653009	BRGWC-45	Water	09/16/20 13:07	09/17/20 10:00
92495653010	BRGWC-27I	Water	09/16/20 14:35	09/17/20 10:00
92495653011	DUP-1	Water	09/16/20 00:00	09/17/20 10:00
92495653012	EB-1	Water	09/16/20 15:11	09/17/20 10:00
92495653013	BRGWC-50	Water	09/17/20 10:24	09/18/20 10:15
92495653014	BRGWC-52I	Water	09/17/20 10:07	09/18/20 10:15
92495653015	FB-2	Water	09/17/20 10:20	09/18/20 10:15

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Lab ID	Sample ID	Method	Analysts	Analytes Reported
92495653001	BRGWA-12S	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92495653002	BRGWA-12I	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92495653003	BRGWA-23S	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92495653004	BRGWC-25I	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92495653005	BRGWC-29I	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92495653006	BRGWC-32S	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92495653007	BRGWC-30I	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495653008	BRGWC-47	EPA 6010D	DRB	1
		EPA 6020B	CW1	13

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

Lab ID	Sample ID	Method	Analysts	Analytes Reported
92495653009	BRGWC-45	EPA 7470A	VB	1
		SM 2450C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
		EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
92495653010	BRGWC-27I	EPA 300.0 Rev 2.1 1993	BRJ	3
		EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
		EPA 6010D	DRB	1
92495653011	DUP-1	EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
		EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
92495653012	EB-1	SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
		EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495653013	BRGWC-50	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	FFP	1
		SM 2450C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
		EPA 6010D	DRB	1
		EPA 6020B	CW1	13
92495653014	BRGWC-52I	EPA 7470A	FFP	1
		SM 2450C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
		EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	FFP	1
		SM 2450C-2011	ALW	1
92495653015	FB-2	EPA 300.0 Rev 2.1 1993	BRJ	3
		EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	FFP	1
		SM 2450C-2011	ALW	1

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 300.0 Rev 2.1 1993	BRJ	3

PASI-A = Pace Analytical Services - Asheville
PASI-C = Pace Analytical Services - Charlotte
PASI-GA = Pace Analytical Services - Peachtree Corners, GA

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92495653001	BRGWA-12S					
	pH	6.00	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	5.7	mg/L	1.0	09/17/20 17:55	
EPA 6020B	Barium	0.058	mg/L	0.010	09/21/20 15:38	
EPA 6020B	Chromium	0.0025J	mg/L	0.010	09/21/20 15:38	
SM 2450C-2011	Total Dissolved Solids	60.0	mg/L	10.0	09/16/20 14:22	
EPA 300.0 Rev 2.1 1993	Chloride	3.5	mg/L	1.0	09/18/20 20:02	
92495653002	BRGWA-12I					
	pH	6.01	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	14.5	mg/L	1.0	09/17/20 18:21	
EPA 6020B	Antimony	0.010	mg/L	0.0030	09/21/20 16:01	
EPA 6020B	Barium	0.059	mg/L	0.010	09/21/20 16:01	
EPA 6020B	Boron	0.0071J	mg/L	0.10	09/21/20 16:01	
EPA 6020B	Chromium	0.00096J	mg/L	0.010	09/21/20 16:01	
EPA 6020B	Lithium	0.0037J	mg/L	0.030	09/21/20 16:01	
SM 2450C-2011	Total Dissolved Solids	95.0	mg/L	10.0	09/16/20 14:22	
EPA 300.0 Rev 2.1 1993	Chloride	2.4	mg/L	1.0	09/18/20 20:17	
EPA 300.0 Rev 2.1 1993	Fluoride	0.062J	mg/L	0.10	09/18/20 20:17	
EPA 300.0 Rev 2.1 1993	Sulfate	1.7	mg/L	1.0	09/18/20 20:17	
92495653003	BRGWA-23S					
	pH	5.72	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	10.7	mg/L	1.0	09/17/20 18:25	
EPA 6020B	Antimony	0.00033J	mg/L	0.0030	09/21/20 16:06	
EPA 6020B	Barium	0.086	mg/L	0.010	09/21/20 16:06	
EPA 6020B	Boron	0.033J	mg/L	0.10	09/21/20 16:06	
EPA 6020B	Chromium	0.0019J	mg/L	0.010	09/21/20 16:06	
EPA 6020B	Cobalt	0.00076J	mg/L	0.0050	09/21/20 16:06	
EPA 6020B	Lithium	0.011J	mg/L	0.030	09/21/20 16:06	
EPA 6020B	Selenium	0.0028J	mg/L	0.010	09/21/20 16:06	
SM 2450C-2011	Total Dissolved Solids	109	mg/L	10.0	09/16/20 14:23	
EPA 300.0 Rev 2.1 1993	Chloride	3.1	mg/L	1.0	09/23/20 23:18	
EPA 300.0 Rev 2.1 1993	Sulfate	41.5	mg/L	1.0	09/23/20 23:18	
92495653004	BRGWC-25I					
	pH	6.00	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	40.1	mg/L	1.0	09/17/20 18:29	
EPA 6020B	Barium	0.024	mg/L	0.010	09/21/20 16:12	
EPA 6020B	Boron	1.2	mg/L	0.10	09/21/20 16:12	
EPA 6020B	Cobalt	0.0035J	mg/L	0.0050	09/21/20 16:12	
EPA 6020B	Molybdenum	0.00080J	mg/L	0.010	09/21/20 16:12	
SM 2450C-2011	Total Dissolved Solids	272	mg/L	10.0	09/16/20 14:23	
EPA 300.0 Rev 2.1 1993	Chloride	4.9	mg/L	1.0	09/18/20 20:32	
EPA 300.0 Rev 2.1 1993	Fluoride	0.15	mg/L	0.10	09/18/20 20:32	
EPA 300.0 Rev 2.1 1993	Sulfate	126	mg/L	3.0	09/19/20 08:42	
92495653005	BRGWC-29I					
	pH	4.53	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	55.1	mg/L	1.0	09/17/20 18:34	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92495653005	BRGWC-29I					
EPA 6020B	Barium	0.017	mg/L	0.010	09/21/20 16:18	
EPA 6020B	Beryllium	0.00071J	mg/L	0.0030	09/21/20 16:18	
EPA 6020B	Boron	1.1	mg/L	0.10	09/21/20 16:18	
EPA 6020B	Cobalt	0.0064	mg/L	0.0050	09/21/20 16:18	
EPA 6020B	Lead	0.00029J	mg/L	0.0050	09/21/20 16:18	
EPA 6020B	Lithium	0.0030J	mg/L	0.030	09/21/20 16:18	
EPA 6020B	Thallium	0.00016J	mg/L	0.0010	09/21/20 16:18	
SM 2450C-2011	Total Dissolved Solids	281	mg/L	10.0	09/16/20 14:23	
EPA 300.0 Rev 2.1 1993	Chloride	5.5	mg/L	1.0	09/18/20 20:46	M1
EPA 300.0 Rev 2.1 1993	Fluoride	0.057J	mg/L	0.10	09/18/20 20:46	M1
EPA 300.0 Rev 2.1 1993	Sulfate	241	mg/L	5.0	09/19/20 08:56	
92495653006	BRGWC-32S					
	pH	5.79	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	43.1	mg/L	1.0	09/22/20 20:40	M1
EPA 6020B	Barium	0.024	mg/L	0.010	09/22/20 17:02	
EPA 6020B	Boron	1.4	mg/L	0.10	09/22/20 17:02	
EPA 6020B	Chromium	0.0025J	mg/L	0.010	09/22/20 17:02	
EPA 6020B	Lithium	0.0022J	mg/L	0.030	09/22/20 17:02	
EPA 6020B	Selenium	0.12	mg/L	0.010	09/22/20 17:02	
SM 2450C-2011	Total Dissolved Solids	428	mg/L	10.0	09/17/20 15:20	
EPA 300.0 Rev 2.1 1993	Chloride	5.6	mg/L	1.0	09/19/20 00:00	
EPA 300.0 Rev 2.1 1993	Sulfate	255	mg/L	5.0	09/19/20 09:55	
92495653007	BRGWC-30I					
	pH	6.29	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	106	mg/L	1.0	09/22/20 20:57	
EPA 6020B	Barium	0.022	mg/L	0.010	09/22/20 17:08	
EPA 6020B	Boron	1.7	mg/L	0.10	09/22/20 17:08	
EPA 6020B	Chromium	0.014	mg/L	0.010	09/22/20 17:08	
EPA 6020B	Cobalt	0.00080J	mg/L	0.0050	09/22/20 17:08	
EPA 6020B	Lead	0.00011J	mg/L	0.0050	09/22/20 17:08	
EPA 6020B	Lithium	0.016J	mg/L	0.030	09/22/20 17:08	
EPA 6020B	Molybdenum	0.0022J	mg/L	0.010	09/22/20 17:08	
SM 2450C-2011	Total Dissolved Solids	634	mg/L	10.0	09/17/20 15:20	
EPA 300.0 Rev 2.1 1993	Chloride	4.4	mg/L	1.0	09/19/20 15:53	
EPA 300.0 Rev 2.1 1993	Fluoride	0.13	mg/L	0.10	09/19/20 15:53	
EPA 300.0 Rev 2.1 1993	Sulfate	334	mg/L	7.0	09/20/20 02:34	M6
92495653008	BRGWC-47					
	pH	5.76	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	309	mg/L	10.0	09/23/20 12:15	
EPA 6020B	Antimony	0.00035J	mg/L	0.0030	09/22/20 17:13	B
EPA 6020B	Barium	0.028	mg/L	0.010	09/22/20 17:13	
EPA 6020B	Boron	0.47	mg/L	0.10	09/22/20 17:13	
EPA 6020B	Cobalt	0.00053J	mg/L	0.0050	09/22/20 17:13	
EPA 6020B	Lead	0.000066J	mg/L	0.0050	09/22/20 17:13	
EPA 6020B	Lithium	0.039	mg/L	0.030	09/22/20 17:13	
EPA 6020B	Selenium	0.0020J	mg/L	0.010	09/22/20 17:13	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92495653008	BRGWC-47					
SM 2450C-2011	Total Dissolved Solids	2090	mg/L	20.0	09/21/20 16:27	
EPA 300.0 Rev 2.1 1993	Chloride	4.1	mg/L	1.0	09/19/20 16:38	
EPA 300.0 Rev 2.1 1993	Sulfate	1360	mg/L	27.0	09/20/20 03:48	
92495653009	BRGWC-45					
	pH	5.27	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	39.7	mg/L	1.0	09/22/20 21:06	
EPA 6020B	Antimony	0.0012J	mg/L	0.0030	09/22/20 17:19	B
EPA 6020B	Barium	0.085	mg/L	0.010	09/22/20 17:19	
EPA 6020B	Boron	0.028J	mg/L	0.10	09/22/20 17:19	
EPA 6020B	Chromium	0.0014J	mg/L	0.010	09/22/20 17:19	
EPA 6020B	Cobalt	0.0049J	mg/L	0.0050	09/22/20 17:19	
EPA 6020B	Lead	0.000053J	mg/L	0.0050	09/22/20 17:19	
EPA 6020B	Lithium	0.0036J	mg/L	0.030	09/22/20 17:19	
SM 2450C-2011	Total Dissolved Solids	275	mg/L	10.0	09/17/20 15:20	
EPA 300.0 Rev 2.1 1993	Chloride	54.9	mg/L	1.0	09/19/20 16:53	
EPA 300.0 Rev 2.1 1993	Fluoride	0.052J	mg/L	0.10	09/19/20 16:53	
EPA 300.0 Rev 2.1 1993	Sulfate	103	mg/L	2.0	09/20/20 04:03	
92495653010	BRGWC-27I					
	pH	5.81	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	62.5	mg/L	1.0	09/22/20 21:10	
EPA 6020B	Barium	0.016	mg/L	0.010	09/22/20 17:25	
EPA 6020B	Beryllium	0.00011J	mg/L	0.0030	09/22/20 17:25	
EPA 6020B	Boron	1.2	mg/L	0.10	09/22/20 17:25	
EPA 6020B	Cobalt	0.0080	mg/L	0.0050	09/22/20 17:25	
EPA 6020B	Lithium	0.0014J	mg/L	0.030	09/22/20 17:25	
EPA 6020B	Selenium	0.0042J	mg/L	0.010	09/22/20 17:25	
SM 2450C-2011	Total Dissolved Solids	301	mg/L	10.0	09/17/20 15:20	
EPA 300.0 Rev 2.1 1993	Chloride	5.4	mg/L	1.0	09/19/20 17:08	
EPA 300.0 Rev 2.1 1993	Fluoride	0.15	mg/L	0.10	09/19/20 17:08	
EPA 300.0 Rev 2.1 1993	Sulfate	190	mg/L	4.0	09/20/20 04:17	
92495653011	DUP-1					
EPA 6010D	Calcium	108	mg/L	1.0	09/22/20 21:23	
EPA 6020B	Barium	0.022	mg/L	0.010	09/22/20 17:31	
EPA 6020B	Boron	1.7	mg/L	0.10	09/22/20 17:31	
EPA 6020B	Cobalt	0.00065J	mg/L	0.0050	09/22/20 17:31	
EPA 6020B	Lithium	0.016J	mg/L	0.030	09/22/20 17:31	
EPA 6020B	Molybdenum	0.00076J	mg/L	0.010	09/22/20 17:31	
SM 2450C-2011	Total Dissolved Solids	622	mg/L	10.0	09/18/20 09:58	
EPA 300.0 Rev 2.1 1993	Chloride	4.4	mg/L	1.0	09/19/20 17:23	
EPA 300.0 Rev 2.1 1993	Fluoride	0.13	mg/L	0.10	09/19/20 17:23	
EPA 300.0 Rev 2.1 1993	Sulfate	343	mg/L	7.0	09/20/20 04:32	
92495653012	EB-1					
EPA 6020B	Boron	0.0066J	mg/L	0.10	09/22/20 17:36	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495653013	BRGWC-50					
	pH	4.41	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	206	mg/L	1.0	09/22/20 22:02	
EPA 6020B	Antimony	0.00041J	mg/L	0.0030	09/23/20 20:05	
EPA 6020B	Barium	0.020	mg/L	0.010	09/23/20 20:05	
EPA 6020B	Beryllium	0.0065	mg/L	0.0030	09/24/20 17:33	
EPA 6020B	Boron	0.36	mg/L	0.10	09/24/20 17:33	
EPA 6020B	Cadmium	0.021	mg/L	0.0025	09/23/20 20:05	
EPA 6020B	Chromium	0.00098J	mg/L	0.010	09/23/20 20:05	
EPA 6020B	Cobalt	1.4	mg/L	0.050	09/24/20 17:07	
EPA 6020B	Lead	0.00015J	mg/L	0.0050	09/23/20 20:05	
EPA 6020B	Lithium	0.052	mg/L	0.030	09/24/20 17:33	
SM 2450C-2011	Total Dissolved Solids	1910	mg/L	50.0	09/24/20 11:49	D6,H1
EPA 300.0 Rev 2.1 1993	Chloride	20.1	mg/L	1.0	09/22/20 01:20	
EPA 300.0 Rev 2.1 1993	Fluoride	0.46	mg/L	0.10	09/22/20 01:20	
EPA 300.0 Rev 2.1 1993	Sulfate	1330	mg/L	26.0	09/22/20 14:58	
92495653014	BRGWC-52I					
	pH	6.12	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	35.4	mg/L	1.0	09/22/20 22:15	
EPA 6020B	Barium	0.020	mg/L	0.010	09/23/20 20:10	
EPA 6020B	Boron	1.9	mg/L	0.10	09/24/20 14:08	
EPA 6020B	Cobalt	0.00046J	mg/L	0.0050	09/23/20 20:10	
EPA 6020B	Lithium	0.0058J	mg/L	0.030	09/24/20 14:08	
EPA 6020B	Molybdenum	0.00070J	mg/L	0.010	09/23/20 20:10	
SM 2450C-2011	Total Dissolved Solids	329	mg/L	10.0	09/21/20 16:30	
EPA 300.0 Rev 2.1 1993	Chloride	6.3	mg/L	1.0	09/22/20 02:04	
EPA 300.0 Rev 2.1 1993	Fluoride	0.074J	mg/L	0.10	09/22/20 02:04	
EPA 300.0 Rev 2.1 1993	Sulfate	165	mg/L	4.0	09/22/20 15:13	
92495653015	FB-2					
EPA 6020B	Boron	0.0097J	mg/L	0.10	09/24/20 14:14	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWA-12S		Lab ID: 92495653001		Collected: 09/15/20 13:15		Received: 09/16/20 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.00	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Calcium	5.7	mg/L	1.0	0.070	1	09/16/20 15:14	09/17/20 17:55	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/16/20 18:16	09/21/20 15:38	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/16/20 18:16	09/21/20 15:38	7440-38-2	
Barium	0.058	mg/L	0.010	0.00071	1	09/16/20 18:16	09/21/20 15:38	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/16/20 18:16	09/21/20 15:38	7440-41-7	
Boron	ND	mg/L	0.10	0.0052	1	09/16/20 18:16	09/21/20 15:38	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/16/20 18:16	09/21/20 15:38	7440-43-9	
Chromium	0.0025J	mg/L	0.010	0.00055	1	09/16/20 18:16	09/21/20 15:38	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/16/20 18:16	09/21/20 15:38	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/16/20 18:16	09/21/20 15:38	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	09/16/20 18:16	09/21/20 15:38	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/16/20 18:16	09/21/20 15:38	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/16/20 18:16	09/21/20 15:38	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/16/20 18:16	09/21/20 15:38	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:07	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	60.0	mg/L	10.0	10.0	1		09/16/20 14:22		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	3.5	mg/L	1.0	0.60	1		09/18/20 20:02	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/18/20 20:02	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		09/18/20 20:02	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWA-12I		Lab ID: 92495653002		Collected: 09/15/20 11:13		Received: 09/16/20 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.01	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	14.5	mg/L	1.0	0.070	1	09/16/20 15:14	09/17/20 18:21	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.010	mg/L	0.0030	0.00028	1	09/16/20 18:16	09/21/20 16:01	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/16/20 18:16	09/21/20 16:01	7440-38-2	
Barium	0.059	mg/L	0.010	0.00071	1	09/16/20 18:16	09/21/20 16:01	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/16/20 18:16	09/21/20 16:01	7440-41-7	
Boron	0.0071J	mg/L	0.10	0.0052	1	09/16/20 18:16	09/21/20 16:01	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/16/20 18:16	09/21/20 16:01	7440-43-9	
Chromium	0.00096J	mg/L	0.010	0.00055	1	09/16/20 18:16	09/21/20 16:01	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/16/20 18:16	09/21/20 16:01	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/16/20 18:16	09/21/20 16:01	7439-92-1	
Lithium	0.0037J	mg/L	0.030	0.00081	1	09/16/20 18:16	09/21/20 16:01	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/16/20 18:16	09/21/20 16:01	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/16/20 18:16	09/21/20 16:01	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/16/20 18:16	09/21/20 16:01	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:09	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	95.0	mg/L	10.0	10.0	1		09/16/20 14:22		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	2.4	mg/L	1.0	0.60	1		09/18/20 20:17	16887-00-6	
Fluoride	0.062J	mg/L	0.10	0.050	1		09/18/20 20:17	16984-48-8	
Sulfate	1.7	mg/L	1.0	0.50	1		09/18/20 20:17	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWA-23S		Lab ID: 92495653003		Collected: 09/15/20 16:10		Received: 09/16/20 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.72	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	10.7	mg/L	1.0	0.070	1	09/16/20 15:14	09/17/20 18:25	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.00033J	mg/L	0.0030	0.00028	1	09/16/20 18:16	09/21/20 16:06	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/16/20 18:16	09/21/20 16:06	7440-38-2	
Barium	0.086	mg/L	0.010	0.00071	1	09/16/20 18:16	09/21/20 16:06	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/16/20 18:16	09/21/20 16:06	7440-41-7	
Boron	0.033J	mg/L	0.10	0.0052	1	09/16/20 18:16	09/21/20 16:06	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/16/20 18:16	09/21/20 16:06	7440-43-9	
Chromium	0.0019J	mg/L	0.010	0.00055	1	09/16/20 18:16	09/21/20 16:06	7440-47-3	
Cobalt	0.00076J	mg/L	0.0050	0.00038	1	09/16/20 18:16	09/21/20 16:06	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/16/20 18:16	09/21/20 16:06	7439-92-1	
Lithium	0.011J	mg/L	0.030	0.00081	1	09/16/20 18:16	09/21/20 16:06	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/16/20 18:16	09/21/20 16:06	7439-98-7	
Selenium	0.0028J	mg/L	0.010	0.0016	1	09/16/20 18:16	09/21/20 16:06	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/16/20 18:16	09/21/20 16:06	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:23	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	109	mg/L	10.0	10.0	1		09/16/20 14:23		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	3.1	mg/L	1.0	0.60	1		09/23/20 23:18	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/23/20 23:18	16984-48-8	
Sulfate	41.5	mg/L	1.0	0.50	1		09/23/20 23:18	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWC-25I		Lab ID: 92495653004		Collected: 09/15/20 17:20	Received: 09/16/20 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.00	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	40.1	mg/L	1.0	0.070	1	09/16/20 15:14	09/17/20 18:29	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/16/20 18:16	09/21/20 16:12	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/16/20 18:16	09/21/20 16:12	7440-38-2	
Barium	0.024	mg/L	0.010	0.00071	1	09/16/20 18:16	09/21/20 16:12	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/16/20 18:16	09/21/20 16:12	7440-41-7	
Boron	1.2	mg/L	0.10	0.0052	1	09/16/20 18:16	09/21/20 16:12	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/16/20 18:16	09/21/20 16:12	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/16/20 18:16	09/21/20 16:12	7440-47-3	
Cobalt	0.0035J	mg/L	0.0050	0.00038	1	09/16/20 18:16	09/21/20 16:12	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/16/20 18:16	09/21/20 16:12	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	09/16/20 18:16	09/21/20 16:12	7439-93-2	
Molybdenum	0.00080J	mg/L	0.010	0.00069	1	09/16/20 18:16	09/21/20 16:12	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/16/20 18:16	09/21/20 16:12	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/16/20 18:16	09/21/20 16:12	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:26	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	272	mg/L	10.0	10.0	1		09/16/20 14:23		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	4.9	mg/L	1.0	0.60	1		09/18/20 20:32	16887-00-6	
Fluoride	0.15	mg/L	0.10	0.050	1		09/18/20 20:32	16984-48-8	
Sulfate	126	mg/L	3.0	1.5	3		09/19/20 08:42	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWC-29I		Lab ID: 92495653005		Collected: 09/15/20 17:41		Received: 09/16/20 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	4.53	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Calcium	55.1	mg/L	1.0	0.070	1	09/16/20 15:14	09/17/20 18:34	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/16/20 18:16	09/21/20 16:18	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/16/20 18:16	09/21/20 16:18	7440-38-2	
Barium	0.017	mg/L	0.010	0.00071	1	09/16/20 18:16	09/21/20 16:18	7440-39-3	
Beryllium	0.00071J	mg/L	0.0030	0.000046	1	09/16/20 18:16	09/21/20 16:18	7440-41-7	
Boron	1.1	mg/L	0.10	0.0052	1	09/16/20 18:16	09/21/20 16:18	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/16/20 18:16	09/21/20 16:18	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/16/20 18:16	09/21/20 16:18	7440-47-3	
Cobalt	0.0064	mg/L	0.0050	0.00038	1	09/16/20 18:16	09/21/20 16:18	7440-48-4	
Lead	0.00029J	mg/L	0.0050	0.000036	1	09/16/20 18:16	09/21/20 16:18	7439-92-1	
Lithium	0.0030J	mg/L	0.030	0.00081	1	09/16/20 18:16	09/21/20 16:18	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/16/20 18:16	09/21/20 16:18	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/16/20 18:16	09/21/20 16:18	7782-49-2	
Thallium	0.00016J	mg/L	0.0010	0.00014	1	09/16/20 18:16	09/21/20 16:18	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:28	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	281	mg/L	10.0	10.0	1		09/16/20 14:23		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	5.5	mg/L	1.0	0.60	1		09/18/20 20:46	16887-00-6	M1
Fluoride	0.057J	mg/L	0.10	0.050	1		09/18/20 20:46	16984-48-8	M1
Sulfate	241	mg/L	5.0	2.5	5		09/19/20 08:56	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWC-32S		Lab ID: 92495653006		Collected: 09/16/20 09:16		Received: 09/17/20 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.79	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	43.1	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 20:40	7440-70-2	M1
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 17:02	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 17:02	7440-38-2	
Barium	0.024	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 17:02	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 17:02	7440-41-7	
Boron	1.4	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 17:02	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 17:02	7440-43-9	
Chromium	0.0025J	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 17:02	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 17:02	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 17:02	7439-92-1	
Lithium	0.0022J	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 17:02	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 17:02	7439-98-7	
Selenium	0.12	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 17:02	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 17:02	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:30	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	428	mg/L	10.0	10.0	1		09/17/20 15:20		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	5.6	mg/L	1.0	0.60	1		09/19/20 00:00	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/19/20 00:00	16984-48-8	
Sulfate	255	mg/L	5.0	2.5	5		09/19/20 09:55	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWC-30I Lab ID: 92495653007 Collected: 09/16/20 10:16 Received: 09/17/20 10:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.29	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Calcium	106	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 20:57	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 17:08	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 17:08	7440-38-2	
Barium	0.022	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 17:08	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 17:08	7440-41-7	
Boron	1.7	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 17:08	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 17:08	7440-43-9	
Chromium	0.014	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 17:08	7440-47-3	
Cobalt	0.00080J	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 17:08	7440-48-4	
Lead	0.00011J	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 17:08	7439-92-1	
Lithium	0.016J	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 17:08	7439-93-2	
Molybdenum	0.0022J	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 17:08	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 17:08	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 17:08	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:33	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	634	mg/L	10.0	10.0	1		09/17/20 15:20		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	4.4	mg/L	1.0	0.60	1		09/19/20 15:53	16887-00-6	
Fluoride	0.13	mg/L	0.10	0.050	1		09/19/20 15:53	16984-48-8	
Sulfate	334	mg/L	7.0	3.5	7		09/20/20 02:34	14808-79-8	M6

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWC-47		Lab ID: 92495653008		Collected: 09/16/20 11:39		Received: 09/17/20 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.76	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	309	mg/L	10.0	0.70	10	09/22/20 14:15	09/23/20 12:15	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.00035J	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 17:13	7440-36-0	B
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 17:13	7440-38-2	
Barium	0.028	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 17:13	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 17:13	7440-41-7	
Boron	0.47	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 17:13	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 17:13	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 17:13	7440-47-3	
Cobalt	0.00053J	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 17:13	7440-48-4	
Lead	0.000066J	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 17:13	7439-92-1	
Lithium	0.039	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 17:13	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 17:13	7439-98-7	
Selenium	0.0020J	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 17:13	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 17:13	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:35	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	2090	mg/L	20.0	20.0	1		09/21/20 16:27		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	4.1	mg/L	1.0	0.60	1		09/19/20 16:38	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/19/20 16:38	16984-48-8	
Sulfate	1360	mg/L	27.0	13.5	27		09/20/20 03:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWC-45		Lab ID: 92495653009		Collected: 09/16/20 13:07		Received: 09/17/20 10:00		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		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	39.7	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 21:06	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.0012J	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 17:19	7440-36-0	B
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 17:19	7440-38-2	
Barium	0.085	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 17:19	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 17:19	7440-41-7	
Boron	0.028J	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 17:19	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 17:19	7440-43-9	
Chromium	0.0014J	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 17:19	7440-47-3	
Cobalt	0.0049J	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 17:19	7440-48-4	
Lead	0.000053J	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 17:19	7439-92-1	
Lithium	0.0036J	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 17:19	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 17:19	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 17:19	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 17:19	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:37	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	275	mg/L	10.0	10.0	1		09/17/20 15:20		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	54.9	mg/L	1.0	0.60	1		09/19/20 16:53	16887-00-6	
Fluoride	0.052J	mg/L	0.10	0.050	1		09/19/20 16:53	16984-48-8	
Sulfate	103	mg/L	2.0	1.0	2		09/20/20 04:03	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWC-271		Lab ID: 92495653010		Collected: 09/16/20 14:35		Received: 09/17/20 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.81	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	62.5	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 21:10	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 17:25	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 17:25	7440-38-2	
Barium	0.016	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 17:25	7440-39-3	
Beryllium	0.00011J	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 17:25	7440-41-7	
Boron	1.2	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 17:25	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 17:25	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 17:25	7440-47-3	
Cobalt	0.0080	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 17:25	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 17:25	7439-92-1	
Lithium	0.0014J	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 17:25	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 17:25	7439-98-7	
Selenium	0.0042J	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 17:25	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 17:25	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:40	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	301	mg/L	10.0	10.0	1		09/17/20 15:20		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	5.4	mg/L	1.0	0.60	1		09/19/20 17:08	16887-00-6	
Fluoride	0.15	mg/L	0.10	0.050	1		09/19/20 17:08	16984-48-8	
Sulfate	190	mg/L	4.0	2.0	4		09/20/20 04:17	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: DUP-1		Lab ID: 92495653011		Collected: 09/16/20 00:00	Received: 09/17/20 10:00	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6010D ATL ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	108	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 21:23	7440-70-2		
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 17:31	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 17:31	7440-38-2		
Barium	0.022	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 17:31	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 17:31	7440-41-7		
Boron	1.7	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 17:31	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 17:31	7440-43-9		
Chromium	ND	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 17:31	7440-47-3		
Cobalt	0.00065J	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 17:31	7440-48-4		
Lead	ND	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 17:31	7439-92-1		
Lithium	0.016J	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 17:31	7439-93-2		
Molybdenum	0.00076J	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 17:31	7439-98-7		
Selenium	ND	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 17:31	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 17:31	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:47	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	622	mg/L	10.0	10.0	1		09/18/20 09:58			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	4.4	mg/L	1.0	0.60	1		09/19/20 17:23	16887-00-6		
Fluoride	0.13	mg/L	0.10	0.050	1		09/19/20 17:23	16984-48-8		
Sulfate	343	mg/L	7.0	3.5	7		09/20/20 04:32	14808-79-8		

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: EB-1		Lab ID: 92495653012		Collected: 09/16/20 15:11	Received: 09/17/20 10:00	Matrix: Water				
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D ATL ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	ND	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 21:27	7440-70-2		
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 17:36	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 17:36	7440-38-2		
Barium	ND	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 17:36	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 17:36	7440-41-7		
Boron	0.0066J	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 17:36	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 17:36	7440-43-9		
Chromium	ND	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 17:36	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 17:36	7440-48-4		
Lead	ND	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 17:36	7439-92-1		
Lithium	ND	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 17:36	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 17:36	7439-98-7		
Selenium	ND	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 17:36	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 17:36	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:49	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		09/18/20 09:58			
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		09/19/20 17:37	16887-00-6		
Fluoride	ND	mg/L	0.10	0.050	1		09/19/20 17:37	16984-48-8		
Sulfate	ND	mg/L	1.0	0.50	1		09/19/20 17:37	14808-79-8		

