



Prepared for

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**ASSESSMENT OF CORRECTIVE
MEASURES REPORT
PLANT BOWEN ASH POND 1
(AP-1)**

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ASSESSMENT OF CORRECTIVE MEASURES REPORT

Plant Bowen
Ash Pond 1

June 12, 2019

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LIST OF ACRONYMS

ACM	Assessment of Corrective Measures
AP	ash pond
CCR	coal combustion residuals
CFR	Code of Federal Regulations
cm/sec	centimeters per second
EPD	Environmental Protection Division
ft	feet
ft bgs	feet below ground surface
ft/ft	feet per foot
GPC	Georgia Power Company
GWPS	Groundwater Protection Standard
HAR	Hydrogeologic Assessment Report
ISS	in-situ solidification/stabilization
K_h	horizontal hydraulic conductivity
K_v	vertical hydraulic conductivity
MNA	monitored natural attenuation
O&M	operations and maintenance
P&T	pump and treat
PE	professional engineer
PRB	permeable reactive barriers
RCRA	Resource Conservation and Recovery Act
SSL	statistically significant level
US EPA	United States Environmental Protection Agency
ZVI	zero-valent iron

1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (US EPA) coal combustion residual (CCR) rule [40 Code of Federal Regulations (CFR) Part 257, Subpart D] and the Georgia Environmental Protection Division (EPD) Rules for Solid Waste Management 391-3-4-.10, Geosyntec Consultants, Inc. (Geosyntec) has prepared this *Assessment of Corrective Measures (ACM) Report* for Georgia Power Company (GPC) Plant Bowen Ash Pond 1 (AP-1 or Site). Pursuant to 40 CFR 257.96 and Georgia Rule 391-3-4-.10(6)(a), this ACM evaluates potential corrective measures to address the statistically significant levels (SSLs) of cobalt and molybdenum identified in the *2018 Annual Groundwater Monitoring and Corrective Action Report* (Geosyntec, 2019), which are the target constituents for corrective measures presented in this report.

The ACM was initiated within 90 days of identifying the SSLs on January 13, 2019; and a 60-day extension until June 12, 2019, for completion of the ACM was documented on April 12, 2019. Eight delineation groundwater monitoring wells, installed to assess the extent of cobalt and molybdenum in groundwater at the Site, show that cobalt and molybdenum are horizontally delineated and contained within the property boundary. This ACM is the first step in identifying viable corrective measures to address SSLs in groundwater at the Site. Based on the results of the ACM, further evaluation may be performed, site-specific studies completed, and a corrective action plan developed and implemented pursuant to 40 CFR 257.97 and 257.98 and Georgia Rule 391-3-4-.10(6)(a).

1.1 Purpose

The purpose of this ACM is to begin the process of selecting corrective measure(s) for groundwater. 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-1.

Once potential corrective measures are identified in this ACM, they are further evaluated using the criteria outlined in 40 CFR 257.96(c) and Rule 391-3-4-.10(6)(a), which state that corrective measures assessment should include an analysis of the effectiveness of potential corrective measures that considers the following:

- Performance;
- Reliability;
- Ease of implementation;

- Potential impacts (including safety, cross-media, and exposure);
- The time required to begin and complete the remedy; and
- Any institutional requirements (e.g., permitting or environmental and public health requirements) that could affect implementation of the remedy.

These evaluation criteria are considered for each potential corrective measure. Further evaluation of the technologies will be required to select a corrective measure(s).

1.2 Site Location and Description

Plant Bowen is a four-unit, coal-fired, electric-generating facility located nine miles southwest of Cartersville in Bartow County, Georgia. The plant is bordered by the Etowah River to the north and east, and Euharlee Creek to the northwest and west (**Figure 1**). Plant Bowen commenced operations in the 1970s.

Plant Bowen has a single CCR ash pond (AP-1) that occupies an area of approximately 254 acres. In preparation for AP-1 closure, the plant completed the conversion to dry ash handling in early 2019 and AP-1 no longer receives ash. Additionally, active projects are ongoing at the plant to remove any additional waste streams from AP-1.

1.3 Pond Closure

GPC will close AP-1 by excavation and consolidation by reducing the footprint from 254 acres to 144 acres within the current footprint. The Closure Plan submitted to Georgia EPD as part of the closure permit application package details the closure activities and requirements in accordance with 40 CFR 257.102 and corresponding Rule 391-3-4-.10(7)(b). The Closure Plan has been summarized in the Amended Written Closure Plan and published in 2018 to GPC's webpage.

AP-1 will be closed by excavating the entirety of CCR within the unit and consolidating the excavated CCR into an approximately 144-acre fully-lined, multi-cell storage facility situated within the current footprint of AP-1. The CCR will be dewatered prior to placement in the containment cells. A base composite liner system and a final cover system will be placed over the entire containment area. The CCR will be excavated, at a minimum, to the interface of the CCR and the residual soils underlying AP-1, plus an additional six inches. Further excavation of the residuum will occur as needed to satisfy the foundation improvement requirements of the design. Once excavation and foundation improvements are complete within the consolidated footprint, compacted fill will be

placed to improve the foundation and provide a stable subgrade for construction of the composite liner system. Once the liner system is installed, the lined area will be filled with appropriately conditioned and compacted CCR. This process will continue in a phased construction approach over the consolidated footprint. The final cover system for the consolidated footprint will consist of either a soil-geosynthetic composite cover system or a synthetic engineered turf (with a maximum hydraulic conductivity of 1×10^{-5} centimeters per second [cm/sec]), which will be designed to meet or exceed the requirements of 257.102(d)(3)(iii) for an alternative cover system. The final cover system design will ensure that the potential for disruption of the integrity of the final cover system is minimized through a design that accommodates settlement and subsidence, in addition to providing an erosion layer for protection from wind or water erosion.

The closure of AP-1 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 compliance boundary. The compliance boundary is the unit boundary where the detection monitoring network is installed.

2.0 CONCEPTUAL SITE MODEL

The following section summarizes the geologic and hydrogeologic conditions at the Site as described in the AP-1 *Hydrogeologic Assessment Report* (HAR) submitted to Georgia EPD as supporting documents for the closure permit application.

2.1 Geology

The Site is located in the Valley and Ridge Physiographic Province of northwest Georgia, which is characterized by Paleozoic sedimentary rocks that have been folded and faulted into the ridges and valleys that gave this region its name. The floor of the valley is underlain by shales, dolomites, and limestones of Cambrian and Ordovician age. Geologic mapping performed by Lawton et al. (1976) indicates that the Site is underlain by the Ordovician-Cambrian age Knox Dolomite and the Ordovician age Newala Limestone. Based on review of subsurface investigations at the Site, the bedrock is described as predominantly dolomite. AP-1 is underlain primarily by three lithologic units: (i) fill material consisting of earthen embankments and CCR material, (ii) residuum, and (iii) competent dolomite/limestone bedrock.

Based on subsurface investigations, the CCR materials include fly ash, that comprises the bulk of the CCR materials observed in AP-1, and occasional lenses of bottom ash material, generally described as light brownish gray to very dark gray, loose to stiff silty sand, and medium to coarse sand. The residuum at the Site is the result of in-place weathering of the underlying dolomite/limestone bedrock. The residuum consists mainly of mottled light brown to red to yellow, low to high plasticity, stiff to very stiff clay, silt, and silty clay. Most soils contain varying amounts of black chert nodules and chert gravel. The bedrock at the Site is described as light to dark gray, fine to medium-grained, thinly-bedded to massive, dense, and hard dolomite, limestone, and dolomitic limestone. Some evidence of weathering along fracture or bedding surfaces was observed, with some manganese or iron oxide staining. Abundant calcite veins and occasional zones of healed dolomite breccia were observed throughout the bedrock. Solution features in the underlying limestone/dolomite bedrock form over geological timeframes along pre-existing discontinuities such as joints and bedding planes. At the Site, these solution features are typically filled with sediment from the in-place weathering of the bedrock or the downward migration of the overlying residuum, but they may also be fully or partially open, or water filled.