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWC-50 Lab ID: 92495653013 Collected: 09/17/20 10:24 Received: 09/18/20 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	4.41	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Calcium	206	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 22:02	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.00041J	mg/L	0.0030	0.00028	1	09/23/20 13:53	09/23/20 20:05	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/23/20 13:53	09/23/20 20:05	7440-38-2	
Barium	0.020	mg/L	0.010	0.00071	1	09/23/20 13:53	09/23/20 20:05	7440-39-3	
Beryllium	0.0065	mg/L	0.0030	0.000046	1	09/23/20 13:53	09/24/20 17:33	7440-41-7	
Boron	0.36	mg/L	0.10	0.0052	1	09/23/20 13:53	09/24/20 17:33	7440-42-8	
Cadmium	0.021	mg/L	0.0025	0.00012	1	09/23/20 13:53	09/23/20 20:05	7440-43-9	
Chromium	0.00098J	mg/L	0.010	0.00055	1	09/23/20 13:53	09/23/20 20:05	7440-47-3	
Cobalt	1.4	mg/L	0.050	0.0038	10	09/23/20 13:53	09/24/20 17:07	7440-48-4	
Lead	0.00015J	mg/L	0.0050	0.000036	1	09/23/20 13:53	09/23/20 20:05	7439-92-1	
Lithium	0.052	mg/L	0.030	0.00081	1	09/23/20 13:53	09/24/20 17:33	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/23/20 13:53	09/23/20 20:05	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/23/20 13:53	09/23/20 20:05	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/23/20 13:53	09/23/20 20:05	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/22/20 11:15	09/23/20 09:25	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	1910	mg/L	50.0	50.0	1		09/24/20 11:49		D6,H1
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	20.1	mg/L	1.0	0.60	1		09/22/20 01:20	16887-00-6	
Fluoride	0.46	mg/L	0.10	0.050	1		09/22/20 01:20	16984-48-8	
Sulfate	1330	mg/L	26.0	13.0	26		09/22/20 14:58	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: BRGWC-52I		Lab ID: 92495653014		Collected: 09/17/20 10:07		Received: 09/18/20 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	6.12	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Calcium	35.4	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 22:15	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/23/20 13:53	09/23/20 20:10	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/23/20 13:53	09/23/20 20:10	7440-38-2	
Barium	0.020	mg/L	0.010	0.00071	1	09/23/20 13:53	09/23/20 20:10	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/23/20 13:53	09/24/20 14:08	7440-41-7	
Boron	1.9	mg/L	0.10	0.0052	1	09/23/20 13:53	09/24/20 14:08	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/23/20 13:53	09/23/20 20:10	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/23/20 13:53	09/23/20 20:10	7440-47-3	
Cobalt	0.00046J	mg/L	0.0050	0.00038	1	09/23/20 13:53	09/23/20 20:10	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/23/20 13:53	09/23/20 20:10	7439-92-1	
Lithium	0.0058J	mg/L	0.030	0.00081	1	09/23/20 13:53	09/24/20 14:08	7439-93-2	
Molybdenum	0.00070J	mg/L	0.010	0.00069	1	09/23/20 13:53	09/23/20 20:10	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/23/20 13:53	09/23/20 20:10	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/23/20 13:53	09/23/20 20:10	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/22/20 11:15	09/23/20 09:27	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	329	mg/L	10.0	10.0	1		09/21/20 16:30		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	6.3	mg/L	1.0	0.60	1		09/22/20 02:04	16887-00-6	
Fluoride	0.074J	mg/L	0.10	0.050	1		09/22/20 02:04	16984-48-8	
Sulfate	165	mg/L	4.0	2.0	4		09/22/20 15:13	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Sample: FB-2		Lab ID: 92495653015		Collected: 09/17/20 10:20	Received: 09/18/20 10:15	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6010D ATL ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	ND	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 22:20	7440-70-2		
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00028	1	09/23/20 13:53	09/23/20 20:16	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00078	1	09/23/20 13:53	09/23/20 20:16	7440-38-2		
Barium	ND	mg/L	0.010	0.00071	1	09/23/20 13:53	09/23/20 20:16	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000046	1	09/23/20 13:53	09/24/20 14:14	7440-41-7		
Boron	0.0097J	mg/L	0.10	0.0052	1	09/23/20 13:53	09/24/20 14:14	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00012	1	09/23/20 13:53	09/23/20 20:16	7440-43-9		
Chromium	ND	mg/L	0.010	0.00055	1	09/23/20 13:53	09/23/20 20:16	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00038	1	09/23/20 13:53	09/23/20 20:16	7440-48-4		
Lead	ND	mg/L	0.0050	0.000036	1	09/23/20 13:53	09/23/20 20:16	7439-92-1		
Lithium	ND	mg/L	0.030	0.00081	1	09/23/20 13:53	09/24/20 14:14	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00069	1	09/23/20 13:53	09/23/20 20:16	7439-98-7		
Selenium	ND	mg/L	0.010	0.0016	1	09/23/20 13:53	09/23/20 20:16	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	09/23/20 13:53	09/23/20 20:16	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00050	0.000078	1	09/22/20 11:15	09/23/20 09:30	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		09/21/20 16:30			
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		09/22/20 02:19	16887-00-6		
Fluoride	ND	mg/L	0.10	0.050	1		09/22/20 02:19	16984-48-8		
Sulfate	ND	mg/L	1.0	0.50	1		09/22/20 02:19	14808-79-8		

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 566871 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495653001, 92495653002, 92495653003, 92495653004, 92495653005

METHOD BLANK: 3003868 Matrix: Water
Associated Lab Samples: 92495653001, 92495653002, 92495653003, 92495653004, 92495653005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.070	09/17/20 17:42	

LABORATORY CONTROL SAMPLE: 3003869

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	0.93J	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3003870 3003871

Parameter	Units	3003870		3003871		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495653001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Calcium	mg/L	5.7	1	1	6.6	6.6	89	87	75-125	0	20

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 568100 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495653006, 92495653007, 92495653008, 92495653009, 92495653010, 92495653011, 92495653012, 92495653013, 92495653014, 92495653015

METHOD BLANK: 3010230 Matrix: Water
Associated Lab Samples: 92495653006, 92495653007, 92495653008, 92495653009, 92495653010, 92495653011, 92495653012, 92495653013, 92495653014, 92495653015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.070	09/22/20 20:31	

LABORATORY CONTROL SAMPLE: 3010231

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	0.92J	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3010232 3010233

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		92495653006 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Calcium	mg/L	43.1	1	1	44.0	43.4	83	22	75-125	1	20	M1	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 566966 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495653001, 92495653002, 92495653003, 92495653004, 92495653005

METHOD BLANK: 3004543 Matrix: Water
Associated Lab Samples: 92495653001, 92495653002, 92495653003, 92495653004, 92495653005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	09/21/20 15:26	
Arsenic	mg/L	ND	0.0050	0.00078	09/21/20 15:26	
Barium	mg/L	ND	0.010	0.00071	09/21/20 15:26	
Beryllium	mg/L	ND	0.0030	0.000046	09/21/20 15:26	
Boron	mg/L	ND	0.10	0.0052	09/21/20 15:26	
Cadmium	mg/L	ND	0.0025	0.00012	09/21/20 15:26	
Chromium	mg/L	ND	0.010	0.00055	09/21/20 15:26	
Cobalt	mg/L	ND	0.0050	0.00038	09/21/20 15:26	
Lead	mg/L	ND	0.0050	0.000036	09/21/20 15:26	
Lithium	mg/L	ND	0.030	0.00081	09/21/20 15:26	
Molybdenum	mg/L	ND	0.010	0.00069	09/21/20 15:26	
Selenium	mg/L	ND	0.010	0.0016	09/21/20 15:26	
Thallium	mg/L	ND	0.0010	0.00014	09/21/20 15:26	

LABORATORY CONTROL SAMPLE: 3004544

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.099	99	80-120	
Arsenic	mg/L	0.1	0.099	99	80-120	
Barium	mg/L	0.1	0.099	99	80-120	
Beryllium	mg/L	0.1	0.10	105	80-120	
Boron	mg/L	1	1.1	109	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Chromium	mg/L	0.1	0.10	105	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.099	99	80-120	
Lithium	mg/L	0.1	0.11	107	80-120	
Molybdenum	mg/L	0.1	0.099	99	80-120	
Selenium	mg/L	0.1	0.098	98	80-120	
Thallium	mg/L	0.1	0.097	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3004545 3004546

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495653001	Result	Spike Conc.	Spike Conc.								
Antimony	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	2	20		
Arsenic	mg/L	ND	0.1	0.1	0.10	0.096	101	96	75-125	5	20		

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

Parameter	Units	3004545		3004546		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495653001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Barium	mg/L	0.058	0.1	0.1	0.16	0.15	99	95	75-125	2	20		
Beryllium	mg/L	ND	0.1	0.1	0.10	0.096	102	96	75-125	6	20		
Boron	mg/L	ND	1	1	1.0	0.98	103	97	75-125	5	20		
Cadmium	mg/L	ND	0.1	0.1	0.10	0.096	100	96	75-125	4	20		
Chromium	mg/L	0.0025J	0.1	0.1	0.11	0.099	103	96	75-125	7	20		
Cobalt	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	2	20		
Lead	mg/L	ND	0.1	0.1	0.099	0.096	99	96	75-125	3	20		
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	104	100	75-125	4	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20		
Selenium	mg/L	ND	0.1	0.1	0.098	0.10	98	99	75-125	1	20		
Thallium	mg/L	ND	0.1	0.1	0.097	0.094	97	94	75-125	4	20		

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 567397 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495653006, 92495653007, 92495653008, 92495653009, 92495653010, 92495653011, 92495653012

METHOD BLANK: 3006748 Matrix: Water
Associated Lab Samples: 92495653006, 92495653007, 92495653008, 92495653009, 92495653010, 92495653011, 92495653012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	0.00033J	0.0030	0.00028	09/22/20 15:42	
Arsenic	mg/L	ND	0.0050	0.00078	09/22/20 15:42	
Barium	mg/L	ND	0.010	0.00071	09/22/20 15:42	
Beryllium	mg/L	ND	0.0030	0.000046	09/22/20 15:42	
Boron	mg/L	ND	0.10	0.0052	09/22/20 15:42	
Cadmium	mg/L	ND	0.0025	0.00012	09/22/20 15:42	
Chromium	mg/L	ND	0.010	0.00055	09/22/20 15:42	
Cobalt	mg/L	ND	0.0050	0.00038	09/22/20 15:42	
Lead	mg/L	ND	0.0050	0.000036	09/22/20 15:42	
Lithium	mg/L	ND	0.030	0.00081	09/22/20 15:42	
Molybdenum	mg/L	ND	0.010	0.00069	09/22/20 15:42	
Selenium	mg/L	ND	0.010	0.0016	09/22/20 15:42	
Thallium	mg/L	ND	0.0010	0.00014	09/22/20 15:42	

LABORATORY CONTROL SAMPLE: 3006749

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	0.099	99	80-120	
Barium	mg/L	0.1	0.10	100	80-120	
Beryllium	mg/L	0.1	0.11	106	80-120	
Boron	mg/L	1	1.1	112	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.10	105	80-120	
Molybdenum	mg/L	0.1	0.098	98	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3006750 3006751

Parameter	Units	92495870002 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Antimony	mg/L	ND	0.1	0.1	0.10	0.11	104	106	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

Parameter	Units	3006750		3006751		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495870002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Barium	mg/L	0.019	0.1	0.1	0.12	0.12	97	99	75-125	2	20		
Beryllium	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	0	20		
Boron	mg/L	0.0053J	1	1	1.0	1.0	100	101	75-125	1	20		
Cadmium	mg/L	ND	0.1	0.1	0.098	0.096	98	96	75-125	1	20		
Chromium	mg/L	0.00086J	0.1	0.1	0.10	0.10	103	104	75-125	1	20		
Cobalt	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20		
Lead	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	1	20		
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20		
Molybdenum	mg/L	ND	0.1	0.1	0.096	0.096	95	96	75-125	0	20		
Selenium	mg/L	ND	0.1	0.1	0.099	0.096	99	96	75-125	3	20		
Thallium	mg/L	ND	0.1	0.1	0.098	0.099	98	99	75-125	1	20		

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 568417 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495653013, 92495653014, 92495653015

METHOD BLANK: 3011604 Matrix: Water
Associated Lab Samples: 92495653013, 92495653014, 92495653015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	09/23/20 18:33	
Arsenic	mg/L	ND	0.0050	0.00078	09/23/20 18:33	
Barium	mg/L	ND	0.010	0.00071	09/23/20 18:33	
Beryllium	mg/L	ND	0.0030	0.000046	09/23/20 18:33	
Boron	mg/L	ND	0.10	0.0052	09/23/20 18:33	
Cadmium	mg/L	ND	0.0025	0.00012	09/23/20 18:33	
Chromium	mg/L	ND	0.010	0.00055	09/23/20 18:33	
Cobalt	mg/L	ND	0.0050	0.00038	09/23/20 18:33	
Lead	mg/L	ND	0.0050	0.000036	09/23/20 18:33	
Lithium	mg/L	ND	0.030	0.00081	09/23/20 18:33	
Molybdenum	mg/L	ND	0.010	0.00069	09/23/20 18:33	
Selenium	mg/L	ND	0.010	0.0016	09/23/20 18:33	
Thallium	mg/L	ND	0.0010	0.00014	09/23/20 18:33	

LABORATORY CONTROL SAMPLE: 3011605

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	0.098	98	80-120	
Barium	mg/L	0.1	0.099	99	80-120	
Beryllium	mg/L	0.1	0.10	102	80-120	
Boron	mg/L	1	1.0	104	80-120	
Cadmium	mg/L	0.1	0.10	101	80-120	
Chromium	mg/L	0.1	0.10	105	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	0.11	106	80-120	
Molybdenum	mg/L	0.1	0.10	103	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Thallium	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3011606 3011607

Parameter	Units	92495876001 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	0.099	101	99	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.097	0.095	97	95	75-125	1	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

Parameter	Units	92495876001		3011606		3011607		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Barium	mg/L	0.030	0.1	0.1	0.13	0.13	96	95	75-125	1	20			
Beryllium	mg/L	0.00012J	0.1	0.1	0.098	0.095	98	95	75-125	2	20			
Boron	mg/L	0.0065J	1	1	1.0	0.98	100	97	75-125	3	20			
Cadmium	mg/L	0.00016J	0.1	0.1	0.10	0.098	100	98	75-125	2	20			
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	103	103	75-125	0	20			
Cobalt	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	1	20			
Lead	mg/L	0.00065J	0.1	0.1	0.098	0.099	97	99	75-125	2	20			
Lithium	mg/L	0.0014J	0.1	0.1	0.10	0.10	101	100	75-125	0	20			
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20			
Selenium	mg/L	ND	0.1	0.1	0.097	0.096	96	95	75-125	1	20			
Thallium	mg/L	ND	0.1	0.1	0.096	0.097	96	97	75-125	1	20			

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch:	567375	Analysis Method:	EPA 7470A
QC Batch Method:	EPA 7470A	Analysis Description:	7470 Mercury
		Laboratory:	Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92495653001, 92495653002, 92495653003, 92495653004, 92495653005, 92495653006, 92495653007, 92495653008, 92495653009, 92495653010, 92495653011, 92495653012

METHOD BLANK: 3006615 Matrix: Water
Associated Lab Samples: 92495653001, 92495653002, 92495653003, 92495653004, 92495653005, 92495653006, 92495653007, 92495653008, 92495653009, 92495653010, 92495653011, 92495653012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	09/18/20 14:02	

LABORATORY CONTROL SAMPLE: 3006616

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3006617 3006618

Parameter	Units	92495653002 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	100	103	75-125	3	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

QC Batch: 568004

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92495653013, 92495653014, 92495653015

METHOD BLANK: 3009596

Matrix: Water

Associated Lab Samples: 92495653013, 92495653014, 92495653015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	09/23/20 08:40	

LABORATORY CONTROL SAMPLE: 3009597

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0025	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3009598 3009599

Parameter	Units	3009598		3009599		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	0.0025	0.0025	98	94	75-125	5	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 566772 Analysis Method: SM 2450C-2011
QC Batch Method: SM 2450C-2011 Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495653001, 92495653002, 92495653003, 92495653004, 92495653005

METHOD BLANK: 3003519 Matrix: Water
Associated Lab Samples: 92495653001, 92495653002, 92495653003, 92495653004, 92495653005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	09/16/20 14:20	

LABORATORY CONTROL SAMPLE: 3003520

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	392	98	84-108	

SAMPLE DUPLICATE: 3003521

Parameter	Units	92495054002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	90.0	94.0	4	10	

SAMPLE DUPLICATE: 3003522

Parameter	Units	92495047012 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	ND		10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 567147 Analysis Method: SM 2450C-2011
QC Batch Method: SM 2450C-2011 Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495653006, 92495653007, 92495653009, 92495653010

METHOD BLANK: 3005362 Matrix: Water
Associated Lab Samples: 92495653006, 92495653007, 92495653009, 92495653010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	09/17/20 15:18	

LABORATORY CONTROL SAMPLE: 3005363

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	384	96	84-108	

SAMPLE DUPLICATE: 3005364

Parameter	Units	92495870005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	ND		10	

SAMPLE DUPLICATE: 3005365

Parameter	Units	92495900007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1890	1860	2	10	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 567372 Analysis Method: SM 2450C-2011
QC Batch Method: SM 2450C-2011 Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495653011, 92495653012

METHOD BLANK: 3006601 Matrix: Water
Associated Lab Samples: 92495653011, 92495653012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	09/18/20 09:58	

LABORATORY CONTROL SAMPLE: 3006602

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	387	97	84-108	

SAMPLE DUPLICATE: 3006603

Parameter	Units	92495653011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	622	654	5	10	

SAMPLE DUPLICATE: 3006604

Parameter	Units	92495900008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1220	1250	3	10	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 567882 Analysis Method: SM 2450C-2011
QC Batch Method: SM 2450C-2011 Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495653008, 92495653014, 92495653015

METHOD BLANK: 3009251 Matrix: Water
Associated Lab Samples: 92495653008, 92495653014, 92495653015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	09/21/20 16:27	

LABORATORY CONTROL SAMPLE: 3009252

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	412	103	84-108	

SAMPLE DUPLICATE: 3009253

Parameter	Units	92495653008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2090	2130	2	10	

SAMPLE DUPLICATE: 3009254

Parameter	Units	92495870011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	25.0	18.0	33	10	D6

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

QC Batch: 569364

Analysis Method: SM 2450C-2011

QC Batch Method: SM 2450C-2011

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92495653013

METHOD BLANK: 3016819

Matrix: Water

Associated Lab Samples: 92495653013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	09/24/20 11:49	

LABORATORY CONTROL SAMPLE: 3016820

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	388	97	84-108	

SAMPLE DUPLICATE: 3016821

Parameter	Units	92495653013 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1910	2160	13	10	D6,H1

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

QC Batch:	567529	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:	92495653001, 92495653002, 92495653004, 92495653005, 92495653006		

METHOD BLANK: 3007534 Matrix: Water
Associated Lab Samples: 92495653001, 92495653002, 92495653004, 92495653005, 92495653006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	09/18/20 16:46	
Fluoride	mg/L	ND	0.10	0.050	09/18/20 16:46	
Sulfate	mg/L	ND	1.0	0.50	09/18/20 16:46	

LABORATORY CONTROL SAMPLE: 3007535

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	52.2	104	90-110	
Fluoride	mg/L	2.5	2.7	106	90-110	
Sulfate	mg/L	50	52.4	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3007536 3007537

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92496029001 Result	Spike Conc.	Spike Conc.	Conc.								
Chloride	mg/L	13.6	50	50	50	68.1	69.2	109	111	90-110	2	10	M1
Fluoride	mg/L	0.10	2.5	2.5	2.5	2.8	2.9	109	112	90-110	3	10	M1
Sulfate	mg/L	7.4	50	50	50	62.2	63.3	110	112	90-110	2	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3007538 3007539

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495653005 Result	Spike Conc.	Spike Conc.	Conc.								
Chloride	mg/L	5.5	50	50	50	58.5	62.8	106	115	90-110	7	10	M1
Fluoride	mg/L	0.057J	2.5	2.5	2.5	2.8	3.0	108	116	90-110	7	10	M1
Sulfate	mg/L	241	50	50	50	287	291	91	100	90-110	2	10	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 567607 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: 92495653007, 92495653008, 92495653009, 92495653010, 92495653011, 92495653012

METHOD BLANK: 3008004 Matrix: Water
Associated Lab Samples: 92495653007, 92495653008, 92495653009, 92495653010, 92495653011, 92495653012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	09/19/20 15:23	
Fluoride	mg/L	ND	0.10	0.050	09/19/20 15:23	
Sulfate	mg/L	ND	1.0	0.50	09/19/20 15:23	

LABORATORY CONTROL SAMPLE: 3008005

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	52.3	105	90-110	
Fluoride	mg/L	2.5	2.7	106	90-110	
Sulfate	mg/L	50	52.5	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3008006 3008007

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495653007 Result	Spike Conc.	Spike Conc.	MS Result						
Chloride	mg/L	4.4	50	50	57.4	58.2	106	108	90-110	1	10
Fluoride	mg/L	0.13	2.5	2.5	2.8	2.8	107	109	90-110	1	10
Sulfate	mg/L	334	50	50	389	385	111	103	90-110	1	10 M6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3008008 3008009

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495964005 Result	Spike Conc.	Spike Conc.	MS Result						
Chloride	mg/L	7.9	50	50	61.3	62.0	107	108	90-110	1	10
Fluoride	mg/L	ND	2.5	2.5	2.7	2.7	107	108	90-110	1	10
Sulfate	mg/L	256	50	50	298	299	85	87	90-110	0	10 M6

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 567942 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: 92495653013, 92495653014, 92495653015

METHOD BLANK: 3009478 Matrix: Water
Associated Lab Samples: 92495653013, 92495653014, 92495653015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	09/21/20 23:05	
Fluoride	mg/L	ND	0.10	0.050	09/21/20 23:05	
Sulfate	mg/L	ND	1.0	0.50	09/21/20 23:05	

LABORATORY CONTROL SAMPLE: 3009479

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	52.8	106	90-110	
Fluoride	mg/L	2.5	2.7	108	90-110	
Sulfate	mg/L	50	52.8	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3009480 3009481

Parameter	Units	92495047013		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chloride	mg/L	1.7	50	50	53.8	53.6	104	104	104	90-110	0	10	
Fluoride	mg/L	ND	2.5	2.5	2.6	2.6	104	103	103	90-110	0	10	
Sulfate	mg/L	8.6	50	50	60.9	60.8	105	104	104	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3009482 3009483

Parameter	Units	92495870010		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chloride	mg/L	0.97J	50	50	53.1	53.5	104	105	105	90-110	1	10	
Fluoride	mg/L	ND	2.5	2.5	2.6	2.6	104	105	105	90-110	2	10	
Sulfate	mg/L	ND	50	50	52.3	52.7	104	105	105	90-110	1	10	

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QUALITY CONTROL DATA

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

QC Batch: 568234 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: 92495653003

METHOD BLANK: 3010905 Matrix: Water
Associated Lab Samples: 92495653003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	09/23/20 17:04	
Fluoride	mg/L	ND	0.10	0.050	09/23/20 17:04	
Sulfate	mg/L	ND	1.0	0.50	09/23/20 17:04	

LABORATORY CONTROL SAMPLE: 3010906

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	53.0	106	90-110	
Fluoride	mg/L	2.5	2.7	109	90-110	
Sulfate	mg/L	50	53.2	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3010909 3010910

Parameter	Units	92496730002		MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Chloride	mg/L	364	50	50	389	389	249	249	90-110	0	10		
Fluoride	mg/L	0.60	2.5	2.5	3.3	3.4	110	110	90-110	1	10		
Sulfate	mg/L	3.0	50	50	57.3	57.3	109	109	90-110	0	10		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3011115 3011116

Parameter	Units	92496730004		MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result						
Chloride	mg/L	109	50	50	158	158	97	97	90-110	0	10		
Fluoride	mg/L	0.43	2.5	2.5	3.1	3.2	108	109	90-110	1	10		
Sulfate	mg/L	79.4	50	50	120	120	81	81	90-110	0	10 M1		

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QUALIFIERS

Project: BRANCH BCD NETWORK

Pace Project No.: 92495653

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

B Analyte was detected in the associated method blank.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

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.

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: BRANCH BCD NETWORK
Pace Project No.: 92495653

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92495653001	BRGWA-12S				
92495653002	BRGWA-12I				
92495653003	BRGWA-23S				
92495653004	BRGWC-25I				
92495653005	BRGWC-29I				
92495653006	BRGWC-32S				
92495653007	BRGWC-30I				
92495653008	BRGWC-47				
92495653009	BRGWC-45				
92495653010	BRGWC-27I				
92495653013	BRGWC-50				
92495653014	BRGWC-52I				
92495653001	BRGWA-12S	EPA 3010A	566871	EPA 6010D	566908
92495653002	BRGWA-12I	EPA 3010A	566871	EPA 6010D	566908
92495653003	BRGWA-23S	EPA 3010A	566871	EPA 6010D	566908
92495653004	BRGWC-25I	EPA 3010A	566871	EPA 6010D	566908
92495653005	BRGWC-29I	EPA 3010A	566871	EPA 6010D	566908
92495653006	BRGWC-32S	EPA 3010A	568100	EPA 6010D	568125
92495653007	BRGWC-30I	EPA 3010A	568100	EPA 6010D	568125
92495653008	BRGWC-47	EPA 3010A	568100	EPA 6010D	568125
92495653009	BRGWC-45	EPA 3010A	568100	EPA 6010D	568125
92495653010	BRGWC-27I	EPA 3010A	568100	EPA 6010D	568125
92495653011	DUP-1	EPA 3010A	568100	EPA 6010D	568125
92495653012	EB-1	EPA 3010A	568100	EPA 6010D	568125
92495653013	BRGWC-50	EPA 3010A	568100	EPA 6010D	568125
92495653014	BRGWC-52I	EPA 3010A	568100	EPA 6010D	568125
92495653015	FB-2	EPA 3010A	568100	EPA 6010D	568125
92495653001	BRGWA-12S	EPA 3005A	566966	EPA 6020B	566971
92495653002	BRGWA-12I	EPA 3005A	566966	EPA 6020B	566971
92495653003	BRGWA-23S	EPA 3005A	566966	EPA 6020B	566971
92495653004	BRGWC-25I	EPA 3005A	566966	EPA 6020B	566971
92495653005	BRGWC-29I	EPA 3005A	566966	EPA 6020B	566971
92495653006	BRGWC-32S	EPA 3005A	567397	EPA 6020B	567512
92495653007	BRGWC-30I	EPA 3005A	567397	EPA 6020B	567512
92495653008	BRGWC-47	EPA 3005A	567397	EPA 6020B	567512
92495653009	BRGWC-45	EPA 3005A	567397	EPA 6020B	567512
92495653010	BRGWC-27I	EPA 3005A	567397	EPA 6020B	567512
92495653011	DUP-1	EPA 3005A	567397	EPA 6020B	567512
92495653012	EB-1	EPA 3005A	567397	EPA 6020B	567512
92495653013	BRGWC-50	EPA 3005A	568417	EPA 6020B	568454
92495653014	BRGWC-52I	EPA 3005A	568417	EPA 6020B	568454
92495653015	FB-2	EPA 3005A	568417	EPA 6020B	568454
92495653001	BRGWA-12S	EPA 7470A	567375	EPA 7470A	567456
92495653002	BRGWA-12I	EPA 7470A	567375	EPA 7470A	567456
92495653003	BRGWA-23S	EPA 7470A	567375	EPA 7470A	567456
92495653004	BRGWC-25I	EPA 7470A	567375	EPA 7470A	567456

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH BCD NETWORK
Pace Project No.: 92495653

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92495653005	BRGWC-29I	EPA 7470A	567375	EPA 7470A	567456
92495653006	BRGWC-32S	EPA 7470A	567375	EPA 7470A	567456
92495653007	BRGWC-30I	EPA 7470A	567375	EPA 7470A	567456
92495653008	BRGWC-47	EPA 7470A	567375	EPA 7470A	567456
92495653009	BRGWC-45	EPA 7470A	567375	EPA 7470A	567456
92495653010	BRGWC-27I	EPA 7470A	567375	EPA 7470A	567456
92495653011	DUP-1	EPA 7470A	567375	EPA 7470A	567456
92495653012	EB-1	EPA 7470A	567375	EPA 7470A	567456
92495653013	BRGWC-50	EPA 7470A	568004	EPA 7470A	568115
92495653014	BRGWC-52I	EPA 7470A	568004	EPA 7470A	568115
92495653015	FB-2	EPA 7470A	568004	EPA 7470A	568115
92495653001	BRGWA-12S	SM 2450C-2011	566772		
92495653002	BRGWA-12I	SM 2450C-2011	566772		
92495653003	BRGWA-23S	SM 2450C-2011	566772		
92495653004	BRGWC-25I	SM 2450C-2011	566772		
92495653005	BRGWC-29I	SM 2450C-2011	566772		
92495653006	BRGWC-32S	SM 2450C-2011	567147		
92495653007	BRGWC-30I	SM 2450C-2011	567147		
92495653008	BRGWC-47	SM 2450C-2011	567882		
92495653009	BRGWC-45	SM 2450C-2011	567147		
92495653010	BRGWC-27I	SM 2450C-2011	567147		
92495653011	DUP-1	SM 2450C-2011	567372		
92495653012	EB-1	SM 2450C-2011	567372		
92495653013	BRGWC-50	SM 2450C-2011	569364		
92495653014	BRGWC-52I	SM 2450C-2011	567882		
92495653015	FB-2	SM 2450C-2011	567882		
92495653001	BRGWA-12S	EPA 300.0 Rev 2.1 1993	567529		
92495653002	BRGWA-12I	EPA 300.0 Rev 2.1 1993	567529		
92495653003	BRGWA-23S	EPA 300.0 Rev 2.1 1993	568234		
92495653004	BRGWC-25I	EPA 300.0 Rev 2.1 1993	567529		
92495653005	BRGWC-29I	EPA 300.0 Rev 2.1 1993	567529		
92495653006	BRGWC-32S	EPA 300.0 Rev 2.1 1993	567529		
92495653007	BRGWC-30I	EPA 300.0 Rev 2.1 1993	567607		
92495653008	BRGWC-47	EPA 300.0 Rev 2.1 1993	567607		
92495653009	BRGWC-45	EPA 300.0 Rev 2.1 1993	567607		
92495653010	BRGWC-27I	EPA 300.0 Rev 2.1 1993	567607		
92495653011	DUP-1	EPA 300.0 Rev 2.1 1993	567607		
92495653012	EB-1	EPA 300.0 Rev 2.1 1993	567607		
92495653013	BRGWC-50	EPA 300.0 Rev 2.1 1993	567942		
92495653014	BRGWC-52I	EPA 300.0 Rev 2.1 1993	567942		
92495653015	FB-2	EPA 300.0 Rev 2.1 1993	567942		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 92495653

Client Name: GA Power



Courier: Fed Ex UPS USPS Client Commercial Pace Other

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

Proj. Name:

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 2/4 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.8 Biological Tissue is Frozen: Yes No Temp should be above freezing to 6°C

Date and Initials of person examining contents: 9/16/2004

Table with 16 rows of inspection items and checkboxes (Yes/No/N/A). Items include Chain of Custody Present, Samples Arrived within Hold Time, Short Hold Time Analysis, Containers Intact, etc.

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)



Document Name:
Bottle Identification Form (BIF)
Document No.:
F-CAR-CS-043-Rev.00

Document Issued: March 14, 2019
Page 1 of 1

Issuing Authority:
Pace Carolinas Quality Office

Project #

WO# : 92495653

PM: KLH1

Due Date: 09/30/20

CLIENT: GA-GA Power

* 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

Matrix	Item#	BP4U-125 mL Plastic Unpreserved (N/A) (C-)	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) (C-)	BP3N-250 mL Plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic Zn Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (C-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (C-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (C-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)	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)	BP9A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG6U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Sterilization vials (N/A)	
1																												
2																												
3																												
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9																												
10																												
11																												
12																												

BPIN

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 C Out of hold, incorrect preservative, out of temp, incorrect containers.



CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY - Attach Workorder/Login Label Here or List Pace Workorder Number or
MTIL Log-In Number Here

Company: Georgia Power - Coal Combustion Residuals
Address: 2480 Maier Road
Atlanta, GA 30339
Report To: Jolu Abraham

Phone: (404) 506-7239
Email: jabraham@southernco.com
Project Name: Plant Branch BCD Network
Project # CCR 3rd Semi-Annual

State: Georgia City: Milledgeville Time Zone: Collected:
| P | T | M | T | W | T | F | S | S | L | E | T

Collecting By (Print): Travis Martinez, Andrea McClure
Quote #
Turnaround Date Required

Collected By (Signature):
Rush: | Same Day | Next Day
| 2 Day | 3 Day | 4 Day | 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable):
| Yes | No
Analysis: | Yes | No

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

Customer Sample ID

Matrix *	Comp / Grab	Collected for Composite	Composite End	pH	# of Cns
		Date	Date		
BRGWA-12S	GW	9-15-2020	1315	6.00	5
BRGWA-12I	GW	9-15-2020	1113	6.01	5
BRGWA-23S	GW	9-15-2020	1610	5.72	5
BRGWC-25I	GW	9-15-2020	1720	6.00	7
BRGWC-29I	GW	9-15-2020	1741	4.53	5

(Metal): As, Ba, Be, Ca, Cd, Co, Cr, Mo, Pb, Sb, Se, U, Ti, Hg

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Relinquished by/Company: (Signature)
Date/Time: 9-16-2020 / 0800

Relinquished by/Company: (Signature)
Date/Time:

Container Preservative Type **

Lab Project Manager:

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

Analyses

1	1
Metals 6010/6020/7470 - see comments	
TDS	
Chloride/Fluoride/Sulfate	
Radium 226 228	

LAB USE ONLY:
Lab Sample # / Comments:

02465653

+2 Red

LAB Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#:
Cooler 1 Temp Upon Receipt: ___oC
Cooler 1 Therm Corr Factor: ___oC
Cooler 1 Corrected Temp: ___oC

MTIL LAB USE ONLY

Tip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

October 08, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH BCD/E BACKGROUND RADS
Pace Project No.: 92495654

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on September 16, 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,



Kevin Herring
kevin.herring@pacelabs.com
1(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta
Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BRANCH BCD/E BACKGROUND RADS
Pace Project No.: 92495654

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: BRANCH BCD/E BACKGROUND RADS
Pace Project No.: 92495654

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92495654001	BRGWA-6S	Water	09/15/20 09:45	09/16/20 09:45
92495654002	BRGWA-5S	Water	09/15/20 13:20	09/16/20 09:45
92495654003	BRGWA-5I	Water	09/15/20 14:02	09/16/20 09:45
92495654004	BRGWA-2S	Water	09/15/20 15:01	09/16/20 09:45
92495654005	BRGWA-2I	Water	09/15/20 16:07	09/16/20 09:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD/E BACKGROUND RADS
Pace Project No.: 92495654

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92495654001	BRGWA-6S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92495654002	BRGWA-5S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92495654003	BRGWA-5I	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92495654004	BRGWA-2S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92495654005	BRGWA-2I	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD/E BACKGROUND RADS
Pace Project No.: 92495654

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495654001	BRGWA-6S					
EPA 9315	Radium-226	0.00810 ± 0.162 (0.444) C:88% T:NA	pCi/L		09/30/20 07:18	
EPA 9320	Radium-228	0.466 ± 0.418 (0.851) C:71% T:86%	pCi/L		10/05/20 15:06	
Total Radium Calculation	Total Radium	0.474 ± 0.580 (1.30)	pCi/L		10/06/20 14:01	
92495654002	BRGWA-5S					
EPA 9315	Radium-226	0.0906 ± 0.218 (0.520) C:87% T:NA	pCi/L		09/30/20 07:18	
EPA 9320	Radium-228	0.459 ± 0.553 (1.17) C:71% T:84%	pCi/L		10/05/20 17:44	
Total Radium Calculation	Total Radium	0.550 ± 0.771 (1.69)	pCi/L		10/06/20 14:01	
92495654003	BRGWA-5I					
EPA 9315	Radium-226	0.0999 ± 0.226 (0.535) C:87% T:NA	pCi/L		09/30/20 07:18	
EPA 9320	Radium-228	0.115 ± 0.622 (1.42) C:66% T:76%	pCi/L		10/05/20 17:44	
Total Radium Calculation	Total Radium	0.215 ± 0.848 (1.96)	pCi/L		10/06/20 14:01	
92495654004	BRGWA-2S					
EPA 9315	Radium-226	0.109 ± 0.177 (0.389) C:91% T:NA	pCi/L		09/30/20 07:18	
EPA 9320	Radium-228	0.470 ± 0.606 (1.29) C:63% T:77%	pCi/L		10/05/20 17:44	
Total Radium Calculation	Total Radium	0.579 ± 0.783 (1.68)	pCi/L		10/06/20 14:01	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD/E BACKGROUND RADS

Pace Project No.: 92495654

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495654005	BRGWA-2I					
EPA 9315	Radium-226	-0.0263 ± 0.159 (0.461) C:94% T:NA	pCi/L		09/30/20 07:18	
EPA 9320	Radium-228	0.0583 ± 0.776 (1.80) C:44% T:84%	pCi/L		10/05/20 17:44	
Total Radium Calculation	Total Radium	0.0583 ± 0.935 (2.26)	pCi/L		10/06/20 14:01	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND RADS

Pace Project No.: 92495654

Sample: BRGWA-6S **Lab ID: 92495654001** Collected: 09/15/20 09:45 Received: 09/16/20 09:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	0.00810 ± 0.162 (0.444) C:88% T:NA	pCi/L	09/30/20 07:18	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.466 ± 0.418 (0.851) C:71% T:86%	pCi/L	10/05/20 15:06	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.474 ± 0.580 (1.30)	pCi/L	10/06/20 14:01	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND RADS

Pace Project No.: 92495654

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWA-5S Lab ID: 92495654002 Collected: 09/15/20 13:20 Received: 09/16/20 09:45 Matrix: Water PWS: Site ID: Sample Type:						
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	0.0906 ± 0.218 (0.520) C:87% T:NA	pCi/L	09/30/20 07:18	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.459 ± 0.553 (1.17) C:71% T:84%	pCi/L	10/05/20 17:44	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.550 ± 0.771 (1.69)	pCi/L	10/06/20 14:01	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND RADS

Pace Project No.: 92495654

Sample: BRGWA-5I **Lab ID: 92495654003** Collected: 09/15/20 14:02 Received: 09/16/20 09:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	0.0999 ± 0.226 (0.535) C:87% T:NA	pCi/L	09/30/20 07:18	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.115 ± 0.622 (1.42) C:66% T:76%	pCi/L	10/05/20 17:44	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.215 ± 0.848 (1.96)	pCi/L	10/06/20 14:01	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND RADS

Pace Project No.: 92495654

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWA-2S Lab ID: 92495654004 Collected: 09/15/20 15:01 Received: 09/16/20 09:45 Matrix: Water PWS: Site ID: Sample Type:						
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	0.109 ± 0.177 (0.389) C:91% T:NA	pCi/L	09/30/20 07:18	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.470 ± 0.606 (1.29) C:63% T:77%	pCi/L	10/05/20 17:44	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.579 ± 0.783 (1.68)	pCi/L	10/06/20 14:01	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND RADS

Pace Project No.: 92495654

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWA-2I Lab ID: 92495654005 Collected: 09/15/20 16:07 Received: 09/16/20 09:45 Matrix: Water PWS: Site ID: Sample Type:						
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	-0.0263 ± 0.159 (0.461) C:94% T:NA	pCi/L	09/30/20 07:18	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.0583 ± 0.776 (1.80) C:44% T:84%	pCi/L	10/05/20 17:44	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.0583 ± 0.935 (2.26)	pCi/L	10/06/20 14:01	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH BCD/E BACKGROUND RADS

Pace Project No.: 92495654

QC Batch: 415401

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92495654001, 92495654002, 92495654003, 92495654004, 92495654005

METHOD BLANK: 2008969

Matrix: Water

Associated Lab Samples: 92495654001, 92495654002, 92495654003, 92495654004, 92495654005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.804 ± 0.467 (0.852) C:69% T:78%	pCi/L	10/05/20 15:01	

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: BRANCH BCD/E BACKGROUND RADS

Pace Project No.: 92495654

QC Batch: 415400

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92495654001, 92495654002, 92495654003, 92495654004, 92495654005

METHOD BLANK: 2008968

Matrix: Water

Associated Lab Samples: 92495654001, 92495654002, 92495654003, 92495654004, 92495654005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0938 ± 0.181 (0.415) C:94% T:NA	pCi/L	09/30/20 07:18	

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: BRANCH BCD/E BACKGROUND RADS
Pace Project No.: 92495654

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.

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH BCD/E BACKGROUND RADS
Pace Project No.: 92495654

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92495654001	BRGWA-6S	EPA 9315	415400		
92495654002	BRGWA-5S	EPA 9315	415400		
92495654003	BRGWA-5I	EPA 9315	415400		
92495654004	BRGWA-2S	EPA 9315	415400		
92495654005	BRGWA-2I	EPA 9315	415400		
92495654001	BRGWA-6S	EPA 9320	415401		
92495654002	BRGWA-5S	EPA 9320	415401		
92495654003	BRGWA-5I	EPA 9320	415401		
92495654004	BRGWA-2S	EPA 9320	415401		
92495654005	BRGWA-2I	EPA 9320	415401		
92495654001	BRGWA-6S	Total Radium Calculation	417208		
92495654002	BRGWA-5S	Total Radium Calculation	417208		
92495654003	BRGWA-5I	Total Radium Calculation	417208		
92495654004	BRGWA-2S	Total Radium Calculation	417208		
92495654005	BRGWA-2I	Total Radium Calculation	417208		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Rec

WO#: 92495654

Client Name: GA Power



Courier: Fed Ex UPS USPS Client Commercial Pace Oth

Tracking #: _____

Proj. Due Date: _____
Proj. Name: _____

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

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 0.8 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 9/16/2004

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:	<u>W</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 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:

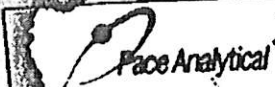
Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

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)



Document Name:
 Bottle Identification Form (BIF)
 Document No.:
 F-CAR-CS-043-Rev.00

Document Issued: March 14, 2019
 Page 1 of 1
 Issuing Authority:
 Pace Carolinas Quality Office

Project #

WO# : 92495654

PM: KLH1 Due Date: 09/30/20
 CLIENT: GA-GA Power

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, DRD/8015 (water) DOC, LLHg

Bottom half of box is to list number of bottle

Matrix	Item#	BP4U-125 mL Plastic Unpreserved (N/A) (C-)	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) (C-)	BP3M-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic Zn Acetate & NaOH (>8)	BP4C-125 mL Plastic NaOH (pH > 12) (C-)	WGFLU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (C-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (C-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)	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)	BP9A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG6U-100 mL Amber Unpreserved vials (N/A)	VS6U-20 mL Scintillation vials (N/A)	
	1																											
	2																											
	3																											
	4																											
	5																											
	6																											
	7																											
	8																											
	9																											
	10																											
	11																											
	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 C
 Out of hold, incorrect preservative, out of temp, incorrect containers.



CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY - Attach Workorder/Login Label Here or Use Pace Workorder Number or
 MTIL Login Number Here

Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Manor Road
 Atlanta, GA 30339
 Report To: Jay Abraham
 Email: jay.abraham@southernco.com

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields
 Billing information
 State: Georgia City: Milledgeville Time Zone: Coordinated
 Site Collection Info/Address: Plant Branch

Phone: (404) 506-7239
 Email: j.abraham@southernco.com
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchased By (Print): Travis Martinez
 Andrea McClure
 Quote #
 Turnaround Date Required

Container Preservative Type **
 1
 Lab Project Manager:
 Kevin Herring@paceanaly.com

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

Analyses
 1
 Lab Sample Receipt Checklist:
 Custody Seal Present/Intact Y N NA
 Custody Signatures Present Y N NA
 Collector Signatures Present Y N NA
 Barcodes Intact Y N NA
 Correct Bottles Y N NA
 Sufficient Volume Y N NA
 Samples Received on Ice Y N NA
 VOA - Headspace Acceptable Y N NA
 USDA Regulated Soils Y N NA
 Samples in Holding Time Y N NA
 Residual Chlorine Present Y N NA
 Cl Strips: _____
 Sample pH Acceptable Y N NA
 pH Strips: _____
 Sulfide Present Y N NA
 Lead Acetate Strips: _____

Customer Sample ID	Matrix *	Collected for Composite		Composite End		pH	# of Cans
		Date	Time	Date	Time		
BRGWA-6S	GW	9-15-2020	0945			6.43	5
BRGWA-5S	GW	9-15-2020	1320			6.25	5
BRGWA-5I	GW	9-15-2020	1402			6.27	5
BRGWA-2S	GW	9-15-2020	1501			6.01	5
BRGWA-2I	GW	9-15-2020	1607			6.64	5

Analyses	1
Metals 6010/6020/7470 - see comments	X
TDS	X
Chloride/Fluoride/Sulfate	X
Radium 226.228	X

Customer Sample ID	Matrix *	Collected for Composite		Composite End		pH	# of Cans
		Date	Time	Date	Time		
BRGWA-6S	GW	9-15-2020	0945			6.43	5
BRGWA-5S	GW	9-15-2020	1320			6.25	5
BRGWA-5I	GW	9-15-2020	1402			6.27	5
BRGWA-2S	GW	9-15-2020	1501			6.01	5
BRGWA-2I	GW	9-15-2020	1607			6.64	5

Analyses	1
Metals 6010/6020/7470 - see comments	X
TDS	X
Chloride/Fluoride/Sulfate	X
Radium 226.228	X

(Metals): As, Ba, Be, Ca, Cd, Co, Cr, Mo, Pb, Sb, Se, U, Ti, Hg

LAB Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID#: _____
 Cooler 1 Temp Upon Receipt: ___ °C
 Cooler 1 Temp Corr. Factor: ___ °C
 Cooler 1 Corrected Temp: ___ °C
 Comments: _____

Relinquished by/Company: [Signature]
 Date/Time: 9-16-2020/0800
 Received by/Company: [Signature]

Lab Tracking #:
 Samples received via:
 FEDEX UPS Client Courier Pace Courier
 MTIL LAB USE ONLY

Relinquished by/Company: [Signature]
 Date/Time: _____
 Received by/Company: [Signature]

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

Quality Control Sample Performance Assessment



Analyst **Must Manually Enter All Fields Highlighted in Yellow.**

Test: Ra-228
Analyst: LAL
Date: 9/29/2020
Worklist: 56344
Matrix: DW

Method Blank Assessment	
MB Sample ID	2008968
MB concentration:	0.094
M/B Counting Uncertainty:	0.180
MB MDC:	0.415
MB Numerical Performance Indicator:	1.02
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment		LCSD (Y or N)?	Y
Count Date:	9/30/2020	LCS56344	9/30/2020
Spike I.D.:	19-033	LCS56344	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.044		24.044
Volume Used (mL):	0.10		0.10
Aliquot Volume (L, g, F):	0.509		0.505
Target Conc. (pCi/L, g, F):	4.723		4.761
Uncertainty (Calculated):	0.057		0.057
Result (pCi/L, g, F):	3.880		3.912
LCSD Counting Uncertainty (pCi/L, g, F):	0.689		0.683
Numerical Performance Indicator:	-2.36		-2.39
Percent Recovery:	82.15%		82.18%
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		LCSD (Y or N)?	Y
Sample I.D.:	LCS56344		
Duplicate Sample I.D.:	LCS56344		
Duplicate Result (pCi/L, g, F):	3.880		
Sample Result Counting Uncertainty (pCi/L, g, F):	0.699		
Sample Duplicate Result (pCi/L, g, F):	3.912		
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.683		
Are sample and/or duplicate results below RL?	NO		
Duplicate Numerical Performance Indicator:	-0.065		
(Based on the LCSD Percent Recoveries) Duplicate RPD:	0.04%		
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:

(Handwritten signature)
9/29/2020

(Handwritten signature)
9/29/2020

Quality Control Sample Performance Assessment



Analyst: Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
Analyst: LAL
Date: 9/29/2020
Worklist: 56344
Matrix: DW

Method Blank Assessment	
MB Sample ID	2008968
MB Concentration:	0.094
M/B Counting Uncertainty:	0.180
MB MDC:	0.415
MB Numerical Performance Indicator:	1.02
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
LCSD (Y or N)?	N
LCSD56344	LCSD56344
Count Date:	9/30/2020
Spike I.D.:	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.044
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.509
Target Conc. (pCi/L, g, F):	4.723
Uncertainty (Calculated):	0.057
Result (pCi/L, g, F):	3.880
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.699
Numerical Performance Indicator:	-2.36
Percent Recovery:	82.15%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	125%
Lower % Recovery Limits:	75%

Duplicate Sample Assessment	
Sample I.D.:	92495960001
Duplicate Sample I.D.:	92495960001DUP
Sample Result (pCi/L, g, F):	0.399
Sample Duplicate Result (pCi/L, g, F):	0.282
Sample Duplicate Counting Uncertainty (pCi/L, g, F):	0.152
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:	1.284
Duplicate RPD:	89.47%
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-prepared due to unacceptable precision. N/A

9/30/2020

9/30/2020

9/30/2020

Sample Matrix Spike Control Assessment	
Sample Collection Date:	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD 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:	
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.:	
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:	

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 9/29/2020
Worklist: 56345
Matrix: WT

Method Blank Assessment	
MB Sample ID	2008969
MB concentration:	0.804
M/B 2 Sigma CSU:	0.467
MB MDC:	0.852
MB Numerical Performance Indicator:	3.38
MB Status vs Numerical Indicator:	Fail*
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
LCSID (Y or N)?	Y
LCS56345	10/5/2020
Count Date:	10/5/2020
Spike I.D.:	20-030
Decay Corrected Spike Concentration (pCi/mL):	38.140
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.806
Target Conc. (pCi/L, g, F):	4.732
Uncertainty (Calculated):	0.232
Result (pCi/L, g, F):	4.491
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.317
Numerical Performance Indicator:	-0.25
Percent Recovery:	96.38%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	135%
Lower % Recovery Limits:	60%

Duplicate Sample Assessment	
Sample I.D.:	LCS56345
Duplicate Sample I.D.:	LCS56345
Sample Result 2 Sigma CSU (pCi/L, g, F):	4.491
Sample Duplicate Result (pCi/L, g, F):	1.317
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	4.137
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.305
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	0.373
Duplicate Numerical Performance Indicator:	9.74%
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:
*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-processed.

Sample Matrix Spike Control Assessment	
Sample Collection Date:	MS/MSD 1
Sample I.D.:	MS/MSD 2
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 2 Sigma CSU (pCi/L, g, F):	
Sample Matrix Spike Result:	
Sample Matrix Spike Duplicate Result:	
Matrix Spike Duplicate Result 2 Sigma CSU (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:	

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 Spike Result 2 Sigma CSU (pCi/L, g, F):	Sample Spike Result 2 Sigma CSU (pCi/L, g, F):
Sample Matrix Spike Duplicate Result:	Sample Matrix Spike Duplicate Result
Sample Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):	Sample Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):
Duplicate Numerical Performance Indicator:	Duplicate Numerical Performance Indicator:
Duplicate Numerical Performance Indicator:	Duplicate Numerical Performance Indicator:
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:	(Based on the 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:

Handwritten signature: R-9-2

Handwritten signature: C. J. [unclear]

September 27, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on September 16, 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
- Pace Analytical Services - Peachtree Corners, GA

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: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta
Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BRANCH BCD/E BACKGROUND

Pace Project No.: 92495656

Pace Analytical Services Charlotte

9800 Kinsey 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

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, 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: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92495656001	BRGWA-6S	Water	09/15/20 09:45	09/16/20 09:45
92495656002	BRGWA-5S	Water	09/15/20 13:20	09/16/20 09:45
92495656003	BRGWA-5I	Water	09/15/20 14:02	09/16/20 09:45
92495656004	BRGWA-2S	Water	09/15/20 15:01	09/16/20 09:45
92495656005	BRGWA-2I	Water	09/15/20 16:07	09/16/20 09:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

Lab ID	Sample ID	Method	Analysts	Analytes Reported
92495656001	BRGWA-6S	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92495656002	BRGWA-5S	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92495656003	BRGWA-5I	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92495656004	BRGWA-2S	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92495656005	BRGWA-2I	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	CDC	3

PASI-A = Pace Analytical Services - Asheville
PASI-C = Pace Analytical Services - Charlotte
PASI-GA = Pace Analytical Services - Peachtree Corners, GA

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92495656001	BRGWA-6S					
	pH	6.43	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	3.7	mg/L	1.0	09/17/20 18:38	
EPA 6020B	Barium	0.013	mg/L	0.010	09/21/20 16:55	
EPA 6020B	Chromium	0.014	mg/L	0.010	09/21/20 16:55	
EPA 6020B	Lithium	0.0027J	mg/L	0.030	09/21/20 16:55	
SM 2450C-2011	Total Dissolved Solids	79.0	mg/L	10.0	09/17/20 15:25	
EPA 300.0 Rev 2.1 1993	Chloride	2.3	mg/L	1.0	09/23/20 23:33	
92495656002	BRGWA-5S					
	pH	6.25	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	16.8	mg/L	1.0	09/17/20 18:43	
EPA 6020B	Barium	0.038	mg/L	0.010	09/21/20 17:00	
EPA 6020B	Chromium	0.0048J	mg/L	0.010	09/21/20 17:00	
EPA 6020B	Lead	0.000043J	mg/L	0.0050	09/21/20 17:00	
SM 2450C-2011	Total Dissolved Solids	116	mg/L	10.0	09/17/20 15:26	
EPA 300.0 Rev 2.1 1993	Chloride	3.7	mg/L	1.0	09/23/20 23:48	
EPA 300.0 Rev 2.1 1993	Fluoride	0.051J	mg/L	0.10	09/23/20 23:48	
92495656003	BRGWA-5I					
	pH	6.27	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	12.7	mg/L	1.0	09/17/20 18:47	
EPA 6020B	Barium	0.022	mg/L	0.010	09/21/20 17:06	
EPA 6020B	Chromium	0.0069J	mg/L	0.010	09/21/20 17:06	
EPA 6020B	Cobalt	0.00050J	mg/L	0.0050	09/21/20 17:06	
EPA 6020B	Lead	0.0013J	mg/L	0.0050	09/21/20 17:06	
EPA 6020B	Lithium	0.0010J	mg/L	0.030	09/21/20 17:06	
EPA 6020B	Molybdenum	0.0015J	mg/L	0.010	09/21/20 17:06	
SM 2450C-2011	Total Dissolved Solids	100	mg/L	10.0	09/17/20 15:26	
EPA 300.0 Rev 2.1 1993	Chloride	3.7	mg/L	1.0	09/24/20 00:03	
EPA 300.0 Rev 2.1 1993	Sulfate	1.7	mg/L	1.0	09/24/20 00:03	
92495656004	BRGWA-2S					
	pH	6.01	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	3.9	mg/L	1.0	09/17/20 19:00	
EPA 6020B	Barium	0.0094J	mg/L	0.010	09/21/20 17:12	
EPA 6020B	Chromium	0.0082J	mg/L	0.010	09/21/20 17:12	
EPA 6020B	Cobalt	0.0010J	mg/L	0.0050	09/21/20 17:12	
SM 2450C-2011	Total Dissolved Solids	69.0	mg/L	10.0	09/17/20 15:26	
EPA 300.0 Rev 2.1 1993	Chloride	1.7	mg/L	1.0	09/24/20 00:48	
92495656005	BRGWA-2I					
	pH	6.64	Std. Units		09/22/20 12:29	
EPA 6010D	Calcium	14.1	mg/L	1.0	09/17/20 19:04	
EPA 6020B	Barium	0.0083J	mg/L	0.010	09/21/20 17:18	
EPA 6020B	Lithium	0.033	mg/L	0.030	09/21/20 17:18	
EPA 6020B	Molybdenum	0.00070J	mg/L	0.010	09/21/20 17:18	
SM 2450C-2011	Total Dissolved Solids	116	mg/L	10.0	09/17/20 15:26	
EPA 300.0 Rev 2.1 1993	Chloride	1.9	mg/L	1.0	09/24/20 07:27	
EPA 300.0 Rev 2.1 1993	Sulfate	5.9	mg/L	1.0	09/24/20 07:27	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

Sample: BRGWA-6S		Lab ID: 92495656001		Collected: 09/15/20 09:45		Received: 09/16/20 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.43	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	3.7	mg/L	1.0	0.070	1	09/16/20 15:14	09/17/20 18:38	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/16/20 18:16	09/21/20 16:55	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/16/20 18:16	09/21/20 16:55	7440-38-2	
Barium	0.013	mg/L	0.010	0.00071	1	09/16/20 18:16	09/21/20 16:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/16/20 18:16	09/21/20 16:55	7440-41-7	
Boron	ND	mg/L	0.10	0.0052	1	09/16/20 18:16	09/21/20 16:55	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/16/20 18:16	09/21/20 16:55	7440-43-9	
Chromium	0.014	mg/L	0.010	0.00055	1	09/16/20 18:16	09/21/20 16:55	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/16/20 18:16	09/21/20 16:55	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/16/20 18:16	09/21/20 16:55	7439-92-1	
Lithium	0.0027J	mg/L	0.030	0.00081	1	09/16/20 18:16	09/21/20 16:55	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/16/20 18:16	09/21/20 16:55	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/16/20 18:16	09/21/20 16:55	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/16/20 18:16	09/21/20 16:55	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 12:58	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	79.0	mg/L	10.0	10.0	1		09/17/20 15:25		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	2.3	mg/L	1.0	0.60	1		09/23/20 23:33	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/23/20 23:33	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		09/23/20 23:33	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

Sample: BRGWA-5S		Lab ID: 92495656002		Collected: 09/15/20 13:20		Received: 09/16/20 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.25	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	16.8	mg/L	1.0	0.070	1	09/16/20 15:14	09/17/20 18:43	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/16/20 18:16	09/21/20 17:00	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/16/20 18:16	09/21/20 17:00	7440-38-2	
Barium	0.038	mg/L	0.010	0.00071	1	09/16/20 18:16	09/21/20 17:00	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/16/20 18:16	09/21/20 17:00	7440-41-7	
Boron	ND	mg/L	0.10	0.0052	1	09/16/20 18:16	09/21/20 17:00	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/16/20 18:16	09/21/20 17:00	7440-43-9	
Chromium	0.0048J	mg/L	0.010	0.00055	1	09/16/20 18:16	09/21/20 17:00	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/16/20 18:16	09/21/20 17:00	7440-48-4	
Lead	0.000043J	mg/L	0.0050	0.000036	1	09/16/20 18:16	09/21/20 17:00	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	09/16/20 18:16	09/21/20 17:00	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/16/20 18:16	09/21/20 17:00	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/16/20 18:16	09/21/20 17:00	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/16/20 18:16	09/21/20 17:00	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 13:07	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	116	mg/L	10.0	10.0	1		09/17/20 15:26		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	3.7	mg/L	1.0	0.60	1		09/23/20 23:48	16887-00-6	
Fluoride	0.051J	mg/L	0.10	0.050	1		09/23/20 23:48	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		09/23/20 23:48	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

Sample: BRGWA-5I		Lab ID: 92495656003		Collected: 09/15/20 14:02		Received: 09/16/20 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.27	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Calcium	12.7	mg/L	1.0	0.070	1	09/16/20 15:14	09/17/20 18:47	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/16/20 18:16	09/21/20 17:06	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/16/20 18:16	09/21/20 17:06	7440-38-2	
Barium	0.022	mg/L	0.010	0.00071	1	09/16/20 18:16	09/21/20 17:06	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/16/20 18:16	09/21/20 17:06	7440-41-7	
Boron	ND	mg/L	0.10	0.0052	1	09/16/20 18:16	09/21/20 17:06	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/16/20 18:16	09/21/20 17:06	7440-43-9	
Chromium	0.0069J	mg/L	0.010	0.00055	1	09/16/20 18:16	09/21/20 17:06	7440-47-3	
Cobalt	0.00050J	mg/L	0.0050	0.00038	1	09/16/20 18:16	09/21/20 17:06	7440-48-4	
Lead	0.0013J	mg/L	0.0050	0.000036	1	09/16/20 18:16	09/21/20 17:06	7439-92-1	
Lithium	0.0010J	mg/L	0.030	0.00081	1	09/16/20 18:16	09/21/20 17:06	7439-93-2	
Molybdenum	0.0015J	mg/L	0.010	0.00069	1	09/16/20 18:16	09/21/20 17:06	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/16/20 18:16	09/21/20 17:06	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/16/20 18:16	09/21/20 17:06	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 13:10	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	100	mg/L	10.0	10.0	1		09/17/20 15:26		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	3.7	mg/L	1.0	0.60	1		09/24/20 00:03	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/24/20 00:03	16984-48-8	
Sulfate	1.7	mg/L	1.0	0.50	1		09/24/20 00:03	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

Sample: BRGWA-2S		Lab ID: 92495656004		Collected: 09/15/20 15:01		Received: 09/16/20 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.01	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	3.9	mg/L	1.0	0.070	1	09/16/20 15:14	09/17/20 19:00	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/16/20 18:16	09/21/20 17:12	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/16/20 18:16	09/21/20 17:12	7440-38-2	
Barium	0.0094J	mg/L	0.010	0.00071	1	09/16/20 18:16	09/21/20 17:12	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/16/20 18:16	09/21/20 17:12	7440-41-7	
Boron	ND	mg/L	0.10	0.0052	1	09/16/20 18:16	09/21/20 17:12	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/16/20 18:16	09/21/20 17:12	7440-43-9	
Chromium	0.0082J	mg/L	0.010	0.00055	1	09/16/20 18:16	09/21/20 17:12	7440-47-3	
Cobalt	0.0010J	mg/L	0.0050	0.00038	1	09/16/20 18:16	09/21/20 17:12	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/16/20 18:16	09/21/20 17:12	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	09/16/20 18:16	09/21/20 17:12	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/16/20 18:16	09/21/20 17:12	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/16/20 18:16	09/21/20 17:12	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/16/20 18:16	09/21/20 17:12	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 13:12	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	69.0	mg/L	10.0	10.0	1		09/17/20 15:26		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	1.7	mg/L	1.0	0.60	1		09/24/20 00:48	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/24/20 00:48	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		09/24/20 00:48	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

Sample: BRGWA-2I		Lab ID: 92495656005		Collected: 09/15/20 16:07		Received: 09/16/20 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	6.64	Std. Units			1		09/22/20 12:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Calcium	14.1	mg/L	1.0	0.070	1	09/16/20 15:14	09/17/20 19:04	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/16/20 18:16	09/21/20 17:18	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/16/20 18:16	09/21/20 17:18	7440-38-2	
Barium	0.0083J	mg/L	0.010	0.00071	1	09/16/20 18:16	09/21/20 17:18	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/16/20 18:16	09/21/20 17:18	7440-41-7	
Boron	ND	mg/L	0.10	0.0052	1	09/16/20 18:16	09/21/20 17:18	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/16/20 18:16	09/21/20 17:18	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/16/20 18:16	09/21/20 17:18	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/16/20 18:16	09/21/20 17:18	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/16/20 18:16	09/21/20 17:18	7439-92-1	
Lithium	0.033	mg/L	0.030	0.00081	1	09/16/20 18:16	09/21/20 17:18	7439-93-2	
Molybdenum	0.00070J	mg/L	0.010	0.00069	1	09/16/20 18:16	09/21/20 17:18	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/16/20 18:16	09/21/20 17:18	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/16/20 18:16	09/21/20 17:18	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 13:14	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	116	mg/L	10.0	10.0	1		09/17/20 15:26		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	1.9	mg/L	1.0	0.60	1		09/24/20 07:27	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/24/20 07:27	16984-48-8	
Sulfate	5.9	mg/L	1.0	0.50	1		09/24/20 07:27	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

QC Batch: 566871 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495656001, 92495656002, 92495656003, 92495656004, 92495656005

METHOD BLANK: 3003868 Matrix: Water
Associated Lab Samples: 92495656001, 92495656002, 92495656003, 92495656004, 92495656005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.070	09/17/20 17:42	

LABORATORY CONTROL SAMPLE: 3003869

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	0.93J	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3003870 3003871

Parameter	Units	3003870		3003871		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495653001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Calcium	mg/L	5.7	1	1	6.6	6.6	89	87	75-125	0	20

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QUALITY CONTROL DATA

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

QC Batch: 566966 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495656001, 92495656002, 92495656003, 92495656004, 92495656005

METHOD BLANK: 3004543 Matrix: Water
Associated Lab Samples: 92495656001, 92495656002, 92495656003, 92495656004, 92495656005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	09/21/20 15:26	
Arsenic	mg/L	ND	0.0050	0.00078	09/21/20 15:26	
Barium	mg/L	ND	0.010	0.00071	09/21/20 15:26	
Beryllium	mg/L	ND	0.0030	0.000046	09/21/20 15:26	
Boron	mg/L	ND	0.10	0.0052	09/21/20 15:26	
Cadmium	mg/L	ND	0.0025	0.00012	09/21/20 15:26	
Chromium	mg/L	ND	0.010	0.00055	09/21/20 15:26	
Cobalt	mg/L	ND	0.0050	0.00038	09/21/20 15:26	
Lead	mg/L	ND	0.0050	0.000036	09/21/20 15:26	
Lithium	mg/L	ND	0.030	0.00081	09/21/20 15:26	
Molybdenum	mg/L	ND	0.010	0.00069	09/21/20 15:26	
Selenium	mg/L	ND	0.010	0.0016	09/21/20 15:26	
Thallium	mg/L	ND	0.0010	0.00014	09/21/20 15:26	