2.2 Hydrology and Groundwater Flow

The uppermost aquifer at AP-1 is a regional groundwater aquifer that occurs in the residuum and fractured and solutioned bedrock. Groundwater recharge is by precipitation falling onto outcrop areas and then percolating through the residuum to bedrock. Groundwater flow in bedrock is under unconfined to semi-confined conditions from the mantle of overlying lower-permeability residuum and is controlled by secondary porosity along fractures and solution-enhanced features. Based on observations of residuum soil types and horizontal conductivity values, the movement of groundwater in the residuum and highly-weathered upper surface of the bedrock is slow and more characteristic of porous media flow than secondary porosity (fracture) flow. Groundwater flow in the underlying dolomite/limestone bedrock is likely controlled by preferential flow pathways associated with fractures and solution-enhanced joints and fissures.

Groundwater within the residuum and bedrock at AP-1 generally flows to the north and northwest. A component of flow in the southernmost portion of AP-1 is to the south and west, likely due to groundwater mounding related to historical free water storage at the recycle pond. Groundwater level data are recorded during each groundwater sampling event from the AP-1 well network and are depicted on **Figure 2** and discussed in detail in Section 3.1.1. The data are used to generate potentiometric surface maps that depict the groundwater flow direction and to calculate hydraulic gradients. The potentiometric surface map representing the April 2019 groundwater level data is provided on **Figure 3**.

Clustered piezometers installed in the interior of AP-1 indicate higher water levels in the CCR materials than in the underlying bedrock. The low permeability residuum overlying bedrock enables water to pond in the CCR. This condition results in a downward hydraulic gradient between the perched water within AP-1 and the uppermost groundwater aquifer, with only slow percolation from the pond, through the residuum to groundwater. Groundwater gradients in the uppermost aquifer are also influenced by the flow from beneath the unlined General Service Water Pond, located east of AP-1. The AP-1 recycle pond also influenced gradients within the southern portion of AP-1, the effects of which are now diminished since the plant discontinued using the pond in November 2017 for normal plant operations. The typical groundwater hydraulic gradient across the interior of AP-1 is approximately 0.014 feet/foot (ft/ft). While vertical hydraulic gradients at AP-1 are downward, they likely reverse to an upward gradient near natural groundwater discharge areas.

The horizontal hydraulic conductivity (K_h) values for residuum range from 1×10^{-6} to 1×10^{-8} cm/sec. The vertical hydraulic conductivity (K_v) of residuum, measured in a

laboratory permeability test on a Shelby tube sample, was 1.4×10^{-7} cm/sec, which compares similarly to previously reported vertical hydraulic conductivity values. Horizontal hydraulic conductivity values measured for bedrock ranged from 2.1×10^{-5} to 1.0×10^{-2} cm/sec, with a geometric mean of 8.6×10^{-4} cm/sec. Additional details regarding the hydrogeologic conditions in vicinity of AP-1 are provided in the HAR.

3.0 NATURE AND EXTENT DELINEATION

The following describes monitoring-related field and assessment activities performed to date in support of (i) delineating the nature and extent of SSLs in groundwater and (ii) evaluating potential corrective measures to address them.

3.1 Groundwater Monitoring & Constituents of Concern

3.1.1 Groundwater Monitoring Program

In accordance with 40 CFR 257.91, a groundwater monitoring system was installed at AP-1 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 units (i.e., background conditions) and passing the waste boundary of the units. The number, spacing, and depths of the groundwater monitoring wells were selected based on the characterization of site-specific hydrogeologic conditions. The well network was certified by a professional engineer (PE) on October 10, 2017, and the certification is maintained in the AP-1 Operating Record. The certified compliance monitoring well network for AP-1 consists of a total of 19 monitoring wells: two upgradient wells and 17 downgradient wells. The locations of the wells for the compliance monitoring well network are shown on **Figure 2** and well construction details are listed in **Table 1**. Groundwater is currently monitored in AP-1 wells under the assessment monitoring program pursuant to 40 CFR 257.95. Additional groundwater monitoring details are provided in the *2018 Annual Groundwater and Corrective Action Monitoring Report* (Geosyntec, 2019).

3.1.2 SSLs for Appendix IV Constituents

Groundwater monitoring data collected during the semiannual monitoring events in June and October 2018 were statistically analyzed pursuant to 40 CFR 257.93(f) and in general accordance with the US EPA document *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance* (Unified Guidance) (US EPA, 2009). Following Federal and state rule requirements, separate groundwater protection standards (GWPS) were established for statistical comparisons of Appendix IV assessment monitoring parameters. Appendix IV GWPS are provided in **Table 2**. Appendix IV parameters detected during the semiannual monitoring event were compared to GWPS to assess if concentrations in compliance wells statistically exceeded the GWPS. Details regarding the statistical analyses are provided in the *2018 Annual Groundwater and Corrective Action Monitoring Report* (Geosyntec, 2019).

Statistical analyses of the June and October 2018 analytical data identified SSLs of cobalt and molybdenum in the following wells:

AP-1 (Federal CCR Rule):

- Cobalt: BGWC-22

AP-1 (Georgia EPD CCR Rule):

- Cobalt: BGWC-22;
- Molybdenum: BGWC-20, BGWC-22, BGWC-23, and BGWC-30

In accordance with 40 CFR 257.95(g), a notification identifying SSLs for cobalt and molybdenum was prepared for AP-1 and placed in the Operating Record on November 14, 2018. Pursuant to 40 CFR 257.96, an ACM was initiated for AP-1 on January 13, 2019.

3.2 Field Investigation Activities

Extensive subsurface investigations have been conducted at the Site. The results of these subsurface investigations are discussed in the HAR, which included: geophysics, soil and rock borings, geotechnical testing, rock coring, well and piezometer installation, slug testing, and groundwater sampling.

Eight delineation groundwater monitoring wells were installed between July 2018 and April 2019 to assess the extent of cobalt and molybdenum in groundwater at the Site. Wells BGWC-31, BGWC-32, and BGWA-33 were installed for horizontal delineation and wells BGWC-34D, BGWC-35D, BGWC-36D, BGWC-37D, and BGWC-38D were installed for vertical delineation. Detailed boring and well construction logs for these eight new wells are provided in **Appendix A**. The locations of these eight delineation wells are shown on **Figure 2** and well construction details are also provided in **Table 1**.

Pursuant to 40 CFR 257.96, groundwater in the vicinity of AP-1 continues to be monitored during the ACM phase in accordance with the assessment monitoring program established for the CCR unit in 2018. Groundwater samples were collected from the compliance wells in February 2019 and analyzed for the full suite of the Appendix IV parameters per 40 CFR 257.95(b). In April 2019, compliance and delineation (BGWA-6, BGWA-33, BGWC-31, BGWC-32, BGWC-34D, BGWC-35D, and BGWC-36D) wells were sampled as part of the first semiannual monitoring event. A supplementary

groundwater sampling event was conducted in May 2019 to verify cobalt concentrations observed in delineation well BGWC-32 during the April 2019 semiannual event and to sample deep delineation wells BGWC-37D and BGWC-38D installed on April 18 and April 25, 2019, respectively. Cobalt results in BGWC-32 during the April 2019 sampling event were not verified by subsequent resampling in May 2019, and the SSL of cobalt at BGWC-22 is horizontally delineated by BGWC-32. . The groundwater analytical results from the February, April, and May 2019 events are summarized in **Table 3**. Laboratory reports associated with the 2019 results are provided in **Appendix B**.