LABORATORY CONTROL SAMPLE: 3004544

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.099	99	80-120	
Arsenic	mg/L	0.1	0.099	99	80-120	
Barium	mg/L	0.1	0.099	99	80-120	
Beryllium	mg/L	0.1	0.10	105	80-120	
Boron	mg/L	1	1.1	109	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Chromium	mg/L	0.1	0.10	105	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.099	99	80-120	
Lithium	mg/L	0.1	0.11	107	80-120	
Molybdenum	mg/L	0.1	0.099	99	80-120	
Selenium	mg/L	0.1	0.098	98	80-120	
Thallium	mg/L	0.1	0.097	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3004545 3004546

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495653001	Result	Spike Conc.	Spike Conc.								
Antimony	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	2	20		
Arsenic	mg/L	ND	0.1	0.1	0.10	0.096	101	96	75-125	5	20		

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QUALITY CONTROL DATA

Project: BRANCH BCD/E BACKGROUND

Pace Project No.: 92495656

Parameter	Units	3004545		3004546		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495653001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Barium	mg/L	0.058	0.1	0.1	0.16	0.15	99	95	75-125	2	20		
Beryllium	mg/L	ND	0.1	0.1	0.10	0.096	102	96	75-125	6	20		
Boron	mg/L	ND	1	1	1.0	0.98	103	97	75-125	5	20		
Cadmium	mg/L	ND	0.1	0.1	0.10	0.096	100	96	75-125	4	20		
Chromium	mg/L	0.0025J	0.1	0.1	0.11	0.099	103	96	75-125	7	20		
Cobalt	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	2	20		
Lead	mg/L	ND	0.1	0.1	0.099	0.096	99	96	75-125	3	20		
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	104	100	75-125	4	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20		
Selenium	mg/L	ND	0.1	0.1	0.098	0.10	98	99	75-125	1	20		
Thallium	mg/L	ND	0.1	0.1	0.097	0.094	97	94	75-125	4	20		

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QUALITY CONTROL DATA

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

QC Batch: 567255 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495656001, 92495656002, 92495656003, 92495656004, 92495656005

METHOD BLANK: 3006139 Matrix: Water
Associated Lab Samples: 92495656001, 92495656002, 92495656003, 92495656004, 92495656005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	09/18/20 12:53	

LABORATORY CONTROL SAMPLE: 3006140

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3006141 3006142

Parameter	Units	3006141		3006142		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495656001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	mg/L	ND	0.0025	0.0025	0.0026	0.0025	102	100	75-125	2	20

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QUALITY CONTROL DATA

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

QC Batch: 567139 Analysis Method: SM 2450C-2011
QC Batch Method: SM 2450C-2011 Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495656001, 92495656002, 92495656003, 92495656004, 92495656005

METHOD BLANK: 3005336 Matrix: Water
Associated Lab Samples: 92495656001, 92495656002, 92495656003, 92495656004, 92495656005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	09/17/20 15:22	

LABORATORY CONTROL SAMPLE: 3005337

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	420	105	84-108	

SAMPLE DUPLICATE: 3005338

Parameter	Units	92494171032 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	146	142	3	10	

SAMPLE DUPLICATE: 3005339

Parameter	Units	92495656003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	100	95.0	5	10	

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QUALITY CONTROL DATA

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

QC Batch: 568234 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: 92495656001, 92495656002, 92495656003, 92495656004

METHOD BLANK: 3010905 Matrix: Water
Associated Lab Samples: 92495656001, 92495656002, 92495656003, 92495656004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	09/23/20 17:04	
Fluoride	mg/L	ND	0.10	0.050	09/23/20 17:04	
Sulfate	mg/L	ND	1.0	0.50	09/23/20 17:04	

LABORATORY CONTROL SAMPLE: 3010906

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	53.0	106	90-110	
Fluoride	mg/L	2.5	2.7	109	90-110	
Sulfate	mg/L	50	53.2	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3010909 3010910

Parameter	Units	92496730002		3010909		3010910		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Chloride	mg/L	264	50	50	389	389	249	249	90-110	0	10
Fluoride	mg/L	0.60	2.5	2.5	3.3	3.4	110	110	90-110	1	10
Sulfate	mg/L	3.0	50	50	57.3	57.3	109	109	90-110	0	10

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3011115 3011116

Parameter	Units	92496730004		3011115		3011116		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Chloride	mg/L	109	50	50	158	158	97	97	90-110	0	10
Fluoride	mg/L	0.43	2.5	2.5	3.1	3.2	108	109	90-110	1	10
Sulfate	mg/L	79.4	50	50	120	120	81	81	90-110	0	10 M1

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QUALITY CONTROL DATA

Project: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

QC Batch: 568377 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: 92495656005

METHOD BLANK: 3011350 Matrix: Water
Associated Lab Samples: 92495656005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	09/24/20 06:58	
Fluoride	mg/L	ND	0.10	0.050	09/24/20 06:58	
Sulfate	mg/L	ND	1.0	0.50	09/24/20 06:58	

LABORATORY CONTROL SAMPLE: 3011351

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.7	101	90-110	
Fluoride	mg/L	2.5	2.6	102	90-110	
Sulfate	mg/L	50	50.1	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3011352 3011353

Parameter	Units	92495656005		3011352		3011353		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result				
Chloride	mg/L	1.9	50	50	55.8	56.2	108	109	90-110	1	10
Fluoride	mg/L	ND	2.5	2.5	2.8	2.8	109	110	90-110	1	10
Sulfate	mg/L	5.9	50	50	59.3	59.6	107	108	90-110	1	10

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3011354 3011355

Parameter	Units	92496524001		3011354		3011355		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result				
Chloride	mg/L	2.6	50	50	56.8	57.6	108	110	90-110	1	10
Fluoride	mg/L	ND	2.5	2.5	2.7	2.8	108	110	90-110	2	10
Sulfate	mg/L	1.0	50	50	54.0	54.8	106	108	90-110	1	10

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QUALIFIERS

Project: BRANCH BCD/E BACKGROUND

Pace Project No.: 92495656

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: BRANCH BCD/E BACKGROUND
Pace Project No.: 92495656

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92495656001	BRGWA-6S				
92495656002	BRGWA-5S				
92495656003	BRGWA-5I				
92495656004	BRGWA-2S				
92495656005	BRGWA-2I				
92495656001	BRGWA-6S	EPA 3010A	566871	EPA 6010D	566908
92495656002	BRGWA-5S	EPA 3010A	566871	EPA 6010D	566908
92495656003	BRGWA-5I	EPA 3010A	566871	EPA 6010D	566908
92495656004	BRGWA-2S	EPA 3010A	566871	EPA 6010D	566908
92495656005	BRGWA-2I	EPA 3010A	566871	EPA 6010D	566908
92495656001	BRGWA-6S	EPA 3005A	566966	EPA 6020B	566971
92495656002	BRGWA-5S	EPA 3005A	566966	EPA 6020B	566971
92495656003	BRGWA-5I	EPA 3005A	566966	EPA 6020B	566971
92495656004	BRGWA-2S	EPA 3005A	566966	EPA 6020B	566971
92495656005	BRGWA-2I	EPA 3005A	566966	EPA 6020B	566971
92495656001	BRGWA-6S	EPA 7470A	567255	EPA 7470A	567454
92495656002	BRGWA-5S	EPA 7470A	567255	EPA 7470A	567454
92495656003	BRGWA-5I	EPA 7470A	567255	EPA 7470A	567454
92495656004	BRGWA-2S	EPA 7470A	567255	EPA 7470A	567454
92495656005	BRGWA-2I	EPA 7470A	567255	EPA 7470A	567454
92495656001	BRGWA-6S	SM 2450C-2011	567139		
92495656002	BRGWA-5S	SM 2450C-2011	567139		
92495656003	BRGWA-5I	SM 2450C-2011	567139		
92495656004	BRGWA-2S	SM 2450C-2011	567139		
92495656005	BRGWA-2I	SM 2450C-2011	567139		
92495656001	BRGWA-6S	EPA 300.0 Rev 2.1 1993	568234		
92495656002	BRGWA-5S	EPA 300.0 Rev 2.1 1993	568234		
92495656003	BRGWA-5I	EPA 300.0 Rev 2.1 1993	568234		
92495656004	BRGWA-2S	EPA 300.0 Rev 2.1 1993	568234		
92495656005	BRGWA-2I	EPA 300.0 Rev 2.1 1993	568377		

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Sample Condition Upon Receipt

WO#: 92495656

Client Name: GA Power



Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

Proj. Name: _____

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

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 2.8 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/16/2004

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 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>W</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 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: _____

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)



Document Name:
 Bottle Identification Form (BIF)
 Document No.:
 F-CAR-CS-043-Rev.00

Document issued: March 14, 2019
 Page 1 of 1
 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.

Project #

WO# : 92495656

PM: KLH1 Due Date: 09/30/20

CLIENT: GA-GA Power

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) (C-)	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) (C-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (C-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (C-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (C-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)	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)	BP9A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG6U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Sterilization vials (N/A)		
	1																												
	2																												
	3																												
	4																												
	5																												
	6																												
	7																												
	8																												
	9																												
	10																												
	11																												
	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 C
 Out of hold, incorrect preservative, out of temp, incorrect containers.



CHAIN-OF-CUSTODY Analytical Request Document

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

Company: Georgia Power - Coal Combustion Residuals
 Billing Information: Complete all relevant fields

Address: 2480 Maier Road
 Atlanta, GA 30339
 Report To: Joyu Abraham
 Email To: sctmvoices@southernco.com

Phone: (404) 506-7239
 State: Georgia City: Milledgeville Time Zone: Coordinated
 Email: j.abraham@southernco.com Project Name: Plant Branch BCD/E Background
 Phone: (404) 506-7239 Project # CCR 3rd Semi-Annual
 Email: j.abraham@southernco.com Purchase Order #
 Collected By (Print): Travis Martinez, Andree McClure
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
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State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
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 1-2 Day 3 Day 4 Day 5 Day
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State: Georgia City: Milledgeville Time Zone: Coordinated
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State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

State: Georgia City: Milledgeville Time Zone: Coordinated
 Project Name: Plant Branch BCD/E Background
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply) Analysis: _____

LAB USE ONLY - Attach Workorder/Login Label Here or List Pace Workorder Number or MTL Log-In Number Here

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type **

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Analyses

Metals 6010/6020/7470 - see comments
 TDS
 Chloride/Fluoride/Sulfate
 Radium 226.228

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

LAB USE ONLY:
 Lab Sample # / Comments:
 62495656

Customer Sample ID	Matrix *	Comp / Grab	Collected for Composite		Composite End		pH	HCl	Crms
			Date	Time	Date	Time			
BRGWA-6S	Gw	G	9-15-2020	0945			6.43	5	
BRGWA-5S	Gw	G	9-15-2020	1320			6.25	5	
BRGWA-5E	Gw	G	9-15-2020	1402			6.27	5	
BRGWA-2S	Gw	G	9-15-2020	1501			6.01	5	
BRGWA-2E	Gw	G	9-15-2020	1607			6.64	5	

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

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

Reinquired by/Company (Signature):
 Date/Time: 9-16-2020 0800

Reinquired by/Company (Signature):
 Date/Time:

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

Samples received via: FEDEX UPS Client Courier Pace Courier

Date/Time: 9-16-2020 0945

Date/Time:

LAB Sample Temperature info:
 Temp Blank Received: Y N NA
 Therm ID#: _____
 Cooler 1 Temp Upon Receipt: ___ °C
 Cooler 1 Therm Corr Factor: ___ °C
 Cooler 1 Corrected Temp: ___ °C

Comments:

Trip Blank Received: Y N NA
 HCL MeOH TSP Other

Non Conformance(s): Page 1 of 1

October 12, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH E NETWORK RADS
Pace Project No.: 92495960

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory between September 17, 2020 and September 18, 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,



Kevin Herring
kevin.herring@pacelabs.com
1(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta
Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BRANCH E NETWORK RADS
Pace Project No.: 92495960

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: BRANCH E NETWORK RADS

Pace Project No.: 92495960

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92495960001	BRGWC-35S	Water	09/16/20 09:05	09/17/20 10:00
92495960002	BRGWC-34S	Water	09/16/20 09:59	09/17/20 10:00
92495960003	BRGWC-33S	Water	09/16/20 11:02	09/17/20 10:00
92495960004	BRGWC-17S	Water	09/16/20 12:30	09/17/20 10:00
92495960005	BRGWC-36S	Water	09/16/20 15:21	09/17/20 10:00
92495960006	BRGWC-37S	Water	09/16/20 16:09	09/17/20 10:00
92495960007	FB-1	Water	09/16/20 10:10	09/17/20 10:00
92495960008	DUP-2	Water	09/16/20 00:00	09/17/20 10:00
92495960009	BRGWC-38S	Water	09/17/20 11:26	09/18/20 10:15

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH E NETWORK RADS
Pace Project No.: 92495960

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92495960001	BRGWC-35S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495960002	BRGWC-34S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495960003	BRGWC-33S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495960004	BRGWC-17S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495960005	BRGWC-36S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495960006	BRGWC-37S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495960007	FB-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495960008	DUP-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495960009	BRGWC-38S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH E NETWORK RADS
Pace Project No.: 92495960

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495960001	BRGWC-35S					
EPA 9315	Radium-226	0.399 ± 0.288 (0.465) C:82% T:NA	pCi/L		09/30/20 09:01	
EPA 9320	Radium-228	0.846 ± 0.848 (1.77) C:66% T:85%	pCi/L		10/05/20 18:33	
Total Radium Calculation	Total Radium	1.25 ± 1.14 (2.24)	pCi/L		10/07/20 15:56	
92495960002	BRGWC-34S					
EPA 9315	Radium-226	0.156 ± 0.212 (0.446) C:86% T:NA	pCi/L		09/30/20 08:22	
EPA 9320	Radium-228	0.564 ± 0.797 (1.71) C:67% T:80%	pCi/L		10/05/20 18:33	
Total Radium Calculation	Total Radium	0.720 ± 1.01 (2.16)	pCi/L		10/07/20 15:56	
92495960003	BRGWC-33S					
EPA 9315	Radium-226	0.0620 ± 0.200 (0.495) C:86% T:NA	pCi/L		09/30/20 08:29	
EPA 9320	Radium-228	0.133 ± 0.499 (1.13) C:62% T:72%	pCi/L		10/06/20 11:51	
Total Radium Calculation	Total Radium	0.195 ± 0.699 (1.63)	pCi/L		10/07/20 15:56	
92495960004	BRGWC-17S					
EPA 9315	Radium-226	-0.0553 ± 0.184 (0.552) C:80% T:NA	pCi/L		09/30/20 08:30	
EPA 9320	Radium-228	0.478 ± 0.453 (0.929) C:62% T:83%	pCi/L		10/06/20 11:51	
Total Radium Calculation	Total Radium	0.478 ± 0.637 (1.48)	pCi/L		10/07/20 15:56	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH E NETWORK RADS
Pace Project No.: 92495960

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495960005	BRGWC-36S					
EPA 9315	Radium-226	0.239 ± 0.229 (0.425) C:87% T:NA	pCi/L		09/30/20 08:31	
EPA 9320	Radium-228	0.926 ± 0.502 (0.904) C:64% T:81%	pCi/L		10/06/20 11:51	
Total Radium Calculation	Total Radium	1.17 ± 0.731 (1.33)	pCi/L		10/07/20 15:56	
92495960006	BRGWC-37S					
EPA 9315	Radium-226	0.276 ± 0.291 (0.588) C:83% T:NA	pCi/L		09/30/20 08:32	
EPA 9320	Radium-228	0.568 ± 0.492 (1.00) C:67% T:79%	pCi/L		10/06/20 11:51	
Total Radium Calculation	Total Radium	0.844 ± 0.783 (1.59)	pCi/L		10/07/20 15:56	
92495960007	FB-1					
EPA 9315	Radium-226	0.116 ± 0.208 (0.473) C:95% T:NA	pCi/L		09/30/20 08:24	
EPA 9320	Radium-228	0.0575 ± 0.419 (0.957) C:65% T:84%	pCi/L		10/06/20 11:51	
Total Radium Calculation	Total Radium	0.174 ± 0.627 (1.43)	pCi/L		10/07/20 15:56	
92495960008	DUP-2					
EPA 9315	Radium-226	0.283 ± 0.239 (0.426) C:88% T:NA	pCi/L		09/30/20 08:33	
EPA 9320	Radium-228	0.907 ± 0.502 (0.922) C:65% T:84%	pCi/L		10/06/20 11:52	
Total Radium Calculation	Total Radium	1.19 ± 0.741 (1.35)	pCi/L		10/07/20 15:56	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495960009	BRGWC-38S					
EPA 9315	Radium-226	0.852 ± 0.369 (0.409) C:91% T:NA	pCi/L		09/30/20 08:25	
EPA 9320	Radium-228	2.07 ± 0.730 (1.08) C:63% T:74%	pCi/L		10/06/20 11:52	
Total Radium Calculation	Total Radium	2.92 ± 1.10 (1.49)	pCi/L		10/07/20 15:56	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

Sample: BRGWC-35S **Lab ID: 92495960001** Collected: 09/16/20 09:05 Received: 09/17/20 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.399 ± 0.288 (0.465) C:82% T:NA	pCi/L	09/30/20 09:01	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.846 ± 0.848 (1.77) C:66% T:85%	pCi/L	10/05/20 18:33	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	1.25 ± 1.14 (2.24)	pCi/L	10/07/20 15:56	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

Sample: BRGWC-34S **Lab ID: 92495960002** Collected: 09/16/20 09:59 Received: 09/17/20 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.156 ± 0.212 (0.446) C:86% T:NA	pCi/L	09/30/20 08:22	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.564 ± 0.797 (1.71) C:67% T:80%	pCi/L	10/05/20 18:33	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	0.720 ± 1.01 (2.16)	pCi/L	10/07/20 15:56	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: BRGWC-33S Lab ID: 92495960003 Collected: 09/16/20 11:02 Received: 09/17/20 10:00 Matrix: Water PWS: Site ID: Sample Type:						
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	0.0620 ± 0.200 (0.495) C:86% T:NA	pCi/L	09/30/20 08:29	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.133 ± 0.499 (1.13) C:62% T:72%	pCi/L	10/06/20 11:51	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.195 ± 0.699 (1.63)	pCi/L	10/07/20 15:56	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

Sample: BRGWC-17S **Lab ID: 92495960004** Collected: 09/16/20 12:30 Received: 09/17/20 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	-0.0553 ± 0.184 (0.552) C:80% T:NA	pCi/L	09/30/20 08:30	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.478 ± 0.453 (0.929) C:62% T:83%	pCi/L	10/06/20 11:51	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.478 ± 0.637 (1.48)	pCi/L	10/07/20 15:56	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

Sample: BRGWC-36S **Lab ID: 92495960005** Collected: 09/16/20 15:21 Received: 09/17/20 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 9315	0.239 ± 0.229 (0.425) C:87% T:NA	pCi/L	09/30/20 08:31	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 9320	0.926 ± 0.502 (0.904) C:64% T:81%	pCi/L	10/06/20 11:51	15262-20-1	
Pace Analytical Services - Greensburg						
Total Radium	Total Radium Calculation	1.17 ± 0.731 (1.33)	pCi/L	10/07/20 15:56	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

Sample: BRGWC-37S **Lab ID: 92495960006** Collected: 09/16/20 16:09 Received: 09/17/20 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	0.276 ± 0.291 (0.588) C:83% T:NA	pCi/L	09/30/20 08:32	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.568 ± 0.492 (1.00) C:67% T:79%	pCi/L	10/06/20 11:51	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.844 ± 0.783 (1.59)	pCi/L	10/07/20 15:56	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Sample: FB-1 Lab ID: 92495960007 Collected: 09/16/20 10:10 Received: 09/17/20 10:00 Matrix: Water PWS: Site ID: Sample Type:						
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	0.116 ± 0.208 (0.473) C:95% T:NA	pCi/L	09/30/20 08:24	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.0575 ± 0.419 (0.957) C:65% T:84%	pCi/L	10/06/20 11:51	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.174 ± 0.627 (1.43)	pCi/L	10/07/20 15:56	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

Sample: DUP-2 **Lab ID: 92495960008** Collected: 09/16/20 00:00 Received: 09/17/20 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	0.283 ± 0.239 (0.426) C:88% T:NA	pCi/L	09/30/20 08:33	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.907 ± 0.502 (0.922) C:65% T:84%	pCi/L	10/06/20 11:52	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	1.19 ± 0.741 (1.35)	pCi/L	10/07/20 15:56	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

Sample: BRGWC-38S **Lab ID: 92495960009** Collected: 09/17/20 11:26 Received: 09/18/20 10:15 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	0.852 ± 0.369 (0.409) C:91% T:NA	pCi/L	09/30/20 08:25	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	2.07 ± 0.730 (1.08) C:63% T:74%	pCi/L	10/06/20 11:52	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	2.92 ± 1.10 (1.49)	pCi/L	10/07/20 15:56	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

QC Batch: 415401

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92495960001, 92495960002

METHOD BLANK: 2008969

Matrix: Water

Associated Lab Samples: 92495960001, 92495960002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.804 ± 0.467 (0.852) C:69% T:78%	pCi/L	10/05/20 15:01	

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: BRANCH E NETWORK RADS

Pace Project No.: 92495960

QC Batch: 415402

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92495960003, 92495960004, 92495960005, 92495960006, 92495960007, 92495960008, 92495960009

METHOD BLANK: 2008971

Matrix: Water

Associated Lab Samples: 92495960003, 92495960004, 92495960005, 92495960006, 92495960007, 92495960008, 92495960009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0214 ± 0.170 (0.482) C:94% T:NA	pCi/L	09/30/20 08:23	

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: BRANCH E NETWORK RADS

Pace Project No.: 92495960

QC Batch: 415400

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92495960001, 92495960002

METHOD BLANK: 2008968

Matrix: Water

Associated Lab Samples: 92495960001, 92495960002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0938 ± 0.181 (0.415) C:94% T:NA	pCi/L	09/30/20 07:18	

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: BRANCH E NETWORK RADS

Pace Project No.: 92495960

QC Batch: 415403 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92495960003, 92495960004, 92495960005, 92495960006, 92495960007, 92495960008, 92495960009

METHOD BLANK: 2008973 Matrix: Water

Associated Lab Samples: 92495960003, 92495960004, 92495960005, 92495960006, 92495960007, 92495960008, 92495960009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.789 ± 0.460 (0.832) C:67% T:72%	pCi/L	10/06/20 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.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: BRANCH E NETWORK RADS

Pace Project No.: 92495960

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.

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH E NETWORK RADS
Pace Project No.: 92495960

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92495960001	BRGWC-35S	EPA 9315	415400		
92495960002	BRGWC-34S	EPA 9315	415400		
92495960003	BRGWC-33S	EPA 9315	415402		
92495960004	BRGWC-17S	EPA 9315	415402		
92495960005	BRGWC-36S	EPA 9315	415402		
92495960006	BRGWC-37S	EPA 9315	415402		
92495960007	FB-1	EPA 9315	415402		
92495960008	DUP-2	EPA 9315	415402		
92495960009	BRGWC-38S	EPA 9315	415402		
92495960001	BRGWC-35S	EPA 9320	415401		
92495960002	BRGWC-34S	EPA 9320	415401		
92495960003	BRGWC-33S	EPA 9320	415403		
92495960004	BRGWC-17S	EPA 9320	415403		
92495960005	BRGWC-36S	EPA 9320	415403		
92495960006	BRGWC-37S	EPA 9320	415403		
92495960007	FB-1	EPA 9320	415403		
92495960008	DUP-2	EPA 9320	415403		
92495960009	BRGWC-38S	EPA 9320	415403		
92495960001	BRGWC-35S	Total Radium Calculation	417460		
92495960002	BRGWC-34S	Total Radium Calculation	417460		
92495960003	BRGWC-33S	Total Radium Calculation	417460		
92495960004	BRGWC-17S	Total Radium Calculation	417460		
92495960005	BRGWC-36S	Total Radium Calculation	417460		
92495960006	BRGWC-37S	Total Radium Calculation	417460		
92495960007	FB-1	Total Radium Calculation	417460		
92495960008	DUP-2	Total Radium Calculation	417460		
92495960009	BRGWC-38S	Total Radium Calculation	417460		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Rec

WO#: 92495960

Client Name: G. A. Lower



Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

Proj. Due Date: _____
Proj. Name: _____

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

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used 214

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

Cooler Temperature 1.1
Temp should be above freezing to 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/17/2004

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 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>W</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, W-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 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: _____

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)



Document Name:
Bottle Identification Form (BIF)
Document No.:
F-CAR-CS-043-Rev.00

Document issued: March 14, 2019
Page 1 of 1
Issuing Authority:
Pace Carolinas Quality Office

Project

WO# : 92495960

PM: KLH1

Due Date: 10/01/20

CLIENT: GA-GA Power

• 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/BO15 (water) DOC, LLHG

• Bottom half of box is to list number of bottle

Matrix	Item#	BP4U-125 mL Plastic Unpreserved (N/A) (C-)	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) (C-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic 2N Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (C-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (C-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (C-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)	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)	AG8U-100 mL Amber Unpreserved vials (N/A)	VS9U-20 mL Scintillation vials (N/A)	
	1																											
	2																											
	3																											
	4																											
	5																											
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	12																											

BPIN

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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.



CHAIN-OF-CUSTODY Analytical Request Document

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

Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Maier Road
 Atlanta, GA 30339
 Report To: Joji Abraham
 Email To: scsmivoees@southtenco.com
 Billing Information:
 Site Collection Info/Address: Plant Branch
 Copy To: Golder

Phone: (404) 506-7239
 Email: jabraham@southtenco.com
 Phone: (404) 506-7239
 Project Name: Plant Branch E Network
 Project # CCA 3rd Semi-Annual
 Email: jabraham@southtenco.com
 Purchase Order #
 Collected By (Print): Travis Martinez,
 Andrea McClure
 State: Georgia City: Milledgeville Time Zone: Eastern

Collected By (Signature): *[Signature]*
 Turnaround Date Required:
 Rush: Same Day Next Day
 12 Day 13 Day 14 Day 15 Day
 (Expedite Charges Apply)
 Field Filtered (if applicable):
 Yes No
 Analysis: _____

* Matrix Codes (insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (O), Wipe (WP), Air (AR), Tissue (TS), Biossavy (B), Water (WT), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected for Composite		Composite End		pH	# of Cms
			Date	Time	Date	Time		
BRGWC-355	GW	G	9-16-2020	0905			5.96	7
BRGWC-345	GW	G	9-16-2020	0959			5.81	5
BRGWC-335	GW	G	9-16-2020	1102			4.78	5
BRGWC-175	GW	G	9-16-2020	1230			6.26	5
BRGWC-365	GW	G	9-16-2020	1521			5.58	5
BRGWC-375	GW	G	9-16-2020	1609			5.84	5
FB-1	W	G	9-16-2020	1010			-	5
DVP-2	GW	G	9-16-2020	-			-	5

(Metals): As, B, Ba, Be, Ca, Cd, Co, Cr, Mo, Pb, Sb, Se, Li, Tl, Hg

Type of Ice Used: Wet Blue Dry None
 Packing Material Used:
 Radchem sample(s) screened (<500 gpm): Y N NA

Relinquished By/Company (Signature): *[Signature]*
 Date/Time: 9-17-2020 10800
 Received By/Company (Signature): *[Signature]*
 Date/Time: 9/17/2020 1000

Relinquished By/Company (Signature):
 Date/Time:
 Received By/Company (Signature):
 Date/Time:

LAB USE ONLY: Affix Workorder/Login Label Here or Use Pace Workorder Number or MTIL Log-in Number Here

ALL SHADED AREAS ARE FOR LAB USE ONLY

Container Preservation Type **

Lab Project Manager:

Lab Profile/Lines:

Lab Sample Receipt Checklist:
 Custody Seals Present/Intact: Y N NA
 Custody Signatures Present: Y N NA
 Bottles Intact: Y N NA
 Correct Bottles: Y N NA
 Sufficient Volume: Y N NA
 Samples Received on Ice: Y N NA
 VOA - Headspace Acceptable: Y N NA
 USDA Regulated Soils: Y N NA
 Samples in Holding Time: Y N NA
 Residual Chlorine Present: Y N NA
 C1 Strips: Y N NA
 Sample pH Acceptable: Y N NA
 pH Strips: Y N NA
 Soluble Present: Y N NA
 Lead Acetate Strips: Y N NA

Analyses	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Metals 6010/6020/7470 - see comments																				
TDS																				
Chloride/Fluoride/Sulfate																				
Radium 226.228																				

LAB USE ONLY:
 Lab Sample # / Comments: *22062465*
 + 2 Radium

LAB Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID#: *212*
 Cooler 1 Temp Upon Receipt: *12.5*
 Cooler 1 Therm Corr. Factor: *0.0*
 Cooler 1 Corrected Temp: *12.5*
 Comments:

MTIL LAB USE ONLY

Lab Tracking #:
 Samples received via: FEDEX UPS Client Courier Pace Courier
 Accrual: Y N NA
 Template: HCL MeOH TSP Other
 Prelog: Y N NA
 Non-Conformance(s): Page 1 of 1

Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.



Test: Ra-226
Analyst: LAL
Date: 9/29/2020
Worklist: 56346
Matrix: DW

Method Blank Assessment	
MB Sample ID	2008971
MB concentration:	-0.021
M/B Counting Uncertainty:	0.170
MB MDC:	0.482
MB Numerical Performance Indicator:	-0.25
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCS (Y or N)?	
	LCS56346	Y
Count Date:	9/30/2020	LCS56346
Spike I.D.:	19-033	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.044	24.044
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.504	0.508
Target Conc. (pCi/L, g, F):	4.774	4.731
Uncertainty (Calculated):	0.057	0.057
Result (pCi/L, g, F):	5.388	4.719
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.860	0.780
Numerical Performance Indicator:	1.40	-0.03
Percent Recovery:	112.87%	99.74%
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	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	LCS56346
Duplicate Sample I.D.:	LCS56346
Sample Result (pCi/L, g, F):	5.388
Sample Duplicate Result (pCi/L, g, F):	0.860
Sample Duplicate Counting Uncertainty (pCi/L, g, F):	4.719
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.780
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	1.129
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	12.34%
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):		
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 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:

Qwlad 10/1/2020
LAM 10/1/2020

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow

Test: Ra-226
Analyst: LAL
Date: 9/29/2020
Worklist: 56346
Matrix: DW

Method Blank Assessment	
MB Sample ID	2008971
MB concentration:	-0.021
M/B Counting Uncertainty:	0.170
MB MDC:	0.482
MB Numerical Performance Indicator:	-0.25
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	
	LCSD56346	N
Count Date:	9/30/2020	LCSD56346
Spike I.D.:	19-033	
Decay Corrected Spike Concentration (pCi/mL):	24.044	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.504	
Target Conc. (pCi/L, g, F):	4.774	
Uncertainty (Calculated):	0.057	
Result (pCi/L, g, F):	5.388	
LCSD/LCSD Counting Uncertainty (pCi/L, g, F):	0.860	
Numerical Performance Indicator:	1.40	
Percent Recovery:	112.87%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	125%	
Lower % Recovery Limits:	75%	

Duplicate Sample Assessment	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	92496249001
Duplicate Sample I.D.:	92496249001DUP
Sample Result (pCi/L, g, F):	0.241
Sample Result Counting Uncertainty (pCi/L, g, F):	0.234
Sample Duplicate Result (pCi/L, g, F):	0.452
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.344
Are sample and/or duplicate results below RL?	See Below ##
Duplicate Numerical Performance Indicator:	-0.992
Duplicate RPD:	60.82%
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:

~~Date to be re-prepared due to unacceptable precision.~~ N/A
LAM 10/1/2020

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 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.:
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:

LAM 10/1/2020
LAM 10/1/2020

Quality Control Sample Performance Assessment



Analyst **Must Manually Enter All Fields Highlighted in Yellow.**

Test: Ra-228
Analyst: LAL
Date: 9/29/2020
Worklist: 56344
Matrix: DW

Method Blank Assessment	
MB Sample ID	2008968
MB concentration:	0.094
M/B Counting Uncertainty:	0.180
MB MDC:	0.415
MB Numerical Performance Indicator:	1.02
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment		LCS D (Y or N)?	Y
Count Date:	9/30/2020	LCS D56344	9/30/2020
Spike I.D.:	19-033	19-033	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.044	24.044	24.044
Volume Used (mL):	0.10	0.10	0.10
Aliquot Volume (L, g, F):	0.509	0.505	0.505
Target Conc. (pCi/L, g, F):	4.723	4.761	4.761
Uncertainty (Calculated):	0.057	0.057	0.057
Result (pCi/L, g, F):	3.880	3.912	3.912
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.689	0.683	0.683
Numerical Performance Indicator:	-2.36	-2.39	-2.39
Percent Recovery:	82.15%	82.18%	82.18%
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		Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.:	LCS56344	Sample I.D.:	LCS56344
Duplicate Sample I.D.:	LCS D56344	Sample MS I.D.:	LCS D56344
Sample Result (pCi/L, g, F):	3.880	Sample MSD I.D.:	LCS D56344
Sample Duplicate Result (pCi/L, g, F):	0.699	Sample Matrix Spike Result:	Sample Matrix Spike Result
Sample Duplicate Result (pCi/L, g, F):	3.912	Sample Matrix Spike Duplicate Result:	Sample Matrix Spike Duplicate Result
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.683	Sample Matrix Spike Duplicate Result:	Sample Matrix Spike Duplicate Result
Are sample and/or duplicate results below RL?	NO	Duplicate Numerical Performance Indicator:	Duplicate Numerical Performance Indicator
Duplicate Numerical Performance Indicator:	-0.065	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:
Duplicate Status vs Numerical Indicator:	N/A	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs Numerical Indicator:
Duplicate Status vs RPD:	Pass	MS/ MSD Duplicate Status vs RPD:	MS/ MSD Duplicate Status vs RPD:
% RPD Limit:	25%	% RPD Limit:	% RPD Limit:

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

Comments:

Manually entered

MAN 10/11/2020

Quality Control Sample Performance Assessment



Analyst: Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-226
Analyst: LAL
Date: 9/29/2020
Worklist: 56344
Matrix: DW

Method Blank Assessment	
MB Sample ID	2008968
MB Concentration:	0.094
M/B Counting Uncertainty:	0.180
MB MDC:	0.415
MB Numerical Performance Indicator:	1.02
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
		LCSD56344
Count Date:	9/30/2020	
Spike I.D.:	19-033	
Decay Corrected Spike Concentration (pCi/mL):	24.044	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.509	
Target Conc. (pCi/L, g, F):	4.723	
Uncertainty (Calculated):	0.057	
Result (pCi/L, g, F):	3.880	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.699	
Numerical Performance Indicator:	-2.36	
Percent Recovery:	82.15%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	125%	
Lower % Recovery Limits:	75%	

Duplicate Sample Assessment	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	92495960001
Duplicate Sample I.D.:	92495960001DUP
Sample Result (pCi/L, g, F):	0.399
Sample Result Counting Uncertainty (pCi/L, g, F):	0.282
Sample Duplicate Result (pCi/L, g, F):	0.152
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:	1.284
Duplicate RPD:	89.47%
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-prepared due to unacceptable precision. N/A

9/30/2020

9/30/2020

9/30/2020

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.:		
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:		
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.:
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:

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 9/29/2020
Worklist: 56345
Matrix: WT

Method Blank Assessment	
MB Sample ID	2008969
MB concentration:	0.804
M/B 2 Sigma CSU:	0.467
MB MDC:	0.852
MB Numerical Performance Indicator:	3.38
MB Status vs Numerical Indicator:	Fail*
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
LCSID (Y or N)?	Y
LCS56345	10/5/2020
Count Date:	10/5/2020
Spike I.D.:	20-030
Decay Corrected Spike Concentration (pCi/mL):	38.140
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.806
Target Conc. (pCi/L, g, F):	4.732
Uncertainty (Calculated):	0.232
Result (pCi/L, g, F):	4.491
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.317
Numerical Performance Indicator:	-0.25
Percent Recovery:	96.38%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass
Upper % Recovery Limits:	135%
Lower % Recovery Limits:	60%

Duplicate Sample Assessment	
Sample I.D.:	LCS56345
Duplicate Sample I.D.:	LCS56345
Sample Result 2 Sigma CSU (pCi/L, g, F):	4.491
Sample Duplicate Result (pCi/L, g, F):	1.317
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	4.137
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.305
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	0.373
Duplicate Numerical Performance Indicator:	9.74%
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:

*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-processed.

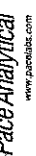
Sample Matrix Spike Control Assessment	
Sample Collection Date:	MS/MSD 1
Sample I.D.:	MS/MSD 2
Sample MS I.D.:	
Sample MSD I.D.:	
Spike I.D.:	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	
Spike Volume Used in MS (mL):	
Spike Volume Used in MSD (mL):	
MS Aliquot (L, g, F):	
MS Target Conc. (pCi/L, g, F):	
MSD Aliquot (L, g, F):	
MSD Target Conc. (pCi/L, g, F):	
MS Spike Uncertainty (calculated):	
MSD Spike Uncertainty (calculated):	
Sample Result 2 Sigma CSU (pCi/L, g, F):	
Sample Matrix Spike Result:	
Sample Matrix Spike Duplicate Result:	
Matrix Spike Duplicate Result 2 Sigma CSU (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:	

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 2 Sigma CSU (pCi/L, g, F):	
Sample Matrix Spike Duplicate Result:	
Sample Matrix Spike Duplicate Duplicate Result:	
Duplicate Numerical Performance Indicator:	
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 notes: 10/5/20, 9-9-20

Handwritten signature: [Signature]

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 9/29/2020
Worklist: 56347
Matrix: WT

Method Blank Assessment	
MB Sample ID	2008973
MB concentration:	0.789
MB 2 Sigma CSU:	0.460
MB MDC:	0.832
MB Numerical Performance Indicator:	3.36
MB Status vs Numerical Indicator:	Fail*
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment		LCSD (Y or N)?	N
		LCS56347	LCS56347
Count Date:		10/6/2020	
Spike I.D.:		20-030	
Decay Corrected Spike Concentration (pCi/mL):		38.131	
Volume Used (mL):		0.10	
Aliquot Volume (L, g, F):		0.814	
Target Conc. (pCi/L, g, F):		4.687	
Uncertainty (Calculated):		0.230	
Result (pCi/L, g, F):		6.664	
LCSD/LCSD 2 Sigma CSU (pCi/L, g, F):		1.522	
Numerical Performance Indicator:		2.52	
Percent Recovery:		142.18%	
Status vs Numerical Indicator:		Warning	
Status vs Recovery:		Fail High**	
Upper % Recovery Limits:		135%	
Lower % Recovery Limits:		60%	

Duplicate Sample Assessment		Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	92496249001	92496249001
Duplicate Sample I.D.:	92496249001DUP	92496249001DUP
Sample Result (pCi/L, g, F):	0.711	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.513	
Sample Duplicate Result (pCi/L, g, F):	0.232	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.545	
Are sample and/or duplicate results below RL?	See Below #	
Duplicate Numerical Performance Indicator:	1.254	
Duplicate RPD:	101.60%	
Duplicate Status vs Numerical Indicator:	Pass	
Duplicate Status vs RPD:	Fail***	
% RPD Limit:	36%	

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D.: Sample MS 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 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Result: Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result 2 Sigma CSU (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: Sample 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: 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:

*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.

**if all sample results are below MDC, the batch is acceptable, otherwise this batch must be re-prepped due to LCS failure.

one transport NF 63 acceptable for all WT batch

Revised 10/1/20

10-7-20

October 01, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH E NETWORK
Pace Project No.: 92495964

Dear Joju Abraham:

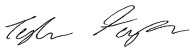
Enclosed are the analytical results for sample(s) received by the laboratory between September 17, 2020 and September 18, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where 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
- Pace Analytical Services - Peachtree Corners, GA

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

Sincerely,



Tyler Forney for
Kevin Herring
kevin.herring@pacelabs.com
1(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta

Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: BRANCH E NETWORK

Pace Project No.: 92495964

Pace Analytical Services Charlotte

9800 Kinsey 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

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, 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: BRANCH E NETWORK
Pace Project No.: 92495964

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92495964001	BRGWC-35S	Water	09/16/20 09:05	09/17/20 10:00
92495964002	BRGWC-34S	Water	09/16/20 09:59	09/17/20 10:00
92495964003	BRGWC-33S	Water	09/16/20 11:02	09/17/20 10:00
92495964004	BRGWC-17S	Water	09/16/20 12:30	09/17/20 10:00
92495964005	BRGWC-36S	Water	09/16/20 15:21	09/17/20 10:00
92495964006	BRGWC-37S	Water	09/16/20 16:09	09/17/20 10:00
92495964007	FB-1	Water	09/16/20 10:10	09/17/20 10:00
92495964008	DUP-2	Water	09/16/20 00:00	09/17/20 10:00
92495964009	BRGWC-38S	Water	09/17/20 11:26	09/18/20 10:15

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH E NETWORK
Pace Project No.: 92495964

Lab ID	Sample ID	Method	Analysts	Analytes Reported
92495964001	BRGWC-35S	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495964002	BRGWC-34S	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495964003	BRGWC-33S	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495964004	BRGWC-17S	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495964005	BRGWC-36S	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495964006	BRGWC-37S	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495964007	FB-1	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495964008	DUP-2	EPA 6010D	DRB	1
		EPA 6020B	CW1	13

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH E NETWORK

Pace Project No.: 92495964

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 7470A	VB	1
		SM 2450C-2011	AW1	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495964009	BRGWC-38S	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	FFP	1
		SM 2450C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	BRJ	3

PASI-A = Pace Analytical Services - Asheville

PASI-C = Pace Analytical Services - Charlotte

PASI-GA = Pace Analytical Services - Peachtree Corners, GA

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH E NETWORK
Pace Project No.: 92495964

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92495964001	BRGWC-35S					
	pH	5.96	Std. Units		09/29/20 12:27	
EPA 6010D	Calcium	61.8	mg/L	1.0	09/22/20 21:32	
EPA 6020B	Barium	0.033	mg/L	0.010	09/22/20 17:42	
EPA 6020B	Beryllium	0.00014J	mg/L	0.0030	09/22/20 17:42	
EPA 6020B	Boron	1.9	mg/L	0.10	09/22/20 17:42	
EPA 6020B	Chromium	0.0058J	mg/L	0.010	09/22/20 17:42	
EPA 6020B	Lead	0.00012J	mg/L	0.0050	09/22/20 17:42	
EPA 6020B	Lithium	0.0020J	mg/L	0.030	09/22/20 17:42	
SM 2450C-2011	Total Dissolved Solids	474	mg/L	10.0	09/18/20 09:58	
EPA 300.0 Rev 2.1 1993	Chloride	6.0	mg/L	1.0	09/19/20 18:22	
EPA 300.0 Rev 2.1 1993	Fluoride	0.062J	mg/L	0.10	09/19/20 18:22	
EPA 300.0 Rev 2.1 1993	Sulfate	270	mg/L	6.0	09/20/20 04:47	
92495964002	BRGWC-34S					
	pH	5.81	Std. Units		09/29/20 12:27	
EPA 6010D	Calcium	77.7	mg/L	1.0	09/22/20 21:37	
EPA 6020B	Barium	0.023	mg/L	0.010	09/22/20 17:48	
EPA 6020B	Beryllium	0.00014J	mg/L	0.0030	09/22/20 17:48	
EPA 6020B	Boron	2.2	mg/L	0.10	09/22/20 17:48	
EPA 6020B	Cadmium	0.00017J	mg/L	0.0025	09/22/20 17:48	
EPA 6020B	Cobalt	0.0042J	mg/L	0.0050	09/22/20 17:48	
SM 2450C-2011	Total Dissolved Solids	392	mg/L	10.0	09/18/20 09:58	
EPA 300.0 Rev 2.1 1993	Chloride	6.6	mg/L	1.0	09/19/20 18:37	
EPA 300.0 Rev 2.1 1993	Fluoride	0.077J	mg/L	0.10	09/19/20 18:37	
EPA 300.0 Rev 2.1 1993	Sulfate	283	mg/L	6.0	09/20/20 05:01	
92495964003	BRGWC-33S					
	pH	4.78	Std. Units		09/29/20 12:27	
EPA 6010D	Calcium	37.9	mg/L	1.0	09/22/20 21:41	
EPA 6020B	Barium	0.019	mg/L	0.010	09/22/20 17:53	
EPA 6020B	Beryllium	0.0015J	mg/L	0.0030	09/22/20 17:53	
EPA 6020B	Boron	1.1	mg/L	0.10	09/22/20 17:53	
EPA 6020B	Cadmium	0.00032J	mg/L	0.0025	09/22/20 17:53	
EPA 6020B	Cobalt	0.034	mg/L	0.0050	09/22/20 17:53	
EPA 6020B	Lead	0.000063J	mg/L	0.0050	09/22/20 17:53	
EPA 6020B	Lithium	0.0089J	mg/L	0.030	09/22/20 17:53	
EPA 6020B	Selenium	0.0028J	mg/L	0.010	09/22/20 17:53	
EPA 6020B	Thallium	0.00018J	mg/L	0.0010	09/22/20 17:53	
SM 2450C-2011	Total Dissolved Solids	88.0	mg/L	10.0	09/18/20 09:59	
EPA 300.0 Rev 2.1 1993	Chloride	4.1	mg/L	1.0	09/19/20 18:52	
EPA 300.0 Rev 2.1 1993	Fluoride	0.085J	mg/L	0.10	09/19/20 18:52	
EPA 300.0 Rev 2.1 1993	Sulfate	154	mg/L	3.0	09/20/20 05:16	
92495964004	BRGWC-17S					
	pH	6.26	Std. Units		09/29/20 12:27	
EPA 6010D	Calcium	37.9	mg/L	1.0	09/22/20 21:45	
EPA 6020B	Barium	0.044	mg/L	0.010	09/22/20 18:11	
EPA 6020B	Boron	0.0066J	mg/L	0.10	09/22/20 18:11	
EPA 6020B	Chromium	0.012	mg/L	0.010	09/22/20 18:11	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH E NETWORK

Pace Project No.: 92495964

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92495964004	BRGWC-17S					
EPA 6020B	Lead	0.000054J	mg/L	0.0050	09/22/20 18:11	
EPA 6020B	Lithium	0.00096J	mg/L	0.030	09/22/20 18:11	
SM 2450C-2011	Total Dissolved Solids	316	mg/L	10.0	09/18/20 09:59	
EPA 300.0 Rev 2.1 1993	Chloride	4.2	mg/L	1.0	09/19/20 19:07	
EPA 300.0 Rev 2.1 1993	Fluoride	0.10	mg/L	0.10	09/19/20 19:07	
EPA 300.0 Rev 2.1 1993	Sulfate	151	mg/L	3.0	09/20/20 05:30	
92495964005	BRGWC-36S					
	pH	5.58	Std. Units		09/29/20 12:27	
EPA 6010D	Calcium	45.9	mg/L	1.0	09/22/20 21:50	
EPA 6020B	Barium	0.030	mg/L	0.010	09/22/20 18:16	
EPA 6020B	Beryllium	0.000080J	mg/L	0.0030	09/22/20 18:16	
EPA 6020B	Boron	0.99	mg/L	0.10	09/22/20 18:16	
EPA 6020B	Chromium	0.0064J	mg/L	0.010	09/22/20 18:16	
EPA 6020B	Lithium	0.0022J	mg/L	0.030	09/22/20 18:16	
EPA 6020B	Selenium	0.0031J	mg/L	0.010	09/22/20 18:16	
SM 2450C-2011	Total Dissolved Solids	463	mg/L	10.0	09/18/20 09:59	
EPA 300.0 Rev 2.1 1993	Chloride	7.9	mg/L	1.0	09/19/20 19:22	
EPA 300.0 Rev 2.1 1993	Sulfate	256	mg/L	5.0	09/20/20 06:15	M6
92495964006	BRGWC-37S					
	pH	5.84	Std. Units		09/29/20 12:27	
EPA 6010D	Calcium	3.2	mg/L	1.0	09/22/20 21:54	
EPA 6020B	Barium	0.024	mg/L	0.010	09/22/20 18:22	
EPA 6020B	Boron	0.0062J	mg/L	0.10	09/22/20 18:22	
EPA 6020B	Chromium	0.0018J	mg/L	0.010	09/22/20 18:22	
SM 2450C-2011	Total Dissolved Solids	31.0	mg/L	10.0	09/18/20 09:59	
EPA 300.0 Rev 2.1 1993	Chloride	1.8	mg/L	1.0	09/19/20 20:07	
92495964008	DUP-2					
EPA 6010D	Calcium	47.6	mg/L	1.0	09/25/20 19:00	
EPA 6020B	Barium	0.030	mg/L	0.010	09/22/20 18:34	
EPA 6020B	Beryllium	0.000085J	mg/L	0.0030	09/22/20 18:34	
EPA 6020B	Boron	1.0	mg/L	0.10	09/22/20 18:34	
EPA 6020B	Chromium	0.0067J	mg/L	0.010	09/22/20 18:34	
EPA 6020B	Lithium	0.0023J	mg/L	0.030	09/22/20 18:34	
EPA 6020B	Selenium	0.0040J	mg/L	0.010	09/22/20 18:34	
SM 2450C-2011	Total Dissolved Solids	462	mg/L	10.0	09/18/20 09:59	
EPA 300.0 Rev 2.1 1993	Chloride	7.9	mg/L	1.0	09/19/20 20:36	
EPA 300.0 Rev 2.1 1993	Sulfate	251	mg/L	5.0	09/20/20 06:59	
92495964009	BRGWC-38S					
	pH	4.17	Std. Units		09/29/20 12:27	
EPA 6010D	Calcium	33.1	mg/L	1.0	09/25/20 19:26	
EPA 6020B	Arsenic	0.0015J	mg/L	0.0050	09/22/20 20:22	
EPA 6020B	Barium	0.014	mg/L	0.010	09/22/20 20:22	
EPA 6020B	Beryllium	0.0073	mg/L	0.0030	09/22/20 20:22	
EPA 6020B	Boron	1.4	mg/L	0.10	09/22/20 20:22	
EPA 6020B	Cadmium	0.00050J	mg/L	0.0025	09/22/20 20:22	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH E NETWORK

Pace Project No.: 92495964

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495964009	BRGWC-38S					
EPA 6020B	Chromium	0.0042J	mg/L	0.010	09/22/20 20:22	
EPA 6020B	Cobalt	0.20	mg/L	0.0050	09/22/20 20:22	
EPA 6020B	Lead	0.00032J	mg/L	0.0050	09/22/20 20:22	
EPA 6020B	Lithium	0.020J	mg/L	0.030	09/22/20 20:22	
EPA 6020B	Selenium	0.029	mg/L	0.010	09/22/20 20:22	
EPA 6020B	Thallium	0.00017J	mg/L	0.0010	09/22/20 20:22	
EPA 7470A	Mercury	0.00011J	mg/L	0.00050	09/23/20 10:43	
SM 2450C-2011	Total Dissolved Solids	587	mg/L	10.0	09/21/20 16:29	
EPA 300.0 Rev 2.1 1993	Chloride	6.1	mg/L	1.0	09/22/20 12:31	
EPA 300.0 Rev 2.1 1993	Fluoride	0.68	mg/L	0.10	09/22/20 12:31	
EPA 300.0 Rev 2.1 1993	Sulfate	356	mg/L	7.0	09/22/20 18:55	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK

Pace Project No.: 92495964

Sample: BRGWC-35S		Lab ID: 92495964001		Collected: 09/16/20 09:05		Received: 09/17/20 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.96	Std. Units			1		09/29/20 12:27		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	61.8	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 21:32	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 17:42	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 17:42	7440-38-2	
Barium	0.033	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 17:42	7440-39-3	
Beryllium	0.00014J	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 17:42	7440-41-7	
Boron	1.9	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 17:42	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 17:42	7440-43-9	
Chromium	0.0058J	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 17:42	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 17:42	7440-48-4	
Lead	0.00012J	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 17:42	7439-92-1	
Lithium	0.0020J	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 17:42	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 17:42	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 17:42	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 17:42	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:52	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	474	mg/L	10.0	10.0	1		09/18/20 09:58		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	6.0	mg/L	1.0	0.60	1		09/19/20 18:22	16887-00-6	
Fluoride	0.062J	mg/L	0.10	0.050	1		09/19/20 18:22	16984-48-8	
Sulfate	270	mg/L	6.0	3.0	6		09/20/20 04:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK
Pace Project No.: 92495964

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: BRGWC-34S Lab ID: 92495964002 Collected: 09/16/20 09:59 Received: 09/17/20 10:00 Matrix: Water									
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.81	Std. Units			1		09/29/20 12:27		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Calcium	77.7	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 21:37	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 17:48	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 17:48	7440-38-2	
Barium	0.023	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 17:48	7440-39-3	
Beryllium	0.00014J	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 17:48	7440-41-7	
Boron	2.2	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 17:48	7440-42-8	
Cadmium	0.00017J	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 17:48	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 17:48	7440-47-3	
Cobalt	0.0042J	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 17:48	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 17:48	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 17:48	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 17:48	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 17:48	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 17:48	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:54	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	392	mg/L	10.0	10.0	1		09/18/20 09:58		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	6.6	mg/L	1.0	0.60	1		09/19/20 18:37	16887-00-6	
Fluoride	0.077J	mg/L	0.10	0.050	1		09/19/20 18:37	16984-48-8	
Sulfate	283	mg/L	6.0	3.0	6		09/20/20 05:01	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK

Pace Project No.: 92495964

Sample: BRGWC-33S		Lab ID: 92495964003		Collected: 09/16/20 11:02		Received: 09/17/20 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	4.78	Std. Units			1		09/29/20 12:27		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	37.9	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 21:41	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 17:53	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 17:53	7440-38-2	
Barium	0.019	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 17:53	7440-39-3	
Beryllium	0.0015J	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 17:53	7440-41-7	
Boron	1.1	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 17:53	7440-42-8	
Cadmium	0.00032J	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 17:53	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 17:53	7440-47-3	
Cobalt	0.034	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 17:53	7440-48-4	
Lead	0.000063J	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 17:53	7439-92-1	
Lithium	0.0089J	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 17:53	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 17:53	7439-98-7	
Selenium	0.0028J	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 17:53	7782-49-2	
Thallium	0.00018J	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 17:53	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:56	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	88.0	mg/L	10.0	10.0	1		09/18/20 09:59		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	4.1	mg/L	1.0	0.60	1		09/19/20 18:52	16887-00-6	
Fluoride	0.085J	mg/L	0.10	0.050	1		09/19/20 18:52	16984-48-8	
Sulfate	154	mg/L	3.0	1.5	3		09/20/20 05:16	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK
Pace Project No.: 92495964

Sample: BRGWC-17S		Lab ID: 92495964004		Collected: 09/16/20 12:30	Received: 09/17/20 10:00	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
Field Data		Analytical Method: Pace Analytical Services - Charlotte								
pH	6.26	Std. Units			1		09/29/20 12:27			
6010D ATL ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	37.9	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 21:45	7440-70-2		
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 18:11	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 18:11	7440-38-2		
Barium	0.044	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 18:11	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 18:11	7440-41-7		
Boron	0.0066J	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 18:11	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 18:11	7440-43-9		
Chromium	0.012	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 18:11	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 18:11	7440-48-4		
Lead	0.000054J	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 18:11	7439-92-1		
Lithium	0.00096J	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 18:11	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 18:11	7439-98-7		
Selenium	ND	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 18:11	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 18:11	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 14:59	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	316	mg/L	10.0	10.0	1		09/18/20 09:59			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	4.2	mg/L	1.0	0.60	1		09/19/20 19:07	16887-00-6		
Fluoride	0.10	mg/L	0.10	0.050	1		09/19/20 19:07	16984-48-8		
Sulfate	151	mg/L	3.0	1.5	3		09/20/20 05:30	14808-79-8		

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK

Pace Project No.: 92495964

Sample: BRGWC-36S		Lab ID: 92495964005		Collected: 09/16/20 15:21		Received: 09/17/20 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.58	Std. Units			1		09/29/20 12:27		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	45.9	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 21:50	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 18:16	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 18:16	7440-38-2	
Barium	0.030	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 18:16	7440-39-3	
Beryllium	0.000080J	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 18:16	7440-41-7	
Boron	0.99	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 18:16	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 18:16	7440-43-9	
Chromium	0.0064J	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 18:16	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 18:16	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 18:16	7439-92-1	
Lithium	0.0022J	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 18:16	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 18:16	7439-98-7	
Selenium	0.0031J	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 18:16	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 18:16	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 15:01	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	463	mg/L	10.0	10.0	1		09/18/20 09:59		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	7.9	mg/L	1.0	0.60	1		09/19/20 19:22	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/19/20 19:22	16984-48-8	
Sulfate	256	mg/L	5.0	2.5	5		09/20/20 06:15	14808-79-8	M6

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK
Pace Project No.: 92495964

Sample: BRGWC-37S		Lab ID: 92495964006		Collected: 09/16/20 16:09		Received: 09/17/20 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
pH	5.84	Std. Units			1		09/29/20 12:27		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	3.2	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 21:54	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 18:22	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 18:22	7440-38-2	
Barium	0.024	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 18:22	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 18:22	7440-41-7	
Boron	0.0062J	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 18:22	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 18:22	7440-43-9	
Chromium	0.0018J	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 18:22	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 18:22	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 18:22	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 18:22	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 18:22	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 18:22	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 18:22	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 15:03	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	31.0	mg/L	10.0	10.0	1		09/18/20 09:59		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	1.8	mg/L	1.0	0.60	1		09/19/20 20:07	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/19/20 20:07	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		09/19/20 20:07	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK
Pace Project No.: 92495964

Sample: FB-1		Lab ID: 92495964007		Collected: 09/16/20 10:10	Received: 09/17/20 10:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA							
Calcium	ND	mg/L	1.0	0.070	1	09/22/20 14:15	09/22/20 21:58	7440-70-2	
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA							
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 18:28	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 18:28	7440-38-2	
Barium	ND	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 18:28	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 18:28	7440-41-7	
Boron	ND	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 18:28	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 18:28	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 18:28	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 18:28	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 18:28	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 18:28	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 18:28	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 18:28	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 18:28	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA							
Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 15:06	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA							
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		09/18/20 09:59		
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		09/19/20 20:21	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/19/20 20:21	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		09/19/20 20:21	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK

Pace Project No.: 92495964

Sample: DUP-2 **Lab ID: 92495964008** Collected: 09/16/20 00:00 Received: 09/17/20 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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6010D ATL ICP Analytical Method: EPA 6010D Preparation Method: EPA 3010A
Pace Analytical Services - Peachtree Corners, GA

Calcium	47.6	mg/L	1.0	0.070	1	09/24/20 14:17	09/25/20 19:00	7440-70-2	
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6020 MET ICPMS Analytical Method: EPA 6020B Preparation Method: EPA 3005A
Pace Analytical Services - Peachtree Corners, GA

Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 11:00	09/22/20 18:34	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/18/20 11:00	09/22/20 18:34	7440-38-2	
Barium	0.030	mg/L	0.010	0.00071	1	09/18/20 11:00	09/22/20 18:34	7440-39-3	
Beryllium	0.00085J	mg/L	0.0030	0.000046	1	09/18/20 11:00	09/22/20 18:34	7440-41-7	
Boron	1.0	mg/L	0.10	0.0052	1	09/18/20 11:00	09/22/20 18:34	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/18/20 11:00	09/22/20 18:34	7440-43-9	
Chromium	0.0067J	mg/L	0.010	0.00055	1	09/18/20 11:00	09/22/20 18:34	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/18/20 11:00	09/22/20 18:34	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/18/20 11:00	09/22/20 18:34	7439-92-1	
Lithium	0.0023J	mg/L	0.030	0.00081	1	09/18/20 11:00	09/22/20 18:34	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/18/20 11:00	09/22/20 18:34	7439-98-7	
Selenium	0.0040J	mg/L	0.010	0.0016	1	09/18/20 11:00	09/22/20 18:34	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/18/20 11:00	09/22/20 18:34	7440-28-0	

7470 Mercury Analytical Method: EPA 7470A Preparation Method: EPA 7470A
Pace Analytical Services - Peachtree Corners, GA

Mercury	ND	mg/L	0.00050	0.000078	1	09/18/20 08:30	09/18/20 15:08	7439-97-6	
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2540C Total Dissolved Solids Analytical Method: SM 2450C-2011
Pace Analytical Services - Peachtree Corners, GA

Total Dissolved Solids	462	mg/L	10.0	10.0	1		09/18/20 09:59		
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300.0 IC Anions 28 Days Analytical Method: EPA 300.0 Rev 2.1 1993
Pace Analytical Services - Asheville

Chloride	7.9	mg/L	1.0	0.60	1		09/19/20 20:36	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/19/20 20:36	16984-48-8	
Sulfate	251	mg/L	5.0	2.5	5		09/20/20 06:59	14808-79-8	

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ANALYTICAL RESULTS

Project: BRANCH E NETWORK
Pace Project No.: 92495964

Sample: BRGWC-38S		Lab ID: 92495964009		Collected: 09/17/20 11:26		Received: 09/18/20 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	4.17	Std. Units			1		09/29/20 12:27		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Calcium	33.1	mg/L	1.0	0.070	1	09/24/20 14:17	09/25/20 19:26	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/21/20 14:30	09/22/20 20:22	7440-36-0	
Arsenic	0.0015J	mg/L	0.0050	0.00078	1	09/21/20 14:30	09/22/20 20:22	7440-38-2	
Barium	0.014	mg/L	0.010	0.00071	1	09/21/20 14:30	09/22/20 20:22	7440-39-3	
Beryllium	0.0073	mg/L	0.0030	0.000046	1	09/21/20 14:30	09/22/20 20:22	7440-41-7	
Boron	1.4	mg/L	0.10	0.0052	1	09/21/20 14:30	09/22/20 20:22	7440-42-8	
Cadmium	0.00050J	mg/L	0.0025	0.00012	1	09/21/20 14:30	09/22/20 20:22	7440-43-9	
Chromium	0.0042J	mg/L	0.010	0.00055	1	09/21/20 14:30	09/22/20 20:22	7440-47-3	
Cobalt	0.20	mg/L	0.0050	0.00038	1	09/21/20 14:30	09/22/20 20:22	7440-48-4	
Lead	0.00032J	mg/L	0.0050	0.000036	1	09/21/20 14:30	09/22/20 20:22	7439-92-1	
Lithium	0.020J	mg/L	0.030	0.00081	1	09/21/20 14:30	09/22/20 20:22	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/21/20 14:30	09/22/20 20:22	7439-98-7	
Selenium	0.029	mg/L	0.010	0.0016	1	09/21/20 14:30	09/22/20 20:22	7782-49-2	
Thallium	0.00017J	mg/L	0.0010	0.00014	1	09/21/20 14:30	09/22/20 20:22	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA									
Mercury	0.00011J	mg/L	0.00050	0.000078	1	09/22/20 11:15	09/23/20 10:43	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	587	mg/L	10.0	10.0	1		09/21/20 16:29		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	6.1	mg/L	1.0	0.60	1		09/22/20 12:31	16887-00-6	
Fluoride	0.68	mg/L	0.10	0.050	1		09/22/20 12:31	16984-48-8	
Sulfate	356	mg/L	7.0	3.5	7		09/22/20 18:55	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK
Pace Project No.: 92495964

QC Batch: 568100 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495964001, 92495964002, 92495964003, 92495964004, 92495964005, 92495964006, 92495964007

METHOD BLANK: 3010230 Matrix: Water
Associated Lab Samples: 92495964001, 92495964002, 92495964003, 92495964004, 92495964005, 92495964006, 92495964007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.070	09/22/20 20:31	

LABORATORY CONTROL SAMPLE: 3010231

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	0.92J	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3010232 3010233

Parameter	Units	3010232		3010233		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495653006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Calcium	mg/L	43.1	1	1	44.0	43.4	83	22	75-125	1	20 M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK
Pace Project No.: 92495964

QC Batch: 568747 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495964008, 92495964009

METHOD BLANK: 3013294 Matrix: Water
Associated Lab Samples: 92495964008, 92495964009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.070	09/25/20 18:16	

LABORATORY CONTROL SAMPLE: 3013295

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	0.98J	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3013296 3013297

Parameter	Units	3013296		3013297		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495904004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Calcium	mg/L	75.8	1	1	74.9	75.7	-84	-9	75-125	1	20 M1