The 2019 analytical results reported for the horizontal delineation wells (BGWC-31, BGWC-32, and BGWA-6) show that cobalt and molybdenum are contained within the property boundary. For these wells, the cobalt and molybdenum concentrations are below their respective GWPS. Molybdenum is vertically delineated in well BGWC-20 by well BGWC-34D. Vertical delineation of molybdenum in wells BGWC-22, BGWC-23, and BGWC-30 is currently in progress.

The April 2019 semiannual event results reported for the compliance wells will be statistically evaluated relative to the site-specific GWPS and reported in the corresponding semiannual groundwater monitoring report, which will be published online on August 30, 2019.

4.0 GROUNDWATER CORRECTIVE MEASURES

4.1 Objectives of the Corrective Measures

In evaluating the effectiveness of potential corrective measures using the criteria listed in 40 CFR 257.96(c) and referenced in Rule 391-3-4-.10(6)(a), including performance, reliability, ease of implementation, potential impacts, time required, and institutional and public health requirements, the following criteria listed in 40 CFR 257.97(b) and corresponding Rule 391-3-4-.10(6)(a) must be met by the corrective measure when selected:

- Be protective of human health and the environment;
- Attain applicable groundwater protection standards as specified pursuant to 40 CFR 257.95(h);
- Control the source(s) of releases to reduce or eliminate, to the maximum extent feasible, further releases of constituents in appendix IV to this part to the environment;
- Remove from the environment as much of the contaminated material that was released from the CCR unit as is feasible, taking into account factors such as avoiding inappropriate disturbance of sensitive ecosystems; and
- Comply with standards for management of wastes as specified in 40 CFR 257.98(d).

Corrective measures selected for evaluation herein for potential use at AP-1 are anticipated to satisfy the above criteria to varying degrees of effectiveness.

4.2 Summary of Corrective Measures

The closure of AP-1 as described in Section 1.3 is 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 and downgradient of the compliance boundary.

This section presents potential corrective measures capable of remediating the Appendix IV groundwater constituents (i.e., cobalt and molybdenum) at AP-1. Each corrective measure is evaluated relative to criteria specified in 40 CFR 257.96(c) and 40 CFR

257.97(b). **Table 4** provides a comparative screening of the corrective measures discussed in Section 4.

The following potential corrective measures are considered in this ACM:

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

While in-situ solidification/stabilization (ISS) is generally considered a viable option for either small source areas or targeted zones within a larger footprint, this potential corrective measure is not a viable corrective measure at AP-1. The closure of AP-1 as previously described will remove CCR materials and place them into a fully lined, multi-cell storage facility situated within the current footprint of AP-1. As such, the CCR materials that could be stabilized using ISS will be isolated and stabilization would provide no long-term benefit. Therefore, ISS is not considered an applicable groundwater corrective measure for AP-1 and no detailed evaluation is provided in **Table 4**.

4.2.1 Geochemical Approaches (In-Situ Injection)

Cobalt and molybdenum can be precipitated and/or immobilized under different combinations of 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. For example, cobalt can be sorbed to iron and manganese oxides or precipitated as sparingly soluble cobalt sulfide minerals, while molybdenum can be sorbed to aluminum and iron oxides as well as clay minerals.

To understand the biogeochemical processes that would effectively immobilize target constituents in groundwater, site-specific bench-scale and pilot-scale treatability studies are needed to prepare an effective amendment to create the appropriate conditions for the precipitation and/or sorption of these constituents without mobilizing other naturally-occurring constituents. Once precipitated, these minerals are often stable even if geochemical conditions revert back to a different redox environment. However, if not properly designed and implemented, manipulating redox conditions without forming the

desired compounds may increase the mobility of naturally-occurring constituents such as iron, manganese, and arsenic.

Air sparging can be used to provide oxygen to the subsurface in an attempt to precipitate out (or make more “sorptive”) compounds that are generally more soluble and mobile under reducing conditions. This can also support the precipitation of iron and manganese oxides, which would provide additional sorption sites for constituents such as cobalt and molybdenum.

Furthermore, 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 toxicity of certain inorganic compounds.

The main limiting process in these in-situ remedial approaches is the delivery of the compounds within the area of interest. Mixing and contact with the target constituents are necessary and can be difficult in heterogeneous materials and fine-grained materials.

While it is currently not well understood whether molybdenum can be efficiently attenuated using in-situ redox manipulations due to slow reaction kinetics, the attenuation of cobalt is expected to occur under both aerobic (via sorption to manganese or iron oxides) and anaerobic conditions (via formation of sulfide minerals). Therefore, in-situ injections are considered a potentially viable corrective measure to address cobalt and molybdenum in groundwater at AP-1, especially in smaller, more localized areas, and will be retained for further evaluation.

4.2.2 Hydraulic Containment (Pump and Treat)

Generally, hydraulic containment (or control) refers to the use of groundwater extraction to artificially induce a hydraulic gradient and capture or control the migration of impacted groundwater. One example, groundwater pump and treat (P&T), is often considered to be a viable remedial technology at many sites (US EPA, 1996). 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 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, but can be effective as an interim measure, or combined 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 molybdenum. Extraction technologies also have the ability to overcome the limitations of in situ injection-based technologies (i.e., mixing and contact with affected materials, and to access impacted groundwater in lower permeability geologic formations such as fractured bedrock). Space constraints are mainly limited to the above-ground conveyance and treatment component of a P&T system since extraction wells can generally be fit 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 reused for irrigation (e.g., of a cover system or other vegetated areas at the Site) or dust suppression purposes. It could also be used as moisture conditioning of dry ash that is being landfilled. Therefore, P&T is a potentially viable corrective measure for cobalt and molybdenum in groundwater at AP-1 and will be retained for further evaluation.

4.2.3 Monitored Natural Attenuation

The US EPA defines monitored natural attenuation (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, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. These in-situ processes include biodegradation; dispersion; dilution; sorption; volatilization; radioactive decay; and chemical or biological stabilization, transformation, or destruction of contaminants (US EPA, 2015b).

Attenuation mechanisms for inorganic constituents, such as molybdenum and cobalt, are either physical or chemical. Physical attenuation mechanisms such as dilution and dispersion may be appropriate as a polishing step (e.g., at the boundaries of impacted groundwater, when source control is complete, an active remedy is being used at the Site, and appropriate land use and groundwater controls are in place). Chemical attenuation mechanisms through sorption reactions, discussed in more detail below, may be viable as a stand-alone corrective measure.

“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)” (US EPA, 2015b, p. 8/9). Both site-specific constituents (i.e., cobalt and molybdenum) undergo sorption reactions and, depending on specific redox conditions, cobalt may also form sparingly soluble sulfide minerals via abiotic or biotic processes.

The US EPA uses four phases to establish whether MNA can be successfully implemented at a given site. The phases (or steps) include:

1. Demonstration that SSLs in groundwater are delineated and stable.
2. Evaluation of the mechanisms and rates of attenuation.
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.
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.

Physical and chemical MNA mechanisms for cobalt and molybdenum, including dilution, dispersion, and sorption can be operational without the potential for additional mass of constituents migrating to downgradient groundwater. Even under current conditions, attenuation processes for cobalt and molybdenum are already occurring as evidenced by groundwater data from delineation wells. Therefore, MNA is a potentially viable corrective measure for cobalt and molybdenum in groundwater at AP-1 and will be retained for further evaluation.

4.2.4 Permeable Reactive Barriers

Permeable reactive barriers (PRBs) can present a viable alternative for in-situ treatment of cobalt and molybdenum. The technology typically involves the installation of a subsurface wall constructed with reactive media such as zero-valent iron (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). PRBs have proven to be effective in passively treating several inorganic constituents found at CCR sites, including arsenic, selenium, and chromium (e.g. ITRC, 2011). The use of PRBs for cobalt and molybdenum has been tested (e.g., Ludwig et al., 2002; ITRC, 2011), but additional site-specific testing is needed to confirm the applicability of this technology to cobalt and molybdenum removal from groundwater. For example, molybdenum may experience early breakthrough with ZVI-type media (e.g., Morrison et al., 2006) and careful testing is required to select the appropriate treatment media.

PRBs can be installed in downgradient locations using conventional excavation methods or one-pass trenching method. Excavated trenches get back-filled 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., ZVI or similar) are generally higher than bentonite-based slurry wall construction, these configurations with a smaller treatment area help to lower construction and maintenance costs. Similar to slurry walls (see Section 4.2.6), PRBs are typically keyed into an underlying low-permeability unit such as a clay layer or bedrock.

The installation depths of a PRB unit are generally limited to about 90 ft below ground surface (ft bgs). The installation of a PRB generally requires more space than extraction wells, but the system does not require above-ground treatment components and therefore, the overall treatment footprint is likely to be smaller compared to a P&T system.

While additional subsurface investigations, aquifer testing, reactive media testing, and compatibility testing of groundwater and a slurry wall component of a PRB will be needed to further evaluate the feasibility of installing a PRB at AP-1, the technology is currently considered to be a potentially viable corrective measure to address cobalt and molybdenum in groundwater at AP-1 and will be retained for further evaluation.

4.2.5 Phytoremediation

Phytoremediation is the use of plants to degrade, immobilize, or contain constituents in soil, groundwater, surface water, and sediments. Over recent decades, phytoremediation has emerged as a viable alternative to more active and costly environmental cleanup technologies, especially for large areas with relatively low levels of constituents in shallow soils or groundwater. The effectiveness of groundwater remediation using

traditional phytoremediation approaches may be limited by compacted soil conditions that impede root penetration, or target groundwater that is too deep for root access. Given that groundwater wells at the Site that exhibited SSLs for cobalt and molybdenum are screened to depths of about 50 ft bgs, traditional plantings for phytoremediation are not expected to be successful. However, more recently, an engineered approach to phytoremediation, the *TreeWell*[®] system (which is a proprietary system developed by Applied Natural Sciences [ANS]), has been shown to overcome these constraints by utilizing a specialized lined planting unit constructed with optimum planting media designed to promote downward root growth, encourage constituent treatment, and focus groundwater extraction from a targeted depth interval (e.g., Gatliff et al., 2016).

By installing a cased “well” for tree planting using large diameter auger (LDA) technology, extraction of deeper groundwater zones (i.e., in excess of 50 ft bgs) can be achieved since the surface of the “well” is sealed and only groundwater from a targeted zone is allowed into the cased-off borehole. This type of system mirrors a traditional mechanical extraction system using the trees as pumps. The *TreeWell* system can be used for both hydraulic control of groundwater and for treatment of constituents via degradation (for organic constituents) or immobilization/containment mechanisms (for organic and inorganic constituents). With respect to the site-specific conditions, the system would be applied for hydraulic control, but cobalt and molybdenum are expected to be either immobilized within the root zone or incidentally taken up into the tree biomass.

The advantage of the system includes no above-ground water management needs and limited long-term operations and maintenance (O&M) requirements following the establishment of the tree system. Such systems have been observed to meet design hydraulic control parameters typically by the end of the third growing season, when properly designed and spaced. The layout for a *TreeWell* remediation system is generally based on groundwater flow modeling assuming a design uptake rate of approximately 40 to 60 gallons per day per tree.

Based on the site-specific hydrogeology (e.g., relatively slow groundwater velocities in the finer-grained residuum as well as the top of bedrock) and low levels of cobalt and molybdenum, as well as the availability of potential planting areas downgradient of AP-1, an engineered phytoremediation approach is a potentially viable corrective measure for cobalt and molybdenum in groundwater at AP-1 and will be retained for further evaluation.

4.2.6 Subsurface Vertical Barrier Walls

Subsurface vertical barrier walls (sometimes referred to as slurry walls) have been used for seep control and groundwater cutoff at impoundments and waste disposal units for more than three decades. 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.

This approach involves placing a barrier to groundwater flow in the subsurface, frequently around the source area (or the downgradient limits of the source area), to prevent future migration of dissolved constituents in groundwater from beneath the source to downgradient areas. 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 a surface water feature. A variety of barrier materials can be used, including cement and/or bentonite slurries or various mixtures of soil with cement or bentonite, geomembrane composite materials, or driven materials such as steel or vinyl sheet pile.

The installation of these low-permeability walls is similar to the methods described for PRBs above. In general, the applicability of slurry walls is limited by the depth of installation, which is approximately 90 ft below ground surface. However, site-specific geologic and technology-specific considerations may limit this depth to shallower installations.

Groundwater pumping is required upgradient of the barrier wall to maintain an inward hydraulic gradient. The extracted groundwater would likely require treatment in an above-ground treatment system.

While additional subsurface investigations, aquifer testing, and wall compatibility testing with the groundwater chemistry will be needed to further evaluate the feasibility as well as the placement of a barrier wall at AP-1, the technology is currently considered to be a potentially viable corrective measure to address cobalt and molybdenum in groundwater at AP-1 and will be retained for further evaluation.

5.0 REMEDY SELECTION PROCESS

The purpose of this ACM is to begin the process of selecting corrective measure(s) for groundwater based on further evaluation using the criteria outlined in 40 CFR 257.96 and Georgia 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 Pond Closure and Site Management Strategy

GPC plans to close AP-1 by excavation and consolidation of the unit's CCR material into a lined, multi-cell storage facility situated within the current footprint of AP-1 providing source control. During the pond closure, temporary changes in site conditions may occur. Additionally, the site conceptual model may need to be refined and/or updated from the current understanding as more data are collected. GPC plans to proactively utilize adaptive site management to support the remedial strategy and address potential changes in site conditions 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 supplementary sampling, if required. However, additional data collection that includes aquifer testing, groundwater modeling, material compatibility testing, bench scale studies, and pilot tests may require an estimated one to two additional years to complete. Once sufficient data are available to arrive at a focused number of corrective measures or 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 40 CFR 257.98.

5.3 Schedule, Reporting, and Next Steps

It is anticipated that additional data collection will begin in 2019. GPC will prepare semiannual reports to document Site groundwater conditions, results associated with additional data gathering identified in Section 5.2 and in Table 4, and the progress in selecting and designing the remedy in accordance with 40 CFR 257.97(a). The reports will be posted to GPC's website.