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK
Pace Project No.: 92495964

QC Batch: 567397 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92495964001, 92495964002, 92495964003, 92495964004, 92495964005, 92495964006, 92495964007, 92495964008

METHOD BLANK: 3006748 Matrix: Water
Associated Lab Samples: 92495964001, 92495964002, 92495964003, 92495964004, 92495964005, 92495964006, 92495964007, 92495964008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	0.00033J	0.0030	0.00028	09/22/20 15:42	
Arsenic	mg/L	ND	0.0050	0.00078	09/22/20 15:42	
Barium	mg/L	ND	0.010	0.00071	09/22/20 15:42	
Beryllium	mg/L	ND	0.0030	0.000046	09/22/20 15:42	
Boron	mg/L	ND	0.10	0.0052	09/22/20 15:42	
Cadmium	mg/L	ND	0.0025	0.00012	09/22/20 15:42	
Chromium	mg/L	ND	0.010	0.00055	09/22/20 15:42	
Cobalt	mg/L	ND	0.0050	0.00038	09/22/20 15:42	
Lead	mg/L	ND	0.0050	0.000036	09/22/20 15:42	
Lithium	mg/L	ND	0.030	0.00081	09/22/20 15:42	
Molybdenum	mg/L	ND	0.010	0.00069	09/22/20 15:42	
Selenium	mg/L	ND	0.010	0.0016	09/22/20 15:42	
Thallium	mg/L	ND	0.0010	0.00014	09/22/20 15:42	

LABORATORY CONTROL SAMPLE: 3006749

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	0.099	99	80-120	
Barium	mg/L	0.1	0.10	100	80-120	
Beryllium	mg/L	0.1	0.11	106	80-120	
Boron	mg/L	1	1.1	112	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.10	105	80-120	
Molybdenum	mg/L	0.1	0.098	98	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3006750 3006751

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495870002	Spike Conc.	Spike Conc.	MS Result						
Antimony	mg/L	ND	0.1	0.1	0.10	0.11	104	106	75-125	2	20

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK

Pace Project No.: 92495964

Parameter	Units	3006750		3006751		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Arsenic	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20		
Barium	mg/L	0.019	0.1	0.1	0.12	0.12	97	99	75-125	2	20		
Beryllium	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	0	20		
Boron	mg/L	0.0053J	1	1	1.0	1.0	100	101	75-125	1	20		
Cadmium	mg/L	ND	0.1	0.1	0.098	0.096	98	96	75-125	1	20		
Chromium	mg/L	0.00086J	0.1	0.1	0.10	0.10	103	104	75-125	1	20		
Cobalt	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20		
Lead	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	1	20		
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20		
Molybdenum	mg/L	ND	0.1	0.1	0.096	0.096	95	96	75-125	0	20		
Selenium	mg/L	ND	0.1	0.1	0.099	0.096	99	96	75-125	3	20		
Thallium	mg/L	ND	0.1	0.1	0.098	0.099	98	99	75-125	1	20		

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK
Pace Project No.: 92495964

QC Batch: 567743 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92495964009

METHOD BLANK: 3008588 Matrix: Water
Associated Lab Samples: 92495964009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	09/22/20 17:54	
Arsenic	mg/L	ND	0.0050	0.00078	09/22/20 17:54	
Barium	mg/L	ND	0.010	0.00071	09/22/20 17:54	
Beryllium	mg/L	ND	0.0030	0.000046	09/22/20 17:54	
Boron	mg/L	ND	0.10	0.0052	09/22/20 17:54	
Cadmium	mg/L	ND	0.0025	0.00012	09/22/20 17:54	
Chromium	mg/L	ND	0.010	0.00055	09/22/20 17:54	
Cobalt	mg/L	ND	0.0050	0.00038	09/22/20 17:54	
Lead	mg/L	ND	0.0050	0.000036	09/22/20 17:54	
Lithium	mg/L	ND	0.030	0.00081	09/22/20 17:54	
Molybdenum	mg/L	ND	0.010	0.00069	09/22/20 17:54	
Selenium	mg/L	ND	0.010	0.0016	09/22/20 17:54	
Thallium	mg/L	ND	0.0010	0.00014	09/22/20 17:54	

LABORATORY CONTROL SAMPLE: 3008589

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	0.093	93	80-120	
Barium	mg/L	0.1	0.095	95	80-120	
Beryllium	mg/L	0.1	0.092	92	80-120	
Boron	mg/L	1	0.96	96	80-120	
Cadmium	mg/L	0.1	0.098	98	80-120	
Chromium	mg/L	0.1	0.10	104	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	0.093	93	80-120	
Molybdenum	mg/L	0.1	0.10	100	80-120	
Selenium	mg/L	0.1	0.092	92	80-120	
Thallium	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3008590 3008591

Parameter	Units	92496275001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	101	105	75-125	3	20	
Arsenic	mg/L	ND	0.1	0.1	0.099	0.10	96	98	75-125	3	20	

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK

Pace Project No.: 92495964

Parameter	Units	3008590		3008591		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92496275001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Barium	mg/L	57.5 ug/L	0.1	0.1	0.15	0.16	94	101	75-125	4	20		
Beryllium	mg/L	ND	0.1	0.1	0.087	0.092	87	92	75-125	6	20		
Boron	mg/L	244 ug/L	1	1	1.1	1.2	89	98	75-125	8	20		
Cadmium	mg/L	ND	0.1	0.1	0.094	0.096	94	96	75-125	2	20		
Chromium	mg/L	ND	0.1	0.1	0.10	0.11	102	104	75-125	2	20		
Cobalt	mg/L	ND	0.1	0.1	0.095	0.099	95	99	75-125	4	20		
Lead	mg/L	ND	0.1	0.1	0.092	0.093	92	93	75-125	1	20		
Lithium	mg/L	ND	0.1	0.1	0.094	0.097	89	92	75-125	4	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.11	99	104	75-125	5	20		
Selenium	mg/L	ND	0.1	0.1	0.095	0.096	95	96	75-125	1	20		
Thallium	mg/L	ND	0.1	0.1	0.091	0.093	91	93	75-125	2	20		

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK

Pace Project No.: 92495964

QC Batch: 567375

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92495964001, 92495964002, 92495964003, 92495964004, 92495964005, 92495964006, 92495964007, 92495964008

METHOD BLANK: 3006615

Matrix: Water

Associated Lab Samples: 92495964001, 92495964002, 92495964003, 92495964004, 92495964005, 92495964006, 92495964007, 92495964008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	09/18/20 14:02	

LABORATORY CONTROL SAMPLE: 3006616

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3006617 3006618

Parameter	Units	3006617		3006618		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495653002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0026	100	103	75-125	3	20

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK

Pace Project No.: 92495964

QC Batch: 568007	Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A	Analysis Description: 7470 Mercury
	Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92495964009

METHOD BLANK: 3009608 Matrix: Water

Associated Lab Samples: 92495964009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	09/23/20 09:49	

LABORATORY CONTROL SAMPLE: 3009609

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: 3009610 3009611

Parameter	Units	3009610		3009611		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	0.0024	0.0025	95	99	75-125	4	20	

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK

Pace Project No.: 92495964

QC Batch: 567372

Analysis Method: SM 2450C-2011

QC Batch Method: SM 2450C-2011

Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92495964001, 92495964002, 92495964003, 92495964004, 92495964005, 92495964006, 92495964007, 92495964008

METHOD BLANK: 3006601

Matrix: Water

Associated Lab Samples: 92495964001, 92495964002, 92495964003, 92495964004, 92495964005, 92495964006, 92495964007, 92495964008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	09/18/20 09:58	

LABORATORY CONTROL SAMPLE: 3006602

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	387	97	84-108	

SAMPLE DUPLICATE: 3006603

Parameter	Units	92495653011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	622	654	5	10	

SAMPLE DUPLICATE: 3006604

Parameter	Units	92495900008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1220	1250	3	10	

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK
Pace Project No.: 92495964

QC Batch: 567882	Analysis Method: SM 2450C-2011
QC Batch Method: SM 2450C-2011	Analysis Description: 2540C Total Dissolved Solids
	Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92495964009

METHOD BLANK: 3009251 Matrix: Water
Associated Lab Samples: 92495964009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	09/21/20 16:27	

LABORATORY CONTROL SAMPLE: 3009252

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	412	103	84-108	

SAMPLE DUPLICATE: 3009253

Parameter	Units	92495653008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2090	2130	2	10	

SAMPLE DUPLICATE: 3009254

Parameter	Units	92495870011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	25.0	18.0	33	10	D6

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK
Pace Project No.: 92495964

QC Batch: 567607 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: 92495964001, 92495964002, 92495964003, 92495964004, 92495964005, 92495964006, 92495964007, 92495964008

METHOD BLANK: 3008004 Matrix: Water
Associated Lab Samples: 92495964001, 92495964002, 92495964003, 92495964004, 92495964005, 92495964006, 92495964007, 92495964008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	09/19/20 15:23	
Fluoride	mg/L	ND	0.10	0.050	09/19/20 15:23	
Sulfate	mg/L	ND	1.0	0.50	09/19/20 15:23	

LABORATORY CONTROL SAMPLE: 3008005

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	52.3	105	90-110	
Fluoride	mg/L	2.5	2.7	106	90-110	
Sulfate	mg/L	50	52.5	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3008006 3008007

Parameter	Units	92495653007		3008007		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	4.4	50	50	57.4	58.2	106	108	90-110	1	10
Fluoride	mg/L	0.13	2.5	2.5	2.8	2.8	107	109	90-110	1	10
Sulfate	mg/L	334	50	50	389	385	111	103	90-110	1	10 M6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3008008 3008009

Parameter	Units	92495964005		3008009		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	7.9	50	50	61.3	62.0	107	108	90-110	1	10
Fluoride	mg/L	ND	2.5	2.5	2.7	2.7	107	108	90-110	1	10
Sulfate	mg/L	256	50	50	298	299	85	87	90-110	0	10 M6

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QUALITY CONTROL DATA

Project: BRANCH E NETWORK
Pace Project No.: 92495964

QC Batch: 567943 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: 92495964009

METHOD BLANK: 3009484 Matrix: Water
Associated Lab Samples: 92495964009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	09/22/20 07:03	
Fluoride	mg/L	ND	0.10	0.050	09/22/20 07:03	
Sulfate	mg/L	ND	1.0	0.50	09/22/20 07:03	

LABORATORY CONTROL SAMPLE: 3009485

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	54.8	110	90-110	
Fluoride	mg/L	2.5	2.7	110	90-110	
Sulfate	mg/L	50	54.9	110	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3009486 3009487

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495894011 Result	Spike Conc.	Spike Conc.	Result								
Chloride	mg/L	105	50	50	152	155	94	101	90-110	2	10		
Fluoride	mg/L	0.10	2.5	2.5	2.7	2.7	103	104	90-110	1	10		
Sulfate	mg/L	209	50	50	255	261	92	103	90-110	2	10		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3009488 3009489

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495900016 Result	Spike Conc.	Spike Conc.	Result								
Chloride	mg/L	ND	50	50	52.8	52.5	106	105	90-110	1	10		
Fluoride	mg/L	ND	2.5	2.5	2.6	2.6	105	104	90-110	1	10		
Sulfate	mg/L	ND	50	50	52.6	52.2	105	104	90-110	1	10		

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: BRANCH E NETWORK

Pace Project No.: 92495964

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

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: BRANCH E NETWORK
Pace Project No.: 92495964

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92495964001	BRGWC-35S				
92495964002	BRGWC-34S				
92495964003	BRGWC-33S				
92495964004	BRGWC-17S				
92495964005	BRGWC-36S				
92495964006	BRGWC-37S				
92495964009	BRGWC-38S				
92495964001	BRGWC-35S	EPA 3010A	568100	EPA 6010D	568125
92495964002	BRGWC-34S	EPA 3010A	568100	EPA 6010D	568125
92495964003	BRGWC-33S	EPA 3010A	568100	EPA 6010D	568125
92495964004	BRGWC-17S	EPA 3010A	568100	EPA 6010D	568125
92495964005	BRGWC-36S	EPA 3010A	568100	EPA 6010D	568125
92495964006	BRGWC-37S	EPA 3010A	568100	EPA 6010D	568125
92495964007	FB-1	EPA 3010A	568100	EPA 6010D	568125
92495964008	DUP-2	EPA 3010A	568747	EPA 6010D	568813
92495964009	BRGWC-38S	EPA 3010A	568747	EPA 6010D	568813
92495964001	BRGWC-35S	EPA 3005A	567397	EPA 6020B	567512
92495964002	BRGWC-34S	EPA 3005A	567397	EPA 6020B	567512
92495964003	BRGWC-33S	EPA 3005A	567397	EPA 6020B	567512
92495964004	BRGWC-17S	EPA 3005A	567397	EPA 6020B	567512
92495964005	BRGWC-36S	EPA 3005A	567397	EPA 6020B	567512
92495964006	BRGWC-37S	EPA 3005A	567397	EPA 6020B	567512
92495964007	FB-1	EPA 3005A	567397	EPA 6020B	567512
92495964008	DUP-2	EPA 3005A	567397	EPA 6020B	567512
92495964009	BRGWC-38S	EPA 3005A	567743	EPA 6020B	567850
92495964001	BRGWC-35S	EPA 7470A	567375	EPA 7470A	567456
92495964002	BRGWC-34S	EPA 7470A	567375	EPA 7470A	567456
92495964003	BRGWC-33S	EPA 7470A	567375	EPA 7470A	567456
92495964004	BRGWC-17S	EPA 7470A	567375	EPA 7470A	567456
92495964005	BRGWC-36S	EPA 7470A	567375	EPA 7470A	567456
92495964006	BRGWC-37S	EPA 7470A	567375	EPA 7470A	567456
92495964007	FB-1	EPA 7470A	567375	EPA 7470A	567456
92495964008	DUP-2	EPA 7470A	567375	EPA 7470A	567456
92495964009	BRGWC-38S	EPA 7470A	568007	EPA 7470A	568119
92495964001	BRGWC-35S	SM 2450C-2011	567372		
92495964002	BRGWC-34S	SM 2450C-2011	567372		
92495964003	BRGWC-33S	SM 2450C-2011	567372		
92495964004	BRGWC-17S	SM 2450C-2011	567372		
92495964005	BRGWC-36S	SM 2450C-2011	567372		
92495964006	BRGWC-37S	SM 2450C-2011	567372		
92495964007	FB-1	SM 2450C-2011	567372		
92495964008	DUP-2	SM 2450C-2011	567372		
92495964009	BRGWC-38S	SM 2450C-2011	567882		
92495964001	BRGWC-35S	EPA 300.0 Rev 2.1 1993	567607		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH E NETWORK
Pace Project No.: 92495964

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92495964002	BRGWC-34S	EPA 300.0 Rev 2.1 1993	567607		
92495964003	BRGWC-33S	EPA 300.0 Rev 2.1 1993	567607		
92495964004	BRGWC-17S	EPA 300.0 Rev 2.1 1993	567607		
92495964005	BRGWC-36S	EPA 300.0 Rev 2.1 1993	567607		
92495964006	BRGWC-37S	EPA 300.0 Rev 2.1 1993	567607		
92495964007	FB-1	EPA 300.0 Rev 2.1 1993	567607		
92495964008	DUP-2	EPA 300.0 Rev 2.1 1993	567607		
92495964009	BRGWC-38S	EPA 300.0 Rev 2.1 1993	567943		

REPORT OF LABORATORY ANALYSIS

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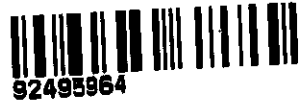


Sample Condition Upon Receipt

Client Name: G. Alower

WO#: 92495964

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



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

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used 214 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 11 Biological Tissue is Frozen: Yes No
Temp should be above freezing to 6°C

Comments: _____
Date and initials of person examining contents: 9/15/2008

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 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>W</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, W-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 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: _____

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)



CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY: Affix Workorder/Login Label Here or Use Pace Workorder Number or MTIL Log-In Number Here

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

ALL SHADED AREAS are for LAB USE ONLY

Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Marler Road
 Atlanta, GA 30339
 Report To: Jigu Abraham
 Email To: scanivocet@southernco.com
 Site Collection Info/Address: Plant Branch

State: Georgia City: Milledgeville Time Zone Collected:
 Project Name: Plant Branch E Network
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Quote #
 Turnaround Date Required:
 Rush: Same Day Next Day
 1-2 Day 3 Day 4 Day 5 Day
 (Fee/Service Charges Apply)

Matrix *
 Comp / Grab
 Date
 Time
 Composite End
 Date
 Time
 pH
 % of
 Cms

* Matrix Codes (insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (O), Waste (WP), Air (AR), Tissue (TS), Bioslash (B), Water (WT), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	pH	% of Cms
BRGWC-355	GW	G	9-16-2020	0905			5.96	7
BRGWC-345	GW	G	9-16-2020	0959			5.81	5
BRGWC-335	GW	G	9-16-2020	1102			4.78	5
BRGWC-175	GW	G	9-16-2020	1230			6.26	5
BRGWC-365	GW	G	9-16-2020	1521			5.58	5
BRGWC-375	GW	G	9-16-2020	1609			5.84	5
FB-1	W	G	9-16-2020	1010			-	5
DVP-2	GW	G	9-16-2020	-			-	5

Container, Preservative, Type **
 1
 1
 1
 1
 1
 1

Analyses
 Metals 6010/6020/7470 - see comments
 TDS
 Chloride/Fluoride/Sulfate
 Radium 226,228

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

Lab USE ONLY:
 Lab Sample # / Comments:
 + 2 Radium
 9245964

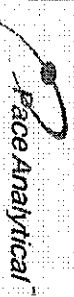
Requisitioned By/Company: (Signature)
 Date/Time: 9-17-2020/0800
 Received By/Company: (Signature)
 Date/Time: 9/17/2020/1000

Requisitioned By/Company: (Signature)
 Date/Time: 9-17-2020/0800
 Received By/Company: (Signature)
 Date/Time: 9/17/2020/1000

MTIL LAB USE ONLY
 Lab Sample Temperature Info:
 Term Blank Received: Y/N/NA
 Cooler 1 Temp Logged: Y/N/NA
 Cooler 1 Therm Corr. Factor: Y/N/NA
 Cooler 1 Corrected Temp: Y/N/NA
 Comments:

Lab Tracking #:
 Samples received via:
 FEDEX UPS Client Courier Pace Courier

Non Conformance(s):
 YES / NO of 1



CHAIN-OF-CUSTODY Analytical Request Document

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

Company: Georgia Power - Coal Combustion Residuals
 Address: 2408 Marner Road
 Atlanta, GA 30339

Report To: John Abraham
 Email To: sc5smoices@southernco.com
 Site Collection Info/Address: Plant Branch

Phone: (404) 506-7239
 Email: j.abraham@southernco.com
 Phone: (404) 506-7239
 Email: j.abraham@southernco.com

Project Name: Plant Branch E Network
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Turnaround Date Required:

Collected By (signature):
 Rush: Same Day | Next Day
 2 Day | 3 Day | 4 Day | 5 Day
 (Specific Charges Apply)
 Analytes:

* Matrix Codes (insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Sew/Solid (SL), Oil (O), Wipe (WP), Air (AR), Issue (IS), Bioassay (B), Water (WT), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected for Composite		Composite End		pH	# of Ctns
			Date Start	Time	Date	Time		
BRGWC-385	GW	G	9-17-2020	1126			9.75	

Metals/As, B, Ba, Be, Ca, Cd, Co, Cr, Mo, Pb, Sb, Se, Li, Ti, Hg	Type of Ice Used:	Wet	Slue	Dry	None	Samples received via:		Date/TIME
						FED/EX	Client Courier	
	Packing Material Used:							
	Batchem sample(s) screened (<500 ppm):	Y	N	NA				

LAB USE ONLY - Affix Workorder/Login Label Here or Use Pace Workorder Number or
 MTIL Log-In Number Here

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type:

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Analyses:

Lab Profile/Line:

Lab Sample Receipt Checklist:	Y	N	NA
Custody Seal Present/Intact:	Y	N	NA
Custody Signatures Present:	Y	N	NA
Collector Signature Present:	Y	N	NA
Bottle Intact:	Y	N	NA
Correct Bottles:	Y	N	NA
Surficial Volume:	Y	N	NA
Samples Received on Ice:	Y	N	NA
VOL - Headspace Acceptable:	Y	N	NA
USDA Registered Soil:	Y	N	NA
Sampler in Holding Time:	Y	N	NA
Residual Chloride Present:	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable:	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present:	Y	N	NA
Lead Acetate Strip:	Y	N	NA

Metals 6010/6020/7470 - see comments

TDS

Chloride/Fluoride/Sulfate

Radium 226.228

LAB USE ONLY:

Lab Sample # / Comments:
62249564
001

Relinquished by/Company (Signature): <u> </u>	Date/TIME: 9-18-2020/10800	Relinquished by/Company (Signature): <u> </u>	Date/TIME: 9/17/20/105
Relinquished by/Company (Signature): <u> </u>	Date/TIME: <u> </u>	Relinquished by/Company (Signature): <u> </u>	Date/TIME: <u> </u>

Relinquished by/Company (Signature): <u> </u>	Date/TIME: <u> </u>	Relinquished by/Company (Signature): <u> </u>	Date/TIME: <u> </u>
--	------------------------	--	------------------------

October 12, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH BCD ASSESSMENT RADS
Pace Project No.: 92496249

Dear Joju Abraham:

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



Kevin Herring
kevin.herring@pacelabs.com
1(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta
Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BRANCH BCD ASSESSMENT RADS
Pace Project No.: 92496249

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: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92496249

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92496249001	PZ-51S	Water	09/17/20 12:44	09/18/20 10:15
92496249002	PZ-51I	Water	09/17/20 13:02	09/18/20 10:15

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92496249

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92496249001	PZ-51S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92496249002	PZ-51I	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92496249

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92496249001	PZ-51S					
EPA 9315	Radium-226	0.241 ± 0.236 (0.445) C:80% T:NA	pCi/L		09/30/20 09:00	
EPA 9320	Radium-228	0.711 ± 0.513 (1.00) C:65% T:78%	pCi/L		10/06/20 11:53	
Total Radium Calculation	Total Radium	0.952 ± 0.749 (1.45)	pCi/L		10/07/20 15:56	
92496249002	PZ-51I					
EPA 9315	Radium-226	0.798 ± 0.353 (0.410) C:93% T:NA	pCi/L		09/30/20 09:00	
EPA 9320	Radium-228	0.960 ± 0.553 (1.02) C:64% T:77%	pCi/L		10/06/20 11:52	
Total Radium Calculation	Total Radium	1.76 ± 0.906 (1.43)	pCi/L		10/07/20 16:11	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92496249

Sample: PZ-51S **Lab ID: 92496249001** Collected: 09/17/20 12:44 Received: 09/18/20 10:15 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 ± 0.236 (0.445) C:80% T:NA	pCi/L	09/30/20 09:00	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.711 ± 0.513 (1.00) C:65% T:78%	pCi/L	10/06/20 11:53	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	0.952 ± 0.749 (1.45)	pCi/L	10/07/20 15:56	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92496249

Sample: PZ-511 **Lab ID: 92496249002** Collected: 09/17/20 13:02 Received: 09/18/20 10:15 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	0.798 ± 0.353 (0.410) C:93% T:NA	pCi/L	09/30/20 09:00	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	0.960 ± 0.553 (1.02) C:64% T:77%	pCi/L	10/06/20 11:52	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	1.76 ± 0.906 (1.43)	pCi/L	10/07/20 16:11	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92496249

QC Batch: 415402

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92496249001, 92496249002

METHOD BLANK: 2008971

Matrix: Water

Associated Lab Samples: 92496249001, 92496249002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0214 ± 0.170 (0.482) C:94% T:NA	pCi/L	09/30/20 08:23	

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: BRANCH BCD ASSESSMENT RADS

Pace Project No.: 92496249

QC Batch: 415403

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92496249001, 92496249002

METHOD BLANK: 2008973

Matrix: Water

Associated Lab Samples: 92496249001, 92496249002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.789 ± 0.460 (0.832) C:67% T:72%	pCi/L	10/06/20 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.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: BRANCH BCD ASSESSMENT RADS
Pace Project No.: 92496249

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.

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRANCH BCD ASSESSMENT RADS
Pace Project No.: 92496249

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92496249001	PZ-51S	EPA 9315	415402		
92496249002	PZ-51I	EPA 9315	415402		
92496249001	PZ-51S	EPA 9320	415403		
92496249002	PZ-51I	EPA 9320	415403		
92496249001	PZ-51S	Total Radium Calculation	417460		
92496249002	PZ-51I	Total Radium Calculation	417462		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 92496249

Client Name: GA Power



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

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

Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used 214 Type of Ice: Wet Blue None Samples on ice cooling process has begun

Cooler Temperature 3.8

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/17/12 OCOK

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 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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked.	<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 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: _____

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)



Document Name:
Bottle Identification Form (BIF)
Document No.:
F-CAR-CS-043-Rev.00

Document Issued: March 14, 2019
Page 1 of 1
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.

Project #

WO#: 92496249

PM: KLH1

Due Date: 10/09/20

CLIENT: GA-GA Power

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/BO15 (water) DOC, LLHg

* Bottom half of box is to list number of bottle

Matrix	Item#	BP4U-125 mL Plastic Unpreserved (N/A) (C-)	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) (C-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (C-)	WGFLU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (C-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (C-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)	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)	BP9A-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																											
	2																											
	3																											
	4																											
	5																											
	6																											
	7																											
	8																											
	9																											
	10																											
	11																											
	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 Out of hold, incorrect preservative, out of temp, incorrect containers.



CHAIN-OF-CUSTODY Analytical Request Document

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

Company: Georgia Power - Coal Combustion Residuals

Address: 2480 Maner Road

Atlanta, GA 30339

Report To: Joju Abraham

Billing Information:
 Email To: scstivoc@southernco.com

Copy To: Golder

Site Collection Info/Address: Plant Branch

Phone: (404) 506-7239

Email: jbrabham@southernco.com

State: Georgia City: Milledgeville Time Zone: Eastern

Phone: (404) 506-7239

Email: jbrabham@southernco.com

Project Name: Plant Branch BCD Assessment
 Project # CCR 3rd Semi-Annual

Collected By (Print): Travis Martinez

Collected By (Signature): *Travis Martinez*

Purchase Order #
 Quote #

Andreas McClure

Pace Project Manager:
 kevin.herring@pacelabs.com

Immediately Packed on Ice:
 Yes No

Field Filtered (if applicable):
 Yes No

Analysis: _____

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

Customer Sample ID

Matrix *

Comp / Grab / Collected for Composite

Composite End

pH # of Cms

PZ-51s	GW	G	9-17-2020	1244	5.777	
PZ-51t	GW	G	9-17-2020	1302	4.935	

LAB USE ONLY - Affix Workorder/Login Label Here or Use Pace Workorder Number or MTL Log-In Number Here

ALL SHADED AREAS are for LAB USE ONLY

Container	Preservative Type **	1	2	3	4	5	6	7	8	9	10

Lab Project Manager: _____

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) lactic acid, (10) acetic acid, (11) ammonium sulfate, (12) ammonium hydroxide, (13) TSP, (14) Unpreserved, (15) Other

Analyses	1	2	3	4	5	6	7	8	9	10	11	12
Metals 6010/6020/7470 - see comments	X											
TDS	X											
Chloride/Fluoride/Sulfate	X											
Radium 226.228	X											

LAB USE ONLY: Lab Sample # / Comments: **42 Radium**

(Metals) As, B, Ba, Be, Ca, Cd, Co, Cr, Mo, Pb, Sb, Se, U, Ti, Hg

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

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

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

Lab Tracking #:

Samples received via: FEDEX UPS Client Courier Pace Courier

Date/Time: 9/17/2019 10:15

MTLL LAB USE ONLY

LAB Sample Temperature Info: Temp Blank Received: Y N NA

Order 1 Temp Upon Receipt: ___oc
 Order 1 Therm Corr: Fudge ___oc
 Order 1 Corrected Temp: ___oc

Retinquished by/Company (Signature)	Date/Time	Received by/Company (Signature)	Date/Time	Received by/Company (Signature)	Date/Time	Non Conformance(s)
<i>Joju Abraham</i>	9-18-2020 10:00	<i>Kevin Herring</i>	9/17/2019 10:15			

Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.



Test: Ra-226
Analyst: LAL
Date: 9/29/2020
Worklist: 56346
Matrix: DW

Method Blank Assessment	
MB Sample ID	2008971
MB concentration:	-0.021
M/B Counting Uncertainty:	0.170
MB MDC:	0.482
MB Numerical Performance Indicator:	-0.25
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

	LCS (Y or N)?	
	LCS56346	Y
Count Date:	9/30/2020	LCS56346
Spike I.D.:	19-033	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.044	24.044
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.504	0.508
Target Conc. (pCi/L, g, F):	4.774	4.731
Uncertainty (Calculated):	0.057	0.057
Result (pCi/L, g, F):	5.388	4.719
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.860	0.780
Numerical Performance Indicator:	1.40	-0.03
Percent Recovery:	112.87%	99.74%
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.:	LCS56346
Duplicate Sample I.D.:	LCS56346
Sample Result (pCi/L, g, F):	5.388
Sample Duplicate Result (pCi/L, g, F):	0.860
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	4.719
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.780
Are sample and/or duplicate results below RL?	NO
Duplicate Numerical Performance Indicator:	1.129
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	12.34%
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):		
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 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:

Qwlad 10/1/2020
LAM 10/1/2020

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow

Test: Ra-226
Analyst: LAL
Date: 9/29/2020
Worklist: 56346
Matrix: DW

Method Blank Assessment	
MB Sample ID	2008971
MB concentration:	-0.021
M/B Counting Uncertainty:	0.170
MB MDC:	0.482
MB Numerical Performance Indicator:	-0.25
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	
	LCSD56346	N
Count Date:	9/30/2020	LCSD56346
Spike I.D.:	19-033	
Decay Corrected Spike Concentration (pCi/mL):	24.044	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.504	
Target Conc. (pCi/L, g, F):	4.774	
Uncertainty (Calculated):	0.057	
Result (pCi/L, g, F):	5.388	
LCSD/LCSD Counting Uncertainty (pCi/L, g, F):	0.860	
Numerical Performance Indicator:	1.40	
Percent Recovery:	112.87%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	125%	
Lower % Recovery Limits:	75%	

Duplicate Sample Assessment	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Sample I.D.:	92496249001
Duplicate Sample I.D.:	92496249001DUP
Sample Result (pCi/L, g, F):	0.241
Sample Result Counting Uncertainty (pCi/L, g, F):	0.234
Sample Duplicate Result (pCi/L, g, F):	0.452
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.344
Are sample and/or duplicate results below RL?	See Below ##
Duplicate Numerical Performance Indicator:	-0.992
Duplicate RPD:	60.82%
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:

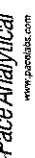
~~Batch number re-prepared due to unacceptable precision.~~ N/A

LAM 10/1/2020

(Handwritten signature)

LAM 10/1/2020

Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228
Analyst: VAL
Date: 9/29/2020
Worklist: 56347
Matrix: WT

Method Blank Assessment	
MB Sample ID	2008973
MB concentration:	0.789
MB 2 Sigma CSU:	0.460
MB MDC:	0.832
MB Numerical Performance Indicator:	3.36
MB Status vs Numerical Indicator:	Fail*
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment		
LCS#	Y or N?	N
LCS56347		LCS56347
Count Date:	10/6/2020	
Spike I.D.:	20-030	
Decay Corrected Spike Concentration (pCi/mL):	38.131	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.814	
Target Conc. (pCi/L, g, F):	4.687	
Uncertainty (Calculated):	0.230	
Result (pCi/L, g, F):	6.664	
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.522	
Numerical Performance Indicator:	2.52	
Percent Recovery:	142.18%	
Status vs Numerical Indicator:	Warning	
Status vs Recovery:	Fail High**	
Upper % Recovery Limits:	135%	
Lower % Recovery Limits:	60%	

Duplicate Sample Assessment	
Sample I.D.:	92496249001
Duplicate Sample I.D.:	92496249001DUP
Sample Result (pCi/L, g, F):	0.711
Sample 2 Sigma CSU (pCi/L, g, F):	0.513
Sample Duplicate Result (pCi/L, g, F):	0.232
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.545
Are sample and/or duplicate results below RL?	See Below #
Duplicate Numerical Performance Indicator:	1.254
Duplicate RPD:	101.60%
Duplicate Status vs Numerical Indicator:	Pass
Duplicate Status vs RPD:	Fail***
% RPD Limit:	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.
**if all sample results are below MDC, the batch is acceptable, otherwise this batch must be re-prepped due to LCS failure.