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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TABLES

Table 1
Monitoring Well Network Summary
Plant Bowen AP-1, Bartow County, Georgia



Well ID	Hydraulic Location	Installation Date	Northing ⁽¹⁾	Easting ⁽¹⁾	Ground Surface Elevation (ft AMSL)	Top of Screen Elevation (ft AMSL)	Bottom of Screen Elevation (ft AMSL)	Well Depth (ft BTOC) ⁽²⁾	Screen Interval Length (ft)
<i>Compliance Monitoring Wells</i>									
BGWA-2	Upgradient	10/29/2015	1499375.65	2068599.23		650.90	640.90	89.17	10
BGWA-29	Upgradient	8/7/2016	1498283.38	2066363.43		632.70	622.70	99.03	10
BGWC-7	Downgradient	10/1/2015	1504713.10	2066801.85		625.50	615.50	90.40	10
BGWC-8	Downgradient	11/18/2015	1504672.07	2066928.29		637.20	627.20	79.73	10
BGWC-9	Downgradient	11/13/2015	1504910.51	2066144.11		638.70	628.70	63.74	10
BGWC-10	Downgradient	10/7/2015	1505032.56	2066080.17		634.20	624.20	62.37	10
BGWC-12	Downgradient	10/21/2015	1505280.77	2065909.74		626.60	616.60	78.28	10
BGWC-14	Downgradient	11/10/2015	1505406.14	2065043.82		640.20	630.20	88.84	10
BGWC-16	Downgradient	11/12/2015	1504656.54	2064248.97		635.80	625.80	48.87	10
BGWC-17	Downgradient	10/22/2015	1504432.14	2064260.75		615.60	605.60	68.39	10
BGWC-18	Downgradient	10/13/2015	1504118.94	2064258.25		645.20	635.20	37.95	10
BGWC-19	Downgradient	10/12/2015	1503742.31	2064245.92		629.40	619.40	54.58	10
BGWC-20	Downgradient	10/9/2015	1503367.84	2064260.88		635.70	625.70	49.73	10
BGWC-21	Downgradient	3/2/2016	1501627.60	2064348.78		648.70	638.70	52.99	10
BGWC-22	Downgradient	10/8/2015	1501324.02	2064359.44		662.70	652.70	43.05	10
BGWC-23	Downgradient	10/15/2015	1501000.87	2064351.45		654.90	644.90	50.95	10
BGWC-24	Downgradient	10/27/2015	1500620.18	2065032.39		646.50	636.50	66.11	10
BGWC-25	Downgradient	3/3/2016	1502292.88	2064244.72		632.90	622.90	57.87	10
BGWC-30	Downgradient	1/4/2017	1499816.75	2066394.31		651.50	641.50	59.98	10
<i>Groundwater Level Monitoring Piezometer</i>									
BGWA-1	Downgradient	11/17/2015	1499099.83	2067205.55	718.38	672.30	662.30	58.97	10
BGWA-3	Downgradient	11/5/2015	1499419.93	2065186.44	721.86	645.70	635.70	88.97	10
BGWA-4	Downgradient	3/4/2016	1499484.76	2064697.83	726.09	660.40	650.40	78.61	10
BGWA-5	Downgradient	11/3/2015	1499435.96	2065421.03	718.54	662.10	652.10	69.10	10
BGWC-11	Downgradient	10/16/2015	1504998.34	2066092.86	684.11	619.80	609.80	77.18	10
BGWC-13	Downgradient	10/21/2015	1505436.84	2065250.98	714.89	654.40	644.40	73.45	10
BGWC-15	Downgradient	10/20/2015	1505279.56	2064731.57	715.47	655.10	645.10	73.21	10
BGWA-26	Downgradient	8/5/2016	1498696.48	2064190.20	726.10	663.40	653.40	75.56	10
BGWA-27	Downgradient	8/6/2016	1498718.03	2064387.85	732.55	651.90	641.90	93.74	10
BGWA-28	Downgradient	8/7/2016	1498748.11	2064577.77	734.91	661.20	651.20	86.58	10
PZ-1	Downgradient	6/23/2016	1505600.31	2066843.00	675.29	630.60	620.60	57.54	10
PZ-2	Downgradient	6/24/2016	1503857.59	2062937.95	665.99	649.30	639.30	29.33	10
PZ-3	Downgradient	6/22/2016	1505722.73	2066070.72	705.28	658.60	648.60	59.62	10
PZ-4	Downgradient	6/23/2016	1505788.40	2064315.36	715.93	669.20	659.20	59.78	10

Table 1
Monitoring Well Network Summary
Plant Bowen AP-1, Bartow County, Georgia



Well ID	Hydraulic Location	Installation Date	Northing ⁽¹⁾	Easting ⁽¹⁾	Ground Surface Elevation (ft AMSL)	Top of Screen Elevation (ft AMSL)	Bottom of Screen Elevation (ft AMSL)	Well Depth (ft BTOC) ⁽²⁾	Screen Interval Length (ft)
<i>Delineation Monitoring Wells</i>									
BGWA-6	Downgradient	11/6/2015	1499260.85	2065797.45	714.54	664.50	654.50	62.74	10
BGWA-33	Downgradient	7/10/2018	1497973.36	2064876.50	740.50	672.80	662.80	80.84	10
BGWC-31	Downgradient	7/17/2018	1503498.68	2064022.78	668.59	631.59	621.59	49.70	10
BGWC-32	Downgradient	7/18/2018	1501251.18	2064184.43	696.50	658.60	648.60	51.22	10
BGWC-34D	Downgradient	7/13/2018	1503356.62	2064259.26	672.57	606.10	596.10	79.75	10
BGWC-35D	Downgradient	7/12/2018	1501312.30	2064359.89	693.32	625.32	615.32	80.94	10
BGWC-36D	Downgradient	7/2/2018	1499808.60	2066415.39	698.22	615.22	605.22	96.35	10
BGWC-37D	Downgradient	4/25/2019	1501293.46	2064363.99	693.56	595.56	585.56	112.56	10
BGWC-38D	Downgradient	4/18/2019	1499803.60	2066430.57	697.66	584.66	574.66	129.81	10

Notes:

ft = feet

AMSL = above mean sea level

BTOC = below top of casing

(1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet.

(2) Total well depth accounts for sump if data provided on well construction logs.

Table 2
Summary of Background Concentrations
and Groundwater Protection Standards
Plant Bowen AP-1, Bartow County, Georgia

Analyte	Units	Background ⁽¹⁾	Federal GWPS ⁽²⁾	State GWPS ⁽³⁾
Antimony	mg/L	0.003	0.006	0.006
Arsenic	mg/L	0.005	0.01	0.01
Barium	mg/L	0.218	2	2
Beryllium	mg/L	0.003	0.004	0.004
Cadmium	mg/L	0.001	0.005	0.005
Chromium	mg/L	0.01	0.1	0.1
Cobalt	mg/L	Federal: 0.005 ⁽⁴⁾ State: 0.01	0.006	0.01
Fluoride	mg/L	0.197; 0.191	4	4
Lead	mg/L	0.005	0.015 ⁽⁵⁾	0.005
Lithium	mg/L	Federal: 0.025 ⁽⁴⁾ State: 0.05	0.04	0.05
Mercury	mg/L	0.0005	0.002	0.002
Molybdenum	mg/L	0.01	0.1	0.01
Selenium	mg/L	0.01	0.05	0.05
Thallium	mg/L	0.001	0.002	0.002
Combined Radium-226/228	pCi/L	1.86; 1.68	5	5

Notes:

"mg/L" = milligrams per liter

"pCi/L" = picocuries per liter

1. The background limits were 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). Where two numbers are present, they denote the different background concentrations for each of the two semiannual monitoring events in the order that they were determined.
2. Under 40 CFR §257.95(h)(1-3) the GWPS is: (i) the maximum contaminant level (MCL) established under §§141.62 and 141.66 of this title; (ii) where an MCL has not been established a rule-specific GWPS or regional screen level (RSL) is used; or (iii) background levels for constituents where the background level is higher than the MCL or rule-specified GWPS.
3. Under the existing EPD rules, the GWPS is: (i) the MCL; (ii) where the MCL is not established, the background concentration; or (iii) background concentrations for constituents where the background concentration is higher than the MCL.
4. The background tolerance limit (TL) used to evaluate GWPS for this analyte equals half the laboratory specified reporting limit (RL). Per the Statistical Analysis Plan (SAP), and in accordance with the Unified Guidance, a non-parametric TL approach was used since the data set contained greater than 50% non-detect (ND) results for this analyte. Under this approach, the TL equals the highest value reported, for which is the laboratory RL. Since a RL may be influenced due to sample matrix interference at the time of analysis, half the RL was applied in this select case.
5. Currently, there is no Environmental Protection Agency (EPA) MCL established for lead. The value listed as GWPS is the established EPA Action Level for drinking water.

Table 3
Summary of Groundwater Analytical Data
Plant Bowen AP-1, Bartow County, Georgia

Well ID:	BGWA-2	BGWA-2	BGWA-2	BGWA-29	BGWA-29	BGWC-7	BGWC-7	BGWC-8	BGWC-8	BGWC-9	BGWC-10	BGWC-10	BGWC-12	BGWC-12	
Sample Date:	2/25/2019	4/1/2019	5/2/2019	2/27/2019	4/1/2019	2/28/2019	4/2/2019	2/25/2019	4/1/2019	4/1/2019	2/28/2019	4/2/2019	2/28/2019	4/1/2019	
Parameter ^(1,2,3)															
APPENDIX III	Boron*	--	ND (0.0076 J)	ND (0.015 J)	--	ND (0.0048 J)	--	1.4	--	ND (0.046 J)	0.50	--	ND (0.51 J)	--	ND (0.86 J)
	Calcium*	--	48.2	44.8	--	24.6	--	140	--	47.2	59.3	--	57.8	--	94.8
	Chloride*	--	4.2	4.3	--	1.6	--	9.4	--	1.8	13.4	--	24.1	--	24.1
	Fluoride*	ND	ND (0.047 J)	ND	ND	ND	ND (0.23 J)	ND (0.22 J)	ND	ND	0.33	ND (0.14 J)	ND (0.044 J)	ND (0.18 J)	ND (0.065 J)
	pH*	7.78	7.7	7.71	8.00	7.85	7.05	6.99	7.75	7.57	7.03	7.55	7.54	7.28	7.23
	Sulfate*	--	10.8	11.2	--	5.2	--	334	--	30.5	81.4	--	105	--	239
	TDS*	--	226	--	--	114	--	728	--	191	326	--	355	--	191
APPENDIX IV	Antimony	ND	--	--	ND	--	ND	--	ND	--	ND	--	ND	--	
	Arsenic	ND	ND (0.00049 J)	--	ND (0.0011 J)	ND (0.00019 J)	ND (0.0011 J)	ND (0.0016 J)	ND	ND (0.00041 J)	ND (0.0026 J)	0.0058	0.0057	ND	ND (0.00028 J)
	Barium	0.16	0.16	--	0.013	0.014	0.041	0.031	0.030	0.025	0.027	0.053	0.045	0.033	0.023
	Beryllium	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Cadmium	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	ND	ND	--	ND	ND	ND	ND	ND	ND (0.00091 J)	ND	ND	ND	ND	ND
	Cobalt⁺	ND	ND (0.00014 J)	ND	ND	ND	ND (0.00067 J)	ND (0.00094 J)	ND	ND (0.000056 J)	ND (0.00024 J)	ND	ND (0.00027 J)	ND	ND (0.00034 J)
	Fluoride	ND	ND (0.047 J)	--	ND	ND	ND (0.23 J)	ND (0.22 J)	ND	ND	0.33	ND (0.14 J)	ND (0.044 J)	ND (0.18 J)	ND (0.065 J)
	Lead	ND	ND	--	ND	ND	ND	ND	ND	ND	ND (0.000092 J)	ND	ND	ND	ND
	Lithium	ND	ND	--	ND	ND (0.00059 J)	ND (0.0086 J)	ND (0.0073 J)	ND	ND	ND (0.0012 J)	ND (0.0017 J)	ND (0.0012 J)	ND (0.0011 J)	ND (0.00078 J)
	Mercury	ND	ND	--	ND (0.000065 J)	ND	ND (0.000053 J)	ND	ND	ND	ND	ND (0.000048 J)	ND	ND (0.000058 J)	ND
	Molybdenum⁺	ND	ND (0.0014 J)	ND	ND	ND (0.00053 J)	0.016	0.011	ND	ND (0.00054 J)	ND (0.0027 J)	ND (0.0035 J)	ND (0.0032 J)	ND	ND
	Comb. Radium 226/228	1.43	1.44 U	--	0.941 U	0.660 U	1.38	1.57	1.03 U	0.474 U	0.225 U	1.88	1.21 U	1.04	0.328 U
	Selenium	ND	ND (0.00011 J)	--	ND	ND	ND	ND	ND	ND (0.00015 J)	ND (0.00040 J)	ND	ND	ND	ND (0.00040 J)
Thallium	ND	ND (0.00011 J)	--	ND	ND	ND	ND (0.000070 J)	ND	ND	ND (0.000065 J)	ND	ND	ND	ND	

Notes:

-- = Parameter was not analyzed

J = Indicates the parameter was estimated and detected between the method detection limit (MDL) and the reporting limit (RL)

ND = Indicates the parameter was not detected above the analytical MDL

TDS = total dissolved solids

U = Indicates the parameter was not detected above the analytical minimum detectable concentration (MDC) (Specific to combined radium 226/228)

(1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units) and combined radium reported as picocuries per liter (pCi/L).

(2) Metals were analyzed by EPA Method 6020B, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and combined radium 226/228 by EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.

(3) Appendix III parameters with a "*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly, Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the June and October 2018 assessment monitoring events.

(4) Well is designated a delineation monitoring well.

(5) The value exceeds the Maximum Contaminant Level (MCL) for arsenic (0.010 mg/L). An alternate source demonstration (ASD) was prepared and will be submitted to Georgia EPD in the semiannual groundwater monitoring report on July 31, 2019.