Rechecked by [Signature]

one tapeport NIT 63 acceptable for all WT batch

Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
Sample Collection Date: Sample I.D.: Sample MS 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 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: 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 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 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:

October 01, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on September 18, 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
- Pace Analytical Services - Peachtree Corners, GA

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

Sincerely,



Tyler Forney for
Kevin Herring
kevin.herring@pacelabs.com
1(704)875-9092
HORIZON Database Administrator

Enclosures

cc: Daniela Herrera, Golder
Ben Hodges, Georgia Power
Jimmy Jones, Golder Associates Inc.
Kristen Jurinko
Julie Lehrman, Golder Associates Inc.
Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta
Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

Pace Analytical Services Charlotte

9800 Kinsey 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

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, 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: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92496260001	PZ-51S	Water	09/17/20 12:44	09/18/20 10:15
92496260002	PZ-51I	Water	09/17/20 13:02	09/18/20 10:15

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRANCH BCD ASSESSMENT

Pace Project No.: 92496260

Lab ID	Sample ID	Method	Analysts	Analytes Reported
92496260001	PZ-51S	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	FFP	1
		SM 2450C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92496260002	PZ-51I	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	FFP	1
		SM 2450C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	BRJ	3

PASI-A = Pace Analytical Services - Asheville

PASI-C = Pace Analytical Services - Charlotte

PASI-GA = Pace Analytical Services - Peachtree Corners, GA

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92496260001	PZ-51S					
	pH	5.77	Std. Units		09/18/20 11:29	
EPA 6010D	Calcium	7.7	mg/L	1.0	09/25/20 19:05	
EPA 6020B	Antimony	0.00043J	mg/L	0.0030	09/23/20 19:53	
EPA 6020B	Barium	0.033	mg/L	0.010	09/23/20 19:53	
EPA 6020B	Boron	0.0063J	mg/L	0.10	09/24/20 14:02	
EPA 6020B	Cobalt	0.0062	mg/L	0.0050	09/23/20 19:53	
SM 2450C-2011	Total Dissolved Solids	101	mg/L	10.0	09/21/20 16:29	
EPA 300.0 Rev 2.1 1993	Chloride	4.6	mg/L	1.0	09/22/20 13:00	
EPA 300.0 Rev 2.1 1993	Fluoride	0.062J	mg/L	0.10	09/22/20 13:00	
EPA 300.0 Rev 2.1 1993	Sulfate	0.53J	mg/L	1.0	09/22/20 13:00	
92496260002	PZ-51I					
	pH	4.93	Std. Units		09/18/20 11:29	
EPA 6010D	Calcium	168	mg/L	1.0	09/25/20 19:22	
EPA 6020B	Barium	0.015	mg/L	0.010	09/23/20 19:59	
EPA 6020B	Beryllium	0.000096J	mg/L	0.0030	09/24/20 17:27	
EPA 6020B	Boron	0.43	mg/L	0.10	09/24/20 17:27	
EPA 6020B	Cadmium	0.033	mg/L	0.0025	09/23/20 19:59	
EPA 6020B	Chromium	0.00098J	mg/L	0.010	09/23/20 19:59	
EPA 6020B	Cobalt	0.022	mg/L	0.0050	09/23/20 19:59	
EPA 6020B	Lead	0.00036J	mg/L	0.0050	09/23/20 19:59	
EPA 6020B	Lithium	0.021J	mg/L	0.030	09/24/20 17:27	
SM 2450C-2011	Total Dissolved Solids	1600	mg/L	10.0	09/21/20 16:29	
EPA 300.0 Rev 2.1 1993	Chloride	10.5	mg/L	1.0	09/22/20 13:15	
EPA 300.0 Rev 2.1 1993	Sulfate	1030	mg/L	21.0	09/22/20 19:09	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

Sample: PZ-51S		Lab ID: 92496260001		Collected: 09/17/20 12:44		Received: 09/18/20 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	5.77	Std. Units			1		09/18/20 11:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	7.7	mg/L	1.0	0.070	1	09/24/20 14:17	09/25/20 19:05	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	0.00043J	mg/L	0.0030	0.00028	1	09/23/20 13:53	09/23/20 19:53	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/23/20 13:53	09/23/20 19:53	7440-38-2	
Barium	0.033	mg/L	0.010	0.00071	1	09/23/20 13:53	09/23/20 19:53	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/23/20 13:53	09/24/20 14:02	7440-41-7	
Boron	0.0063J	mg/L	0.10	0.0052	1	09/23/20 13:53	09/24/20 14:02	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/23/20 13:53	09/23/20 19:53	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/23/20 13:53	09/23/20 19:53	7440-47-3	
Cobalt	0.0062	mg/L	0.0050	0.00038	1	09/23/20 13:53	09/23/20 19:53	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/23/20 13:53	09/23/20 19:53	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	09/23/20 13:53	09/24/20 14:02	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/23/20 13:53	09/23/20 19:53	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/23/20 13:53	09/23/20 19:53	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/23/20 13:53	09/23/20 19:53	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/22/20 11:15	09/23/20 09:44	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	101	mg/L	10.0	10.0	1		09/21/20 16:29		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	4.6	mg/L	1.0	0.60	1		09/22/20 13:00	16887-00-6	
Fluoride	0.062J	mg/L	0.10	0.050	1		09/22/20 13:00	16984-48-8	
Sulfate	0.53J	mg/L	1.0	0.50	1		09/22/20 13:00	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

Sample: PZ-511		Lab ID: 92496260002		Collected: 09/17/20 13:02		Received: 09/18/20 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	4.93	Std. Units			1		09/18/20 11:29		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A									
Pace Analytical Services - Peachtree Corners, GA									
Calcium	168	mg/L	1.0	0.070	1	09/24/20 14:17	09/25/20 19:22	7440-70-2	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Pace Analytical Services - Peachtree Corners, GA									
Antimony	ND	mg/L	0.0030	0.00028	1	09/23/20 13:53	09/23/20 19:59	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/23/20 13:53	09/23/20 19:59	7440-38-2	
Barium	0.015	mg/L	0.010	0.00071	1	09/23/20 13:53	09/23/20 19:59	7440-39-3	
Beryllium	0.000096J	mg/L	0.0030	0.000046	1	09/23/20 13:53	09/24/20 17:27	7440-41-7	
Boron	0.43	mg/L	0.10	0.0052	1	09/23/20 13:53	09/24/20 17:27	7440-42-8	
Cadmium	0.033	mg/L	0.0025	0.00012	1	09/23/20 13:53	09/23/20 19:59	7440-43-9	
Chromium	0.00098J	mg/L	0.010	0.00055	1	09/23/20 13:53	09/23/20 19:59	7440-47-3	
Cobalt	0.022	mg/L	0.0050	0.00038	1	09/23/20 13:53	09/23/20 19:59	7440-48-4	
Lead	0.00036J	mg/L	0.0050	0.000036	1	09/23/20 13:53	09/23/20 19:59	7439-92-1	
Lithium	0.021J	mg/L	0.030	0.00081	1	09/23/20 13:53	09/24/20 17:27	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/23/20 13:53	09/23/20 19:59	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/23/20 13:53	09/23/20 19:59	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/23/20 13:53	09/23/20 19:59	7440-28-0	
7470 Mercury									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Peachtree Corners, GA									
Mercury	ND	mg/L	0.00050	0.000078	1	09/22/20 11:15	09/23/20 09:46	7439-97-6	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011									
Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	1600	mg/L	10.0	10.0	1		09/21/20 16:29		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993									
Pace Analytical Services - Asheville									
Chloride	10.5	mg/L	1.0	0.60	1		09/22/20 13:15	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/22/20 13:15	16984-48-8	
Sulfate	1030	mg/L	21.0	10.5	21		09/22/20 19:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

QC Batch: 568747 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92496260001, 92496260002

METHOD BLANK: 3013294 Matrix: Water
Associated Lab Samples: 92496260001, 92496260002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.070	09/25/20 18:16	

LABORATORY CONTROL SAMPLE: 3013295

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	0.98J	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3013296 3013297

Parameter	Units	3013296		3013297		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495904004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Calcium	mg/L	75.8	1	1	74.9	75.7	-84	-9	75-125	1	20 M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

QC Batch: 568417 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92496260001, 92496260002

METHOD BLANK: 3011604 Matrix: Water
Associated Lab Samples: 92496260001, 92496260002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	09/23/20 18:33	
Arsenic	mg/L	ND	0.0050	0.00078	09/23/20 18:33	
Barium	mg/L	ND	0.010	0.00071	09/23/20 18:33	
Beryllium	mg/L	ND	0.0030	0.000046	09/23/20 18:33	
Boron	mg/L	ND	0.10	0.0052	09/23/20 18:33	
Cadmium	mg/L	ND	0.0025	0.00012	09/23/20 18:33	
Chromium	mg/L	ND	0.010	0.00055	09/23/20 18:33	
Cobalt	mg/L	ND	0.0050	0.00038	09/23/20 18:33	
Lead	mg/L	ND	0.0050	0.000036	09/23/20 18:33	
Lithium	mg/L	ND	0.030	0.00081	09/23/20 18:33	
Molybdenum	mg/L	ND	0.010	0.00069	09/23/20 18:33	
Selenium	mg/L	ND	0.010	0.0016	09/23/20 18:33	
Thallium	mg/L	ND	0.0010	0.00014	09/23/20 18:33	

LABORATORY CONTROL SAMPLE: 3011605

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	0.098	98	80-120	
Barium	mg/L	0.1	0.099	99	80-120	
Beryllium	mg/L	0.1	0.10	102	80-120	
Boron	mg/L	1	1.0	104	80-120	
Cadmium	mg/L	0.1	0.10	101	80-120	
Chromium	mg/L	0.1	0.10	105	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	0.11	106	80-120	
Molybdenum	mg/L	0.1	0.10	103	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Thallium	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3011606 3011607

Parameter	Units	92495876001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	ND	0.1	0.1	0.10	0.099	101	99	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.097	0.095	97	95	75-125	1	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD ASSESSMENT

Pace Project No.: 92496260

Parameter	Units	92495876001		3011606		3011607		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Barium	mg/L	0.030	0.1	0.1	0.13	0.13	96	95	75-125	1	20			
Beryllium	mg/L	0.00012J	0.1	0.1	0.098	0.095	98	95	75-125	2	20			
Boron	mg/L	0.0065J	1	1	1.0	0.98	100	97	75-125	3	20			
Cadmium	mg/L	0.00016J	0.1	0.1	0.10	0.098	100	98	75-125	2	20			
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	103	103	75-125	0	20			
Cobalt	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	1	20			
Lead	mg/L	0.00065J	0.1	0.1	0.098	0.099	97	99	75-125	2	20			
Lithium	mg/L	0.0014J	0.1	0.1	0.10	0.10	101	100	75-125	0	20			
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20			
Selenium	mg/L	ND	0.1	0.1	0.097	0.096	96	95	75-125	1	20			
Thallium	mg/L	ND	0.1	0.1	0.096	0.097	96	97	75-125	1	20			

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QUALITY CONTROL DATA

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

QC Batch: 568004	Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A	Analysis Description: 7470 Mercury
	Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92496260001, 92496260002

METHOD BLANK: 3009596 Matrix: Water
Associated Lab Samples: 92496260001, 92496260002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000078	09/23/20 08:40	

LABORATORY CONTROL SAMPLE: 3009597

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0025	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3009598 3009599

Parameter	Units	3009598		3009599		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	0.0025	0.0024	98	94	75-125	5	20	

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QUALITY CONTROL DATA

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

QC Batch: 567882 Analysis Method: SM 2450C-2011
QC Batch Method: SM 2450C-2011 Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92496260001, 92496260002

METHOD BLANK: 3009251 Matrix: Water
Associated Lab Samples: 92496260001, 92496260002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	09/21/20 16:27	

LABORATORY CONTROL SAMPLE: 3009252

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	412	103	84-108	

SAMPLE DUPLICATE: 3009253

Parameter	Units	92495653008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2090	2130	2	10	

SAMPLE DUPLICATE: 3009254

Parameter	Units	92495870011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	25.0	18.0	33	10	D6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

QC Batch: 567943 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: 92496260001, 92496260002

METHOD BLANK: 3009484 Matrix: Water
Associated Lab Samples: 92496260001, 92496260002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	09/22/20 07:03	
Fluoride	mg/L	ND	0.10	0.050	09/22/20 07:03	
Sulfate	mg/L	ND	1.0	0.50	09/22/20 07:03	

LABORATORY CONTROL SAMPLE: 3009485

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	54.8	110	90-110	
Fluoride	mg/L	2.5	2.7	110	90-110	
Sulfate	mg/L	50	54.9	110	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3009486 3009487

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495894011 Result	Spike Conc.	Spike Conc.	Result								
Chloride	mg/L	105	50	50	152	155	94	101	90-110	2	10		
Fluoride	mg/L	0.10	2.5	2.5	2.7	2.7	103	104	90-110	1	10		
Sulfate	mg/L	209	50	50	255	261	92	103	90-110	2	10		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3009488 3009489

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92495900016 Result	Spike Conc.	Spike Conc.	Result								
Chloride	mg/L	ND	50	50	52.8	52.5	106	105	90-110	1	10		
Fluoride	mg/L	ND	2.5	2.5	2.6	2.6	105	104	90-110	1	10		
Sulfate	mg/L	ND	50	50	52.6	52.2	105	104	90-110	1	10		

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: BRANCH BCD ASSESSMENT

Pace Project No.: 92496260

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

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: BRANCH BCD ASSESSMENT
Pace Project No.: 92496260

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92496260001	PZ-51S				
92496260002	PZ-51I				
92496260001	PZ-51S	EPA 3010A	568747	EPA 6010D	568813
92496260002	PZ-51I	EPA 3010A	568747	EPA 6010D	568813
92496260001	PZ-51S	EPA 3005A	568417	EPA 6020B	568454
92496260002	PZ-51I	EPA 3005A	568417	EPA 6020B	568454
92496260001	PZ-51S	EPA 7470A	568004	EPA 7470A	568115
92496260002	PZ-51I	EPA 7470A	568004	EPA 7470A	568115
92496260001	PZ-51S	SM 2450C-2011	567882		
92496260002	PZ-51I	SM 2450C-2011	567882		
92496260001	PZ-51S	EPA 300.0 Rev 2.1 1993	567943		
92496260002	PZ-51I	EPA 300.0 Rev 2.1 1993	567943		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: GA Power

WO#: 92496260



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

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

Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used 2.14 Type of Ice: Wet Blue None Samples on ice cooling process has begun

Cooler Temperature 3.8 Biological Tissue is Frozen: Yes No
Temp should be above freezing to 6°C Comments: _____

Date and Initials of person examining contents: 9/17/2006

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 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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked.	<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 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: _____

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)



Document Name:
Bottle Identification Form (BIF)
Document No.:
F-CAR-CS-043-Rev.00

Document issued: March 14, 2019
Page 1 of 1
Issuing Authority:
Pace Carolina Quality Control

WO# : 92496260

PM: KLH1 Due Date: 10/02/20
CLIENT: GA-GA Power

* 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/BD15 (water) DOC, LLHg

* Bottom half of box is to list number of bottle

Matrix	Item#	BP4U-125 mL Plastic Unpreserved (N/A) (C-)	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) (C-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (C-)	WGFLU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (C-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (C-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)	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)	SP2T-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)	AG6U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	
1																												
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

BPM

22

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.



CHAIN-OF-CUSTODY Analytical Request Document

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

Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Maner Road
 Atlanta, GA 30339

Billing Information:
 Email To: scsinvocex@southernco.com

Report To: Jolix Abraham
 Site Collection Info/Address: Plant Branch

Phone: (404) 506-7239
 Email: j.abraham@southernco.com
 State: Georgia City: Milledgeville Time Zone Collected

Project Name: Plant Branch BCD Assessment
 Project # CCR 3rd Semi-Annual
 Purchase Order #
 Page Project Manager: kevin.herring@pacelabs.com

Collected By (signature):
 Rush
 Immediately Packed on ice:
 Yes No

Field Filtered (if applicable):
 Yes No
 Analysis: _____

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

Customer Sample ID	Matrix *	Comp / Grab	Collected for Composite (Start)		Composite End		pH	# of Cns
			Date	Time	Date	Time		
PZ-51s	GW	G	9-17-2020	1344			5.777	
PZ-51t	GW	G	9-17-2020	1302			4.935	

Type of Ice Used:	Wet	Blue	Dry	None	Radium sample(s) screened (<500 cpm):	
					Y	N NA
Packing Material Used:						

LAB USE ONLY - Affix Workorder/Login Label Here or List Pace Workorder Number or MTIL Log-In Number Here

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type **	1	2	3	4	5	6	7	8	9	10	11	12
** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) lithium, (10) ascorbic acid, (11) ammonium sulfate, (12) ammonium hydroxide, (13) TSP, (14) Unpreserved, (15) Other												

Lab Project Manager: _____

Analyses

Metals 6010/6020/7470 - see comments	TDS	Chloride/Fluoride/Sulfate	Radium 226.228
X	X	X	X

Lab Profile/Line: _____

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

LAB USE ONLY:
 Lab Sample # / Comments: 42 Radium 02401660

LAB Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID#: _____
 Cooler 1 Temp Upon Receipt: ___OC
 Cooler 1 Therm Corr. Factor: ___OC
 Cooler 1 Corrected Temp: ___OC
 Comments: _____

Lab Tracking #: _____

SHORT HOLDS PRESENT (<72 hours): Y N NA

Relinquished by/Company (Signature)	Date/Time	Received by/Company (Signature)	Date/Time
Jolix Abraham	9-18-2020 0800	Kevin Herring	9-17-2020 1015
_____	_____	_____	_____

Relinquished by/Company (Signature): _____ Date/Time: _____

Received by/Company (Signature): _____ Date/Time: _____

Relinquished by/Company (Signature): _____ Date/Time: _____

Received by/Company (Signature): _____ Date/Time: _____

Non-Conformance(s): _____ Page 1 of 1

October 29, 2020

Kelley Sharpe
ARCADIS - Atlanta
2839 Paces Ferry Rd
STE 900
Atlanta, GA 30339

RE: Project: Plant Branch CCR-Ash Pond
Pace Project No.: 92501802

Dear Kelley Sharpe:

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

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

Sincerely,



Maiya Parks
maiya.parks@pacelabs.com
(770)734-4200
Project Manager

Enclosures

cc: Ben Hodges, Georgia Power
Warren Johnson, ARCADIS - Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Branch CCR-Ash Pond
Pace Project No.: 92501802

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

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, 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 Branch CCR-Ash Pond
Pace Project No.: 92501802

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92501802001	LR-1	Water	10/22/20 12:10	10/22/20 15:14
92501802002	LR+8	Water	10/22/20 12:25	10/22/20 15:14
92501802003	LR+9	Water	10/22/20 12:30	10/22/20 15:14
92501802004	LR+10	Water	10/22/20 12:38	10/22/20 15:14

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Branch CCR-Ash Pond
Pace Project No.: 92501802

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92501802001	LR-1	EPA 6010D	DRB	4	PASI-GA
		EPA 6020B	KH	3	PASI-GA
		SM 2450C-2011	AW1	1	PASI-GA
		EPA 9040C	AW1	1	PASI-GA
		SM 2320B-2011	ECH	2	PASI-A
92501802002	LR+8	EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	DRB	4	PASI-GA
		EPA 6020B	KH	3	PASI-GA
		SM 2450C-2011	AW1	1	PASI-GA
		EPA 9040C	AW1	1	PASI-GA
92501802003	LR+9	SM 2320B-2011	ECH	2	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	DRB	4	PASI-GA
		EPA 6020B	KH	3	PASI-GA
		SM 2450C-2011	AW1	1	PASI-GA
92501802004	LR+10	EPA 9040C	AW1	1	PASI-GA
		SM 2320B-2011	ECH	2	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
		EPA 6010D	DRB	4	PASI-GA
		EPA 6020B	KH	3	PASI-GA

PASI-A = Pace Analytical Services - Asheville

PASI-GA = Pace Analytical Services - Peachtree Corners, GA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Branch CCR-Ash Pond
Pace Project No.: 92501802

Sample:	Lab ID:	Collected:	Received:	Matrix:				
LR-1	92501802001	10/22/20 12:10	10/22/20 15:14	Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP								
Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Pace Analytical Services - Peachtree Corners, GA								
Sodium	4.4	mg/L	1.0	1	10/23/20 14:00	10/24/20 00:13	7440-23-5	
Calcium	3.7	mg/L	1.0	1	10/23/20 14:00	10/24/20 00:13	7440-70-2	
Magnesium	2.0	mg/L	0.050	1	10/23/20 14:00	10/24/20 00:13	7439-95-4	
Potassium	2.7	mg/L	0.20	1	10/23/20 14:00	10/27/20 13:38	7440-09-7	M1
6020 MET ICPMS								
Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Pace Analytical Services - Peachtree Corners, GA								
Boron	ND	mg/L	0.040	1	10/23/20 14:04	10/26/20 13:50	7440-42-8	
Cadmium	ND	mg/L	0.00050	1	10/23/20 14:04	10/26/20 13:50	7440-43-9	
Cobalt	ND	mg/L	0.0050	1	10/23/20 14:04	10/26/20 13:50	7440-48-4	
2540C Total Dissolved Solids								
Analytical Method: SM 2450C-2011								
Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	59.0	mg/L	10.0	1		10/23/20 16:53		
9040 pH								
Analytical Method: EPA 9040C								
Pace Analytical Services - Peachtree Corners, GA								
pH at 25 Degrees C	7.1	Std. Units	0.10	1		10/23/20 14:57		H3,H6
2320B Alkalinity								
Analytical Method: SM 2320B-2011								
Pace Analytical Services - Asheville								
Alkalinity,Bicarbonate (CaCO3)	24.2	mg/L	5.0	1		10/28/20 13:19		
Alkalinity, Total as CaCO3	24.2	mg/L	5.0	1		10/28/20 13:19		
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0 Rev 2.1 1993								
Pace Analytical Services - Asheville								
Chloride	3.3	mg/L	1.0	1		10/25/20 22:08	16887-00-6	
Fluoride	ND	mg/L	0.10	1		10/25/20 22:08	16984-48-8	
Sulfate	2.1	mg/L	1.0	1		10/25/20 22:08	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Branch CCR-Ash Pond
Pace Project No.: 92501802

Sample: LR+8	Lab ID: 92501802002	Collected: 10/22/20 12:25	Received: 10/22/20 15:14	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP								
Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Pace Analytical Services - Peachtree Corners, GA								
Sodium	4.9	mg/L	1.0	1	10/23/20 14:00	10/24/20 00:31	7440-23-5	
Calcium	4.2	mg/L	1.0	1	10/23/20 14:00	10/24/20 00:31	7440-70-2	
Magnesium	2.1	mg/L	0.050	1	10/23/20 14:00	10/24/20 00:31	7439-95-4	
Potassium	2.8	mg/L	0.20	1	10/23/20 14:00	10/27/20 13:43	7440-09-7	
6020 MET ICPMS								
Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Pace Analytical Services - Peachtree Corners, GA								
Boron	ND	mg/L	0.040	1	10/23/20 14:04	10/26/20 14:12	7440-42-8	
Cadmium	ND	mg/L	0.00050	1	10/23/20 14:04	10/26/20 14:12	7440-43-9	
Cobalt	ND	mg/L	0.0050	1	10/23/20 14:04	10/26/20 14:12	7440-48-4	
2540C Total Dissolved Solids								
Analytical Method: SM 2450C-2011								
Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	60.0	mg/L	10.0	1		10/23/20 16:53		
9040 pH								
Analytical Method: EPA 9040C								
Pace Analytical Services - Peachtree Corners, GA								
pH at 25 Degrees C	7.2	Std. Units	0.10	1		10/23/20 15:14		H3,H6
2320B Alkalinity								
Analytical Method: SM 2320B-2011								
Pace Analytical Services - Asheville								
Alkalinity,Bicarbonate (CaCO3)	25.6	mg/L	5.0	1		10/28/20 13:25		
Alkalinity, Total as CaCO3	25.6	mg/L	5.0	1		10/28/20 13:25		
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0 Rev 2.1 1993								
Pace Analytical Services - Asheville								
Chloride	3.7	mg/L	1.0	1		10/25/20 22:54	16887-00-6	
Fluoride	ND	mg/L	0.10	1		10/25/20 22:54	16984-48-8	
Sulfate	2.5	mg/L	1.0	1		10/25/20 22:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Branch CCR-Ash Pond

Pace Project No.: 92501802

Sample: LR+9	Lab ID: 92501802003	Collected: 10/22/20 12:30	Received: 10/22/20 15:14	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP								
Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Pace Analytical Services - Peachtree Corners, GA								
Sodium	4.9	mg/L	1.0	1	10/23/20 14:00	10/24/20 00:35	7440-23-5	
Calcium	4.3	mg/L	1.0	1	10/23/20 14:00	10/24/20 00:35	7440-70-2	
Magnesium	2.1	mg/L	0.050	1	10/23/20 14:00	10/24/20 00:35	7439-95-4	
Potassium	2.9	mg/L	0.20	1	10/23/20 14:00	10/27/20 13:48	7440-09-7	
6020 MET ICPMS								
Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Pace Analytical Services - Peachtree Corners, GA								
Boron	ND	mg/L	0.040	1	10/23/20 14:04	10/26/20 14:18	7440-42-8	
Cadmium	ND	mg/L	0.00050	1	10/23/20 14:04	10/26/20 14:18	7440-43-9	
Cobalt	ND	mg/L	0.0050	1	10/23/20 14:04	10/26/20 14:18	7440-48-4	
2540C Total Dissolved Solids								
Analytical Method: SM 2450C-2011								
Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	57.0	mg/L	10.0	1		10/23/20 16:53		
9040 pH								
Analytical Method: EPA 9040C								
Pace Analytical Services - Peachtree Corners, GA								
pH at 25 Degrees C	7.2	Std. Units	0.10	1		10/23/20 15:18		H3,H6
2320B Alkalinity								
Analytical Method: SM 2320B-2011								
Pace Analytical Services - Asheville								
Alkalinity,Bicarbonate (CaCO3)	25.8	mg/L	5.0	1		10/28/20 13:31		
Alkalinity, Total as CaCO3	25.8	mg/L	5.0	1		10/28/20 13:31		
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0 Rev 2.1 1993								
Pace Analytical Services - Asheville								
Chloride	3.8	mg/L	1.0	1		10/25/20 23:10	16887-00-6	
Fluoride	ND	mg/L	0.10	1		10/25/20 23:10	16984-48-8	
Sulfate	2.6	mg/L	1.0	1		10/25/20 23:10	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Branch CCR-Ash Pond
Pace Project No.: 92501802

Sample: LR+10	Lab ID: 92501802004	Collected: 10/22/20 12:38	Received: 10/22/20 15:14	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP								
Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Pace Analytical Services - Peachtree Corners, GA								
Potassium	2.8	mg/L	0.20	1	10/23/20 14:00	10/27/20 13:54	7440-09-7	
Sodium	5.1	mg/L	1.0	1	10/23/20 14:00	10/24/20 00:49	7440-23-5	
Calcium	4.5	mg/L	1.0	1	10/23/20 14:00	10/24/20 00:49	7440-70-2	
Magnesium	2.1	mg/L	0.050	1	10/23/20 14:00	10/24/20 00:49	7439-95-4	
6020 MET ICPMS								
Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Pace Analytical Services - Peachtree Corners, GA								
Boron	ND	mg/L	0.040	1	10/23/20 14:04	10/26/20 14:24	7440-42-8	
Cadmium	ND	mg/L	0.00050	1	10/23/20 14:04	10/26/20 14:24	7440-43-9	
Cobalt	ND	mg/L	0.0050	1	10/23/20 14:04	10/26/20 14:24	7440-48-4	
2540C Total Dissolved Solids								
Analytical Method: SM 2450C-2011								
Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	59.0	mg/L	10.0	1		10/23/20 16:53		
9040 pH								
Analytical Method: EPA 9040C								
Pace Analytical Services - Peachtree Corners, GA								
pH at 25 Degrees C	7.1	Std. Units	0.10	1		10/23/20 15:20		H3,H6
2320B Alkalinity								
Analytical Method: SM 2320B-2011								
Pace Analytical Services - Asheville								
Alkalinity,Bicarbonate (CaCO3)	26.5	mg/L	5.0	1		10/28/20 13:37		
Alkalinity, Total as CaCO3	26.5	mg/L	5.0	1		10/28/20 13:37		
300.0 IC Anions 28 Days								
Analytical Method: EPA 300.0 Rev 2.1 1993								
Pace Analytical Services - Asheville								
Chloride	4.0	mg/L	1.0	1		10/25/20 23:25	16887-00-6	
Fluoride	ND	mg/L	0.10	1		10/25/20 23:25	16984-48-8	
Sulfate	2.6	mg/L	1.0	1		10/25/20 23:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Branch CCR-Ash Pond
Pace Project No.: 92501802

QC Batch: 575392 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92501802001, 92501802002, 92501802003, 92501802004

METHOD BLANK: 3045814 Matrix: Water
Associated Lab Samples: 92501802001, 92501802002, 92501802003, 92501802004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	10/24/20 00:04	
Magnesium	mg/L	ND	0.050	10/24/20 00:04	
Potassium	mg/L	ND	0.20	10/27/20 13:27	
Sodium	mg/L	ND	1.0	10/24/20 00:04	

LABORATORY CONTROL SAMPLE: 3045815

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	.98J	98	80-120	
Magnesium	mg/L	1	1.0	101	80-120	
Potassium	mg/L	1	1.0	101	80-120	
Sodium	mg/L	1	1.0	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3045816 3045817

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92501802001 Result	Spike Conc.	Spike Conc.	Result						
Calcium	mg/L	3.7	1	1	4.5	4.9	85	124	75-125	8	20
Magnesium	mg/L	2.0	1	1	2.9	3.1	92	115	75-125	8	20
Potassium	mg/L	2.7	1	1	3.8	4.1	116	137	75-125	6	20 M1
Sodium	mg/L	4.4	1	1	5.3	5.6	83	119	75-125	7	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 Branch CCR-Ash Pond
Pace Project No.: 92501802

QC Batch: 575391 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92501802001, 92501802002, 92501802003, 92501802004

METHOD BLANK: 3045807 Matrix: Water
Associated Lab Samples: 92501802001, 92501802002, 92501802003, 92501802004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	mg/L	ND	0.040	10/26/20 13:38	
Cadmium	mg/L	ND	0.00050	10/26/20 13:38	
Cobalt	mg/L	ND	0.0050	10/26/20 13:38	

LABORATORY CONTROL SAMPLE: 3045808

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	1	0.98	98	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.097	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3045809 3045810

Parameter	Units	92501802001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	ND	1	1	0.95	1.0	94	99	75-125	5	20	
Cadmium	mg/L	ND	0.1	0.1	0.094	0.095	94	95	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.092	0.095	92	94	75-125	3	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Branch CCR-Ash Pond
Pace Project No.: 92501802

QC Batch: 575357 Analysis Method: SM 2450C-2011
QC Batch Method: SM 2450C-2011 Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92501802001, 92501802002, 92501802003, 92501802004

METHOD BLANK: 3045601 Matrix: Water
Associated Lab Samples: 92501802001, 92501802002, 92501802003, 92501802004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10/23/20 16:52	

LABORATORY CONTROL SAMPLE: 3045602

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	404	101	84-108	

SAMPLE DUPLICATE: 3045603

Parameter	Units	92501618001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	375	390	4	10	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Branch CCR-Ash Pond

Pace Project No.: 92501802

QC Batch: 575360

Analysis Method: EPA 9040C

QC Batch Method: EPA 9040C

Analysis Description: 9040 pH

Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92501802001, 92501802002, 92501802003, 92501802004

SAMPLE DUPLICATE: 3045620

Parameter	Units	92501802001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.1	7.1	0	9	H3,H6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Branch CCR-Ash Pond
Pace Project No.: 92501802

QC Batch: 576297 Analysis Method: SM 2320B-2011
QC Batch Method: SM 2320B-2011 Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92501802001, 92501802002, 92501802003, 92501802004

METHOD BLANK: 3049850 Matrix: Water
Associated Lab Samples: 92501802001, 92501802002, 92501802003, 92501802004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	ND	5.0	10/28/20 12:39	
Alkalinity, Bicarbonate (CaCO ₃)	mg/L	ND	5.0	10/28/20 12:39	

LABORATORY CONTROL SAMPLE: 3049851

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	50	52.4	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3049852 3049853

Parameter	Units	92500569012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	ND	50	50	51.8	51.6	104	103	80-120	0	25	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3049854 3049855

Parameter	Units	92501837008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	146	50	50	195	197	99	104	80-120	1	25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Branch CCR-Ash Pond
Pace Project No.: 92501802

QC Batch: 575544 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: 92501802001, 92501802002, 92501802003, 92501802004

METHOD BLANK: 3046842 Matrix: Water
Associated Lab Samples: 92501802001, 92501802002, 92501802003, 92501802004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	10/25/20 21:37	
Fluoride	mg/L	ND	0.10	10/25/20 21:37	
Sulfate	mg/L	ND	1.0	10/25/20 21:37	

LABORATORY CONTROL SAMPLE: 3046843

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	52.4	105	90-110	
Fluoride	mg/L	2.5	2.7	108	90-110	
Sulfate	mg/L	50	52.4	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3046844 3046845

Parameter	Units	92501802001		MS		MSD		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result							
Chloride	mg/L	3.3	50	50	56.6	57.1	107	108	90-110	1	10			
Fluoride	mg/L	ND	2.5	2.5	2.7	2.7	106	106	90-110	0	10			
Sulfate	mg/L	2.1	50	50	55.3	55.5	106	107	90-110	0	10			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3046846 3046847

Parameter	Units	92501621017		MS		MSD		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result							
Chloride	mg/L	6.0	50	50	59.5	60.3	107	109	90-110	1	10			
Fluoride	mg/L	0.096J	2.5	2.5	2.7	2.8	105	108	90-110	2	10			
Sulfate	mg/L	224	50	50	270	271	92	93	90-110	0	10			

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Branch CCR-Ash Pond
Pace Project No.: 92501802

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

H3 Sample was received or analysis requested beyond the recognized method holding time.

H6 Analysis initiated outside of the 15 minute EPA required 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 Branch CCR-Ash Pond
Pace Project No.: 92501802

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92501802001	LR-1	EPA 3010A	575392	EPA 6010D	575424
92501802002	LR+8	EPA 3010A	575392	EPA 6010D	575424
92501802003	LR+9	EPA 3010A	575392	EPA 6010D	575424
92501802004	LR+10	EPA 3010A	575392	EPA 6010D	575424
92501802001	LR-1	EPA 3005A	575391	EPA 6020B	575422
92501802002	LR+8	EPA 3005A	575391	EPA 6020B	575422
92501802003	LR+9	EPA 3005A	575391	EPA 6020B	575422
92501802004	LR+10	EPA 3005A	575391	EPA 6020B	575422
92501802001	LR-1	SM 2450C-2011	575357		
92501802002	LR+8	SM 2450C-2011	575357		
92501802003	LR+9	SM 2450C-2011	575357		
92501802004	LR+10	SM 2450C-2011	575357		
92501802001	LR-1	EPA 9040C	575360		
92501802002	LR+8	EPA 9040C	575360		
92501802003	LR+9	EPA 9040C	575360		
92501802004	LR+10	EPA 9040C	575360		
92501802001	LR-1	SM 2320B-2011	576297		
92501802002	LR+8	SM 2320B-2011	576297		
92501802003	LR+9	SM 2320B-2011	576297		
92501802004	LR+10	SM 2320B-2011	576297		
92501802001	LR-1	EPA 300.0 Rev 2.1 1993	575544		
92501802002	LR+8	EPA 300.0 Rev 2.1 1993	575544		
92501802003	LR+9	EPA 300.0 Rev 2.1 1993	575544		
92501802004	LR+10	EPA 300.0 Rev 2.1 1993	575544		

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.

Page : 1 of 1

Section A
 Required Client Information:
 Company: Georgia Power Company
 Address:
 Email: JOHHODGE@SOUTHERNCO.COM
 Phone: (404)506-4830
 Requested Due Date: Standard TAT

Section B
 Required Project Information:
 Report To: Ben Hodges
 Copy To:
 Purchase Order #: SCS10382775
 Project Name: Branch Surface Water Sampling
 Project #:

Section C
 Invoice Information:
 Attention: Accounts Payable
 Company Name: Georgia Power Company
 Address:
 PACE QUOTE:
 PACE PROJECT MANAGER: malva.parkes@paceqlabs.com
 PACE PROFILE #:
 Regulatory Agency
 State / Location: GA

ITEM #	SAMPLE ID (A-Z, 0-9, -,) Sample IDs must be unique	MATRIX Drying Vial Vial Vial Washer Product Sorbent OI Wipe Air Other Tissue	CODE DW WT WW P SL VW WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	Preservatives						Analyses Test	Y/N	Requested Analyte Filtered (Y/N)	Residual Chlorine (Y/N)																			
						START DATE TIME	END DATE TIME				H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol					Other	Appendix IV metals (cobalt and cadmium only)	Appendix III (B, Ca, Cl, SO4, F, pH, TDS)	Major Ions (Mg, Na, K, Total alkalinity, Bicarbonate)															
1	LR-1			G	WT	10/22/20	12:40	10/22/2020	-									X	X	X																			
2	LR+8			G	WT	10/22/20	12:25	10/22/2020	-									X	X	X																			
3	LR+9			G	WT	10/22/20	12:30	10/22/2020	-									X	X	X																			
4	LR+10			G	WT	10/22/20	12:38	10/22/2020	-									X	X	X																			
5																																							
6																																							
7																																							
8																																							
9																																							
10																																							
11																																							
12																																							
ADDITIONAL COMMENTS						RELINQUISHED BY / AFFILIATION				DATE		TIME		ACCEPTED BY / AFFILIATION						DATE		TIME		SAMPLE CONDITIONS															
						Paul Towling w/ Pace				10/22/20		15:14		T. Malva w/ Pace						10/22/20		15:14		Y N Y															

W0#: 92501802

92501802

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Paul Towling
 SIGNATURE of SAMPLER: *Paul Towling*
 DATE Signed: 10/22/20

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

Sample Condition Upon Receipt



Client Name: GA POWER

WO#: 92501802

PM: MP Due Date: 10/29/20

CLIENT: GA-ArcadAtI

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 ZIPLOC

Thermometer Used TH214 Type of Ice: Ice Blue None Samples on ice, cooling process has begun

Cooler Temperature 10.8

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: KRW 10/22/20

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 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. <u>Standard</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 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
		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: _____

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 11, 2020

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: PLANT BRANCH
Pace Project No.: 92502483

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 28, 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
- Pace Analytical Services - Peachtree Corners, GA

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: Daniela Herrera, Golder
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Ms. Lauren Petty, Southern Co. Services
Carolyn Powrozek, Golder
Dawn Prell, Golder Associates Inc.
Tim Richards, Golder Associates - Atlanta
Brian Steele, Golder



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: PLANT BRANCH

Pace Project No.: 92502483

Pace Analytical Services Charlotte

9800 Kinsey 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
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, 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 BRANCH

Pace Project No.: 92502483

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92502483001	PZ-50D	Water	10/27/20 09:40	10/28/20 09:00
92502483002	PZ-51D	Water	10/27/20 12:45	10/28/20 09:00
92502483003	PZ-51I	Water	10/27/20 14:10	10/28/20 09:00
92502483004	FB	Water	10/27/20 10:00	10/28/20 09:00
92502483005	EB	Water	10/27/20 11:20	10/28/20 09:00
92502483006	FD	Water	10/27/20 00:00	10/28/20 09:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PLANT BRANCH
Pace Project No.: 92502483

Lab ID	Sample ID	Method	Analysts	Analytes Reported
92502483001	PZ-50D	EPA 6010D	DRB	4
		EPA 6020B	CW1	3
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92502483002	PZ-51D	EPA 6010D	DRB	4
		EPA 6020B	CW1	3
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92502483003	PZ-51I	EPA 6010D	DRB	4
		EPA 6020B	CW1	3
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92502483004	FB	EPA 6010D	DRB	4
		EPA 6020B	CW1	3
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92502483005	EB	EPA 6010D	DRB	4
		EPA 6020B	CW1	3
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92502483006	FD	EPA 6010D	DRB	4
		EPA 6020B	CW1	3
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	1
		EPA 300.0 Rev 2.1 1993	CDC	3

PASI-A = Pace Analytical Services - Asheville
PASI-C = Pace Analytical Services - Charlotte
PASI-GA = Pace Analytical Services - Peachtree Corners, GA

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PLANT BRANCH

Pace Project No.: 92502483

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92502483001	PZ-50D					
	Performed by	CUSTOME			10/28/20 15:41	
		R				
	pH	6.47	Std. Units		10/28/20 15:41	
EPA 6010D	Potassium	9.7	mg/L	0.20	11/04/20 21:28	
EPA 6010D	Sodium	31.9	mg/L	1.0	11/04/20 21:28	
EPA 6010D	Calcium	159	mg/L	1.0	11/04/20 21:28	
EPA 6010D	Magnesium	49.2	mg/L	0.050	11/04/20 21:28	
EPA 6020B	Boron	0.15	mg/L	0.10	10/28/20 18:43	
EPA 6020B	Cobalt	0.0037J	mg/L	0.0050	10/28/20 18:43	
SM 2450C-2011	Total Dissolved Solids	914	mg/L	20.0	10/28/20 18:53	
SM 2320B-2011	Alkalinity, Total as CaCO3	90.2	mg/L	5.0	11/10/20 14:52	
EPA 300.0 Rev 2.1 1993	Chloride	5.6	mg/L	1.0	10/30/20 13:08	
EPA 300.0 Rev 2.1 1993	Fluoride	0.28	mg/L	0.10	10/30/20 13:08	
EPA 300.0 Rev 2.1 1993	Sulfate	492	mg/L	11.0	10/31/20 00:28	
92502483002	PZ-51D					
	Performed by	CUSTOME			10/28/20 15:41	
		R				
	pH	6.79	Std. Units		10/28/20 15:41	
EPA 6010D	Potassium	8.7	mg/L	0.20	11/04/20 21:33	
EPA 6010D	Sodium	25.2	mg/L	1.0	11/04/20 21:33	
EPA 6010D	Calcium	132	mg/L	1.0	11/04/20 21:33	
EPA 6010D	Magnesium	32.5	mg/L	0.050	11/04/20 21:33	
EPA 6020B	Boron	0.029J	mg/L	0.10	10/28/20 19:01	
EPA 6020B	Cobalt	0.00041J	mg/L	0.0050	10/28/20 19:01	
SM 2450C-2011	Total Dissolved Solids	680	mg/L	20.0	10/28/20 18:53	
SM 2320B-2011	Alkalinity, Total as CaCO3	116	mg/L	5.0	11/10/20 15:03	
EPA 300.0 Rev 2.1 1993	Chloride	6.3	mg/L	1.0	10/30/20 13:22	
EPA 300.0 Rev 2.1 1993	Fluoride	0.21	mg/L	0.10	10/30/20 13:22	
EPA 300.0 Rev 2.1 1993	Sulfate	357	mg/L	8.0	10/31/20 00:42	
92502483003	PZ-51I					
	Performed by	CUSTOME			10/28/20 15:41	
		R				
	pH	5.49	Std. Units		10/28/20 15:41	
EPA 6010D	Potassium	10.9	mg/L	0.20	11/04/20 21:38	
EPA 6010D	Sodium	42.6	mg/L	1.0	11/04/20 21:38	
EPA 6010D	Calcium	183	mg/L	1.0	11/04/20 21:38	
EPA 6010D	Magnesium	111	mg/L	0.050	11/04/20 21:38	
EPA 6020B	Boron	0.37	mg/L	0.10	10/28/20 19:06	
EPA 6020B	Cadmium	0.0051	mg/L	0.0025	10/28/20 19:06	
EPA 6020B	Cobalt	0.020	mg/L	0.0050	10/28/20 19:06	
SM 2450C-2011	Total Dissolved Solids	1200	mg/L	50.0	10/28/20 18:53	
SM 2320B-2011	Alkalinity, Total as CaCO3	22.9	mg/L	5.0	11/10/20 15:28	
EPA 300.0 Rev 2.1 1993	Chloride	11.0	mg/L	1.0	10/30/20 13:37	
EPA 300.0 Rev 2.1 1993	Sulfate	893	mg/L	20.0	10/31/20 00:57	
92502483004	FB					
EPA 6020B	Boron	0.0054J	mg/L	0.10	10/28/20 19:29	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PLANT BRANCH
Pace Project No.: 92502483

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92502483005	EB					
EPA 6010D	Potassium	0.067J	mg/L	0.20	11/04/20 21:59	B
92502483006	FD					
EPA 6010D	Potassium	10.8	mg/L	0.20	11/04/20 22:04	
EPA 6010D	Sodium	42.4	mg/L	1.0	11/04/20 22:04	
EPA 6010D	Calcium	183	mg/L	1.0	11/04/20 22:04	
EPA 6010D	Magnesium	111	mg/L	0.050	11/04/20 22:04	
EPA 6020B	Boron	0.32	mg/L	0.10	10/28/20 19:41	
EPA 6020B	Cadmium	0.0043	mg/L	0.0025	10/28/20 19:41	
EPA 6020B	Cobalt	0.018	mg/L	0.0050	10/28/20 19:41	
SM 2450C-2011	Total Dissolved Solids	1390	mg/L	50.0	10/28/20 18:55	
SM 2320B-2011	Alkalinity, Total as CaCO ₃	23.0	mg/L	5.0	11/10/20 15:45	
EPA 300.0 Rev 2.1 1993	Chloride	11.0	mg/L	1.0	10/30/20 15:47	
EPA 300.0 Rev 2.1 1993	Sulfate	892	mg/L	20.0	10/31/20 01:11	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT BRANCH
Pace Project No.: 92502483

Sample: PZ-50D		Lab ID: 92502483001		Collected: 10/27/20 09:40		Received: 10/28/20 09:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
Performed by	CUSTOMER				1		10/28/20 15:41		
pH	6.47	Std. Units			1		10/28/20 15:41		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Potassium	9.7	mg/L	0.20	0.056	1	11/04/20 09:30	11/04/20 21:28	7440-09-7	
Sodium	31.9	mg/L	1.0	0.26	1	11/04/20 09:30	11/04/20 21:28	7440-23-5	
Calcium	159	mg/L	1.0	0.070	1	11/04/20 09:30	11/04/20 21:28	7440-70-2	
Magnesium	49.2	mg/L	0.050	0.0076	1	11/04/20 09:30	11/04/20 21:28	7439-95-4	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Boron	0.15	mg/L	0.10	0.0052	1	10/28/20 13:12	10/28/20 18:43	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	10/28/20 13:12	10/28/20 18:43	7440-43-9	
Cobalt	0.0037J	mg/L	0.0050	0.00038	1	10/28/20 13:12	10/28/20 18:43	7440-48-4	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	914	mg/L	20.0	20.0	1		10/28/20 18:53		
2320B Alkalinity									
Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville									
Alkalinity, Total as CaCO3	90.2	mg/L	5.0	5.0	1		11/10/20 14:52		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	5.6	mg/L	1.0	0.60	1		10/30/20 13:08	16887-00-6	
Fluoride	0.28	mg/L	0.10	0.050	1		10/30/20 13:08	16984-48-8	
Sulfate	492	mg/L	11.0	5.5	11		10/31/20 00:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT BRANCH
Pace Project No.: 92502483

Sample: PZ-51D		Lab ID: 92502483002		Collected: 10/27/20 12:45	Received: 10/28/20 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
Performed by	CUSTOMER				1		10/28/20 15:41		
pH	6.79	Std. Units			1		10/28/20 15:41		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Potassium	8.7	mg/L	0.20	0.056	1	11/04/20 09:30	11/04/20 21:33	7440-09-7	
Sodium	25.2	mg/L	1.0	0.26	1	11/04/20 09:30	11/04/20 21:33	7440-23-5	
Calcium	132	mg/L	1.0	0.070	1	11/04/20 09:30	11/04/20 21:33	7440-70-2	
Magnesium	32.5	mg/L	0.050	0.0076	1	11/04/20 09:30	11/04/20 21:33	7439-95-4	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Boron	0.029J	mg/L	0.10	0.0052	1	10/28/20 13:12	10/28/20 19:01	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	10/28/20 13:12	10/28/20 19:01	7440-43-9	
Cobalt	0.00041J	mg/L	0.0050	0.00038	1	10/28/20 13:12	10/28/20 19:01	7440-48-4	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	680	mg/L	20.0	20.0	1		10/28/20 18:53		
2320B Alkalinity									
Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville									
Alkalinity, Total as CaCO3	116	mg/L	5.0	5.0	1		11/10/20 15:03		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	6.3	mg/L	1.0	0.60	1		10/30/20 13:22	16887-00-6	
Fluoride	0.21	mg/L	0.10	0.050	1		10/30/20 13:22	16984-48-8	
Sulfate	357	mg/L	8.0	4.0	8		10/31/20 00:42	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT BRANCH
Pace Project No.: 92502483

Sample: PZ-511		Lab ID: 92502483003		Collected: 10/27/20 14:10		Received: 10/28/20 09:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data									
Analytical Method: Pace Analytical Services - Charlotte									
Performed by	CUSTOMER				1		10/28/20 15:41		
pH	5.49	Std. Units			1		10/28/20 15:41		
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Potassium	10.9	mg/L	0.20	0.056	1	11/04/20 09:30	11/04/20 21:38	7440-09-7	
Sodium	42.6	mg/L	1.0	0.26	1	11/04/20 09:30	11/04/20 21:38	7440-23-5	
Calcium	183	mg/L	1.0	0.070	1	11/04/20 09:30	11/04/20 21:38	7440-70-2	
Magnesium	111	mg/L	0.050	0.0076	1	11/04/20 09:30	11/04/20 21:38	7439-95-4	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Boron	0.37	mg/L	0.10	0.0052	1	10/28/20 13:12	10/28/20 19:06	7440-42-8	
Cadmium	0.0051	mg/L	0.0025	0.00012	1	10/28/20 13:12	10/28/20 19:06	7440-43-9	
Cobalt	0.020	mg/L	0.0050	0.00038	1	10/28/20 13:12	10/28/20 19:06	7440-48-4	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	1200	mg/L	50.0	50.0	1		10/28/20 18:53		
2320B Alkalinity									
Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville									
Alkalinity, Total as CaCO3	22.9	mg/L	5.0	5.0	1		11/10/20 15:28		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville									
Chloride	11.0	mg/L	1.0	0.60	1		10/30/20 13:37	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		10/30/20 13:37	16984-48-8	
Sulfate	893	mg/L	20.0	10.0	20		10/31/20 00:57	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT BRANCH
Pace Project No.: 92502483

Sample: FB **Lab ID: 92502483004** Collected: 10/27/20 10:00 Received: 10/28/20 09:00 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6010D ATL ICP									
Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA									
Potassium	ND	mg/L	0.20	0.056	1	11/04/20 09:30	11/04/20 21:54	7440-09-7	
Sodium	ND	mg/L	1.0	0.26	1	11/04/20 09:30	11/04/20 21:54	7440-23-5	
Calcium	ND	mg/L	1.0	0.070	1	11/04/20 09:30	11/04/20 21:54	7440-70-2	
Magnesium	ND	mg/L	0.050	0.0076	1	11/04/20 09:30	11/04/20 21:54	7439-95-4	
6020 MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA									
Boron	0.0054J	mg/L	0.10	0.0052	1	10/28/20 13:12	10/28/20 19:29	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	10/28/20 13:12	10/28/20 19:29	7440-43-9	
Cobalt	ND	mg/L	0.0050	0.00038	1	10/28/20 13:12	10/28/20 19:29	7440-48-4	
2540C Total Dissolved Solids									
Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA									
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/28/20 18:54		
2320B Alkalinity									
Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville									
Alkalinity, Total as CaCO ₃	ND	mg/L	5.0	5.0	1		11/10/20 15:37		
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		10/30/20 13:51	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		10/30/20 13:51	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		10/30/20 13:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT BRANCH
Pace Project No.: 92502483

Sample: EB		Lab ID: 92502483005		Collected: 10/27/20 11:20	Received: 10/28/20 09:00	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6010D ATL ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA							
Potassium	0.067J	mg/L	0.20	0.056	1	11/04/20 09:30	11/04/20 21:59	7440-09-7	B
Sodium	ND	mg/L	1.0	0.26	1	11/04/20 09:30	11/04/20 21:59	7440-23-5	
Calcium	ND	mg/L	1.0	0.070	1	11/04/20 09:30	11/04/20 21:59	7440-70-2	
Magnesium	ND	mg/L	0.050	0.0076	1	11/04/20 09:30	11/04/20 21:59	7439-95-4	
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA							
Boron	ND	mg/L	0.10	0.0052	1	10/28/20 13:12	10/28/20 19:35	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00012	1	10/28/20 13:12	10/28/20 19:35	7440-43-9	
Cobalt	ND	mg/L	0.0050	0.00038	1	10/28/20 13:12	10/28/20 19:35	7440-48-4	
2540C Total Dissolved Solids		Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA							
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/28/20 18:54		
2320B Alkalinity		Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville							
Alkalinity, Total as CaCO ₃	ND	mg/L	5.0	5.0	1		11/10/20 15:41		
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		10/30/20 15:04	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		10/30/20 15:04	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		10/30/20 15:04	14808-79-8	

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ANALYTICAL RESULTS

Project: PLANT BRANCH
Pace Project No.: 92502483

Sample: FD		Lab ID: 92502483006		Collected: 10/27/20 00:00	Received: 10/28/20 09:00	Matrix: Water				
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6010D ATL ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Potassium	10.8	mg/L	0.20	0.056	1	11/04/20 09:30	11/04/20 22:04	7440-09-7		
Sodium	42.4	mg/L	1.0	0.26	1	11/04/20 09:30	11/04/20 22:04	7440-23-5		
Calcium	183	mg/L	1.0	0.070	1	11/04/20 09:30	11/04/20 22:04	7440-70-2		
Magnesium	111	mg/L	0.050	0.0076	1	11/04/20 09:30	11/04/20 22:04	7439-95-4		
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Boron	0.32	mg/L	0.10	0.0052	1	10/28/20 13:12	10/28/20 19:41	7440-42-8		
Cadmium	0.0043	mg/L	0.0025	0.00012	1	10/28/20 13:12	10/28/20 19:41	7440-43-9		
Cobalt	0.018	mg/L	0.0050	0.00038	1	10/28/20 13:12	10/28/20 19:41	7440-48-4		
2540C Total Dissolved Solids		Analytical Method: SM 2450C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	1390	mg/L	50.0	50.0	1		10/28/20 18:55			
2320B Alkalinity		Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville								
Alkalinity, Total as CaCO ₃	23.0	mg/L	5.0	5.0	1		11/10/20 15:45			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	11.0	mg/L	1.0	0.60	1		10/30/20 15:47	16887-00-6		
Fluoride	ND	mg/L	0.10	0.050	1		10/30/20 15:47	16984-48-8		
Sulfate	892	mg/L	20.0	10.0	20		10/31/20 01:11	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT BRANCH
Pace Project No.: 92502483

QC Batch: 577828 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92502483001, 92502483002, 92502483003, 92502483004, 92502483005, 92502483006

METHOD BLANK: 3057104 Matrix: Water
Associated Lab Samples: 92502483001, 92502483002, 92502483003, 92502483004, 92502483005, 92502483006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.070	11/04/20 20:25	
Magnesium	mg/L	ND	0.050	0.0076	11/04/20 20:25	
Potassium	mg/L	0.060J	0.20	0.056	11/04/20 20:25	
Sodium	mg/L	ND	1.0	0.26	11/04/20 20:25	

LABORATORY CONTROL SAMPLE: 3057105

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	1.0	103	80-120	
Magnesium	mg/L	1	1.0	103	80-120	
Potassium	mg/L	1	1.1	109	80-120	
Sodium	mg/L	1	1.1	111	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3057106 3057107

Parameter	Units	92502714002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Calcium	mg/L	ND	1	1	1.5	1.5	101	103	75-125	1	20	
Magnesium	mg/L	0.54	1	1	1.6	1.6	103	107	75-125	2	20	
Potassium	mg/L	1.2	1	1	2.2	2.3	104	116	75-125	5	20	
Sodium	mg/L	2.0	1	1	3.0	3.0	102	103	75-125	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3057108 3057109

Parameter	Units	92502714004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Calcium	mg/L	1.5	1	1	180	178	17900	17700	75-125	1	20	M1
Magnesium	mg/L	0.76	1	1	110	109	10900	10800	75-125	1	20	M1
Potassium	mg/L	2.6	1	1	11.8	11.7	915	913	75-125	0	20	M1
Sodium	mg/L	3.3	1	1	42.8	42.3	3940	3900	75-125	1	20	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT BRANCH
Pace Project No.: 92502483

QC Batch: 576372 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92502483001, 92502483002, 92502483003, 92502483004, 92502483005, 92502483006

METHOD BLANK: 3050232 Matrix: Water
Associated Lab Samples: 92502483001, 92502483002, 92502483003, 92502483004, 92502483005, 92502483006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	mg/L	ND	0.10	0.0052	10/28/20 17:52	
Cadmium	mg/L	ND	0.0025	0.00012	10/28/20 17:52	
Cobalt	mg/L	ND	0.0050	0.00038	10/28/20 17:52	

LABORATORY CONTROL SAMPLE: 3050233

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	1	0.98	98	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Cobalt	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3050234 3050235

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92502483003 Result	Spike Conc.	Spike Conc.	Result								
Boron	mg/L	0.37	1	1	1.2	1.2	79	83	75-125	3	20		
Cadmium	mg/L	0.0051	0.1	0.1	0.10	0.10	99	100	75-125	1	20		
Cobalt	mg/L	0.020	0.1	0.1	0.12	0.12	98	95	75-125	2	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT BRANCH
Pace Project No.: 92502483

QC Batch: 576299 Analysis Method: SM 2450C-2011
QC Batch Method: SM 2450C-2011 Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92502483001, 92502483002, 92502483003, 92502483004, 92502483005, 92502483006

METHOD BLANK: 3049857 Matrix: Water
Associated Lab Samples: 92502483001, 92502483002, 92502483003, 92502483004, 92502483005, 92502483006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	10/28/20 11:28	

LABORATORY CONTROL SAMPLE: 3049858

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	406	102	84-108	

SAMPLE DUPLICATE: 3049859

Parameter	Units	92502386001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	285	300	5	10	

SAMPLE DUPLICATE: 3053735

Parameter	Units	92502714018 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	232	262	12	10 D6	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT BRANCH
Pace Project No.: 92502483

QC Batch: 578902 Analysis Method: SM 2320B-2011
QC Batch Method: SM 2320B-2011 Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92502483001, 92502483002, 92502483003, 92502483004, 92502483005, 92502483006

METHOD BLANK: 3063052 Matrix: Water
Associated Lab Samples: 92502483001, 92502483002, 92502483003, 92502483004, 92502483005, 92502483006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	ND	5.0	5.0	11/10/20 13:25	

LABORATORY CONTROL SAMPLE: 3063053

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	50	53.6	107	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3063054 3063055

Parameter	Units	3063054		3063055		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Alkalinity, Total as CaCO ₃	mg/L	ND	50	50	56.8	56.6	105	104	80-120	0	25

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3063056 3063057

Parameter	Units	3063056		3063057		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Alkalinity, Total as CaCO ₃	mg/L	116	50	50	164	162	95	92	80-120	1	25

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QUALITY CONTROL DATA

Project: PLANT BRANCH
Pace Project No.: 92502483

QC Batch: 576824 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: 92502483001, 92502483002, 92502483003, 92502483004, 92502483005, 92502483006

METHOD BLANK: 3052721 Matrix: Water
Associated Lab Samples: 92502483001, 92502483002, 92502483003, 92502483004, 92502483005, 92502483006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	10/30/20 12:39	
Fluoride	mg/L	ND	0.10	0.050	10/30/20 12:39	
Sulfate	mg/L	ND	1.0	0.50	10/30/20 12:39	

LABORATORY CONTROL SAMPLE: 3052722

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	98	90-110	
Sulfate	mg/L	50	49.3	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3052723 3052724

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92502483004	Result	Spike Conc.	Spike Conc.								
Chloride	mg/L	ND	50	50	50.0	50.1	100	100	90-110	0	10		
Fluoride	mg/L	ND	2.5	2.5	2.5	2.5	99	100	90-110	1	10		
Sulfate	mg/L	ND	50	50	48.2	48.3	96	96	90-110	0	10		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3052725 3052726

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92502483005	Result	Spike Conc.	Spike Conc.								
Chloride	mg/L	ND	50	50	50.1	50.3	100	101	90-110	0	10		
Fluoride	mg/L	ND	2.5	2.5	2.3	2.4	93	97	90-110	4	10		
Sulfate	mg/L	ND	50	50	48.2	48.4	96	97	90-110	1	10		

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: PLANT BRANCH

Pace Project No.: 92502483

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

B Analyte was detected in the associated method blank.

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: PLANT BRANCH
Pace Project No.: 92502483

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92502483001	PZ-50D				
92502483002	PZ-51D				
92502483003	PZ-51I				
92502483001	PZ-50D	EPA 3010A	577828	EPA 6010D	577926
92502483002	PZ-51D	EPA 3010A	577828	EPA 6010D	577926
92502483003	PZ-51I	EPA 3010A	577828	EPA 6010D	577926
92502483004	FB	EPA 3010A	577828	EPA 6010D	577926
92502483005	EB	EPA 3010A	577828	EPA 6010D	577926
92502483006	FD	EPA 3010A	577828	EPA 6010D	577926
92502483001	PZ-50D	EPA 3005A	576372	EPA 6020B	576467
92502483002	PZ-51D	EPA 3005A	576372	EPA 6020B	576467
92502483003	PZ-51I	EPA 3005A	576372	EPA 6020B	576467
92502483004	FB	EPA 3005A	576372	EPA 6020B	576467
92502483005	EB	EPA 3005A	576372	EPA 6020B	576467
92502483006	FD	EPA 3005A	576372	EPA 6020B	576467
92502483001	PZ-50D	SM 2450C-2011	576299		
92502483002	PZ-51D	SM 2450C-2011	576299		
92502483003	PZ-51I	SM 2450C-2011	576299		
92502483004	FB	SM 2450C-2011	576299		
92502483005	EB	SM 2450C-2011	576299		
92502483006	FD	SM 2450C-2011	576299		
92502483001	PZ-50D	SM 2320B-2011	578902		
92502483002	PZ-51D	SM 2320B-2011	578902		
92502483003	PZ-51I	SM 2320B-2011	578902		
92502483004	FB	SM 2320B-2011	578902		
92502483005	EB	SM 2320B-2011	578902		
92502483006	FD	SM 2320B-2011	578902		
92502483001	PZ-50D	EPA 300.0 Rev 2.1 1993	576824		
92502483002	PZ-51D	EPA 300.0 Rev 2.1 1993	576824		
92502483003	PZ-51I	EPA 300.0 Rev 2.1 1993	576824		
92502483004	FB	EPA 300.0 Rev 2.1 1993	576824		
92502483005	EB	EPA 300.0 Rev 2.1 1993	576824		
92502483006	FD	EPA 300.0 Rev 2.1 1993	576824		

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Sample Condition Upon Receipt

WO#: 92502483

Client Name: GA Power



92502483

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

Proj. Due Date: _____
Proj. Name: _____

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

Packing Material: Bubble Wrap Bubble Bags None Other ZIPLOC

Thermometer Used THR214 Type of Ice: Ice Blue None Samples on ice, cooling process has begun

Cooler Temperature 3.1 Biological Tissue Is Frozen: Yes No

Date and Initials of person examining contents: KRW 10/28/25

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 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>W</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	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: _____

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)



Document Name:
 Bottle Identification Form (BIF)
 Document No.:
 F-CAR-CS-043-Rev.00

Document issued: March 14, 2019
 Page 1 of 1
 Issuing Authority:
 Pace Carolinas Quality Office

Project #

WO# : 92502483

PM: KLH1

Due Date: 11/11/20

CLIENT: GA-GA Power

* 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, LLH2

* 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 2N 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-)	AG3S-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)	
1																												
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
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 DENNR Certification Office. Out of hold, incorrect preservative, out of temp, incorrect containers.



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