Table 3
Summary of Groundwater Analytical Data
Plant Bowen AP-1, Bartow County, Georgia

Well ID:	BGWC-14	BGWC-14	BGWC-16	BGWC-16	BGWC-17	BGWC-17	BGWC-18	BGWC-18	BGWC-19	BGWC-19	BGWC-20	BGWC-20	BGWC-21	
Sample Date:	3/6/2019	4/4/2019	2/25/2019	4/2/2019	2/27/2019	4/2/2019	2/27/2019	4/2/2019	3/1/2019	4/3/2019	2/27/2019	4/3/2019	4/3/2019	
Parameter ^(1,2,3)														
APPENDIX III	Boron*	--	ND (0.79 J)	--	1.1	--	ND (0.95 J)	--	ND (0.56 J)	--	0.51	--	2.6	0.12
	Calcium*	--	98.0	--	117	--	63.9	--	53.3	--	51.3	--	220	43.4
	Chloride*	--	33.7	--	20.3	--	18.7	--	4.5	--	9.7	--	144	5.0
	Fluoride*	0.88	0.44	ND (0.13 J)	ND (0.23 J)	ND (0.26 J)	ND (0.14 J)	ND	ND (0.044 J)	ND (0.14 J)	ND (0.051 J)	ND (0.13 J)	ND (0.072 J)	ND (0.032 J)
	pH*	7.33	7.33	6.74	6.75	7.38	7.22	6.58	6.48	6.70	6.58	7.26	7.14	7.69
	Sulfate*	--	255	--	272	--	86.9	--	70.1	--	90.6	--	593	61.9
	TDS*	--	617	--	604	--	321	--	258	--	259	--	1090	244
APPENDIX IV	Antimony	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--	--
	Arsenic	ND (0.0015 J)	ND (0.00041 J)	ND	ND (0.00030 J)	ND (0.0010 J)	ND (0.00024 J)	ND (0.00083 J)	ND (0.00015 J)	ND	ND (0.00017 J)	ND (0.0014 J)	ND (0.00027 J)	ND (0.00038 J)
	Barium	0.065	0.049	0.028	0.025	0.014	0.015	0.027	0.028	0.028	0.033	0.032	0.029	0.033
	Beryllium	ND	ND	ND (0.000087 J)	ND (0.000063 J)	ND	ND	ND (0.00011 J)	ND (0.000052 J)	ND	ND	ND	ND	ND
	Cadmium	ND	ND	0.0016	0.0014	ND	ND	ND	ND (0.000073 J)	ND	ND	ND	ND	ND
	Chromium	ND	ND (0.00057 J)	ND	ND	ND	ND (0.00044 J)	ND	ND	ND	ND	ND (0.0048 J)	ND (0.00088 J)	ND
	Cobalt⁺	ND	ND (0.00015 J)	ND (0.0071 J)	ND (0.0056 J)	ND	ND (0.00015 J)	ND	ND (0.00012 J)	ND	ND (0.000072 J)	ND	ND (0.00024 J)	ND (0.00064 J)
	Fluoride	0.88	0.44	ND (0.13 J)	ND (0.23 J)	ND (0.26 J)	ND (0.14 J)	ND	ND (0.044 J)	ND (0.14 J)	ND (0.051 J)	ND (0.13 J)	ND (0.072 J)	ND (0.032 J)
	Lead	ND	ND	ND	ND	ND	ND	ND	ND (0.000081 J)	ND	ND	ND	ND	ND (0.000068 J)
	Lithium	ND	ND	ND	ND (0.00049 J)	ND	ND (0.00069 J)	ND	ND	ND	ND	ND (0.015 J)	ND (0.012 J)	ND
	Mercury	ND	ND	ND	ND	ND (0.00029 J)	0.00040	ND (0.000079 J)	ND	ND (0.000050 J)	ND	ND (0.000066 J)	ND	ND
	Molybdenum⁺	0.013	ND (0.0088 J)	ND	ND	ND	ND	ND	ND	ND	ND (0.00023 J)	0.013	0.012	ND (0.0019 J)
	Comb. Radium 226/228	9.46	8.48	1.08	1.73	1.57	0.710 U	1.12	0.814 U	0.989 U	0.980 U	1.24	0.567 U	0.532 U
	Selenium	ND	ND (0.00014 J)	ND	ND (0.00060 J)	ND	ND (0.00077 J)	ND	ND (0.0010 J)	ND	ND (0.00058 J)	ND	ND	ND (0.00012 J)
Thallium	ND	ND	ND (0.00023 J)	ND (0.00020 J)	ND	ND (0.000075 J)	ND	ND	ND	ND	ND	ND	ND	

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(1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units) and combined radium reported as picocuries per liter (pCi/L).

(2) Metals were analyzed by EPA Method 6020B, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and combined radium 226/228 by EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.

(3) Appendix III parameters with a "*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly, Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the June and October 2018 assessment monitoring events.

(4) Well is designated a delineation monitoring well.

(5) The value exceeds the Maximum Contaminant Level (MCL) for arsenic (0.010 mg/L). An alternate source demonstration (ASD) was prepared and will be submitted to Georgia EPD in the semiannual groundwater monitoring report on July 31, 2019.

Table 3
Summary of Groundwater Analytical Data
Plant Bowen AP-1, Bartow County, Georgia

Well ID:	BGWC-22	BGWC-22	BGWC-22	BGWC-23	BGWC-23	BGWC-24	BGWC-24	BGWC-25	BGWC-25	BGWC-30	BGWC-30	BGWA-6 ⁽⁴⁾	
Sample Date:	3/1/2019	4/3/2019	5/2/2019	3/1/2019	4/3/2019	3/1/2019	4/3/2019	3/1/2019	4/4/2019	3/1/2019	4/2/2019	4/2/2019	
Parameter ^(1,2,3)													
APPENDIX III	Boron*	--	7.9	10.1	--	6.5	--	23.3	--	ND (0.020 J)	--	ND (6.1 J)	ND (0.037 J)
	Calcium*	--	458	647	--	396	--	945	--	54.8	--	181	64.1
	Chloride*	--	856	999	--	679	--	1890	--	3.8	--	333	9.0
	Fluoride*	0.34	ND (0.23 J)	1.4	0.38	ND (0.10 J)	1.0	3.0	ND (0.12 J)	ND	ND (0.24 J)	0.68	ND
	pH*	6.90	6.77	6.92	7.16	7.00	6.57	6.57	7.50	7.38	7.32	7.22	7.24
	Sulfate*	--	720	827	--	603	--	648	--	11.4	--	153	29.8
	TDS*	--	2180	--	--	1990	--	ND (13.0 J)	--	196	--	773	295
APPENDIX IV	Antimony	ND	--	--	ND	--	ND	--	ND	--	ND	--	--
	Arsenic	ND (0.0011 J)	ND (0.0021 J)	ND	ND (0.0023 J)	ND (0.00093 J)	ND (0.0032 J)	ND (0.0019 J)	ND (0.0022 J)	ND (0.0016 J)	ND	ND (0.00024 J)	ND (0.00032 J)
	Barium	0.087	0.082	--	0.097	0.087	0.12	0.095	0.021	0.016	0.078	0.075	0.011
	Beryllium	ND (0.00012 J)	ND (0.000067 J)	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Cadmium	ND (0.00013 J)	ND	--	ND (0.00019 J)	ND	0.0058	0.0053	ND	ND	ND	ND (0.000079 J)	ND
	Chromium	ND	ND	ND	ND (0.0033 J)	ND (0.00057)	ND	ND	ND	ND	ND	ND (0.00095 J)	ND
	Cobalt[†]	0.017	0.019	0.023 J	ND	ND (0.00058)	ND (0.0055 J)	ND (0.0048 J)	ND	ND (0.00022 J)	ND	ND (0.00022 J)	ND (0.00016 J)
	Fluoride	0.34	ND (0.23 J)	1.4	0.38	ND (0.10 J)	1.0	3.0	ND (0.12 J)	ND	ND (0.24 J)	0.68	ND
	Lead	ND (0.00033 J)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.000070 J)
	Lithium	ND (0.022 J)	ND (0.024 J)	--	ND (0.017 J)	ND (0.013 J)	ND (0.0068 J)	ND (0.0048 J)	ND	ND	ND (0.0044 J)	ND (0.0041 J)	ND
	Mercury	ND (0.000042 J)	ND	--	ND (0.000044 J)	ND	0.00093	0.0013	ND (0.000047 J)	ND	ND (0.00010 J)	ND	ND
	Molybdenum⁺	0.039	0.039	0.043	0.013	0.012	ND	ND (0.00095 J)	ND	ND (0.00096 J)	0.011	0.010	ND (0.00026 J)
	Comb. Radium 226/228	3.32	2.48	--	2.24	2.86	3.37	3.60	0.634 U	0.346 U	2.47	2.29	0.640 U
	Selenium	ND	ND	ND	ND	ND	ND	ND (0.0038 J)	ND	ND	ND (0.010 J)	ND (0.0092 J)	ND (0.00031 J)
Thallium	ND (0.00074 J)	ND (0.00070 J)	--	ND	ND	ND (0.00070 J)	ND (0.00064 J)	ND	ND	ND (0.00024 J)	ND (0.00024 J)	ND (0.000062 J)	

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Table 3
Summary of Groundwater Analytical Data
Plant Bowen AP-1, Bartow County, Georgia

Well ID:	BGWA-33 ⁽⁴⁾	BGWC-31 ⁽⁴⁾	BGWC-32 ⁽⁴⁾	BGWC-32	BGWC-34D ⁽⁴⁾	BGWC-35D ⁽⁴⁾	BGWC-36D ⁽⁴⁾	BGWC-37D ⁽⁴⁾	BGWC-38D ⁽⁴⁾	
Sample Date:	4/3/2019	4/4/2019	4/5/2019	5/3/2019	4/4/2019	4/4/2019	4/2/2019	5/3/2019	5/2/2019	
Parameter ^(1,2,3)										
APPENDIX III	Boron*	0.66	ND (0.59 J)	ND (4.6 J)	3.4	0.15	8.3	ND (6.7 J)	--	--
	Calcium*	44.9	69.3	265	203	104	442	200	--	--
	Chloride*	5.2	32.7	270	257	28.4	605	378	--	--
	Fluoride*	ND (0.085 J)	ND	0.66	1.3	ND (0.035 J)	ND (0.26 J)	0.44	--	--
	pH*	7.67	7.19	7.28	7.18	7.32	7.20	6.48	7.51	7.32
	Sulfate*	26.2	105	312	304	88.0	643	192	--	--
	TDS*	235	350	1160	--	419	1930	976	--	--
APPENDIX IV	Antimony	--	--	--	--	--	--	--	--	--
	Arsenic	ND (0.0020 J)	ND (0.0036 J)	ND (0.00093 J)	--	0.015 ⁽⁵⁾	ND (0.0018 J)	ND (0.00039 J)	--	--
	Barium	0.25	0.032	0.085	--	0.031	0.071	0.074	--	--
	Beryllium	ND	ND	ND	--	ND	ND	ND (0.000070 J)	--	--
	Cadmium	ND	ND	ND	--	ND	ND	ND	--	--
	Chromium	ND	ND	ND	--	ND	ND (0.0011 J)	ND (0.0010 J)	--	--
	Cobalt⁺	ND (0.00011 J)	ND (0.00051 J)	0.011	ND (0.0078 J)	ND (0.00042 J)	ND (0.0011 J)	ND (0.0011 J)	--	--
	Fluoride	ND (0.085 J)	ND	0.66	--	ND (0.035 J)	ND (0.26 J)	0.44	--	--
	Lead	ND	ND (0.00065 J)	ND	--	ND (0.000054 J)	ND (0.00023 J)	ND (0.00067 J)	--	--
	Lithium	ND	ND	ND	--	ND (0.00068 J)	ND (0.0096 J)	ND (0.0021 J)	--	--
	Mercury	ND	ND	ND	--	ND	ND	ND	--	--
	Molybdenum⁺	0.034	ND (0.00033 J)	ND (0.0035 J)	ND (0.0048 J)	ND (0.0011 J)	0.030	0.011	0.040	0.11
	Comb. Radium 226/228	0.690 U	1.49	2.20	--	1.89	2.37	2.81	--	--
	Selenium	ND (0.00013 J)	ND (0.000080 J)	ND (0.00015 J)	--	ND (0.00010 J)	ND	0.014	--	--
Thallium	ND	ND	ND (0.00046 J)	--	ND	ND	ND (0.00022 J)	--	--	

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Table 4
Evaluation of Remedial Technologies
Plant Bowen AP-1, Bartow County, Georgia

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 Co and Mo. Under anaerobic conditions, Co would be attenuated within sparingly soluble sulfide minerals; this approach might also increase the attenuation of Mo. 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 potentially, Mo) 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 Mo 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 molybdenum can be efficiently attenuated using in-situ redox manipulations due to slow reaction kinetics. Mo attenuation under both aerobic and anaerobic conditions needs to be further evaluated but is expected to occur. Mo 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 Mo 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, CCR conditioning, etc.). It is applicable to a variable mix of inorganic constituents, including dissolved Co and Mo.	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-1, 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.
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 cobalt (Co) and molybdenum (Mo) at AP-1, are either physical (e.g. dilution, dispersion, flushing, and related processes) or chemical (e.g., 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 Mo, the main attenuation processes include sorption to iron and manganese oxides (Co and Mo), aluminum oxides (Mo), and formation of sparingly soluble sulfide minerals (Co).	Physical and chemical MNA mechanisms for Co and Mo, 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 Mo are already occurring at the site as evidenced by 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 Mo at AP-1 will further enhance ongoing MNA.	Reliable as long as the aquifer conditions that result in Co and Mo 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 Mo, or in combination with a second technology.
Permeable Reactive Barrier	Permeable reactive barrier (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 currently proposed for the concurrent removal of Co and Mo. The carbon could be composed of peat moss, mulch or another carbon source. Exact placement of the PRB is 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 Mo 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. Molybdenum 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 Mo.	Reliable groundwater corrective measure, 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.
Phytoremediation / TreeWells	Phytoremediation uses trees and other plants to degrade or immobilize constituents or achieve hydraulic control without the need for an above-ground water treatment system and infrastructure. Within the context of AP-1, this corrective measure would likely use an engineered (proprietary) TreeWell® phytoremediation system along the point of compliance or downgradient edge of the impacted groundwater for hydraulic control. The system promotes root development to the targeted groundwater zone (depth), allowing for hydraulic control of impacted groundwater. In addition, immobilization of Co and Mo within the root zone as well as incidental uptake of dissolved Co and Mo with groundwater is expected to occur concurrent with hydraulic control.	Once established (typically at the end of the third growing season), a TreeWell system is effective for providing hydraulic containment of groundwater, and potential reduction of Co and Mo concentrations through immobilization and/or uptake and sequestration in the tree biomass; however, the main purpose is to provide hydraulic control. Given the site-specific hydrogeology and reported Co and Mo groundwater concentrations surrounding AP-1, the approach is currently considered to be applicable in this setting. However, additional aquifer testing and/or groundwater flow modeling may be needed to confirm suitability for the area downgradient of AP-1.	Engineered phytoremediation is a proven technology where hydrogeologic factors are taken into account (e.g., hydraulic conductivity, flow velocity, depth to impacted groundwater zone, etc.). This is considered an active remedial approach through the use of trees as the "pumps" driving the system. Careful design will be needed to select the proper species, which will include consideration of groundwater chemistry, plant uptake of constituents, and groundwater flow modeling to evaluate the required number and placement of TreeWell® units.
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.	Barrier walls are a proven technology for seepage control and/or groundwater cutoff at impoundments. Slurry walls are limited by the depth of installation, which is approximately 90 ft bgs. However, site-specific geologic and technology-specific considerations may limit this depth to shallower installations. Within the context of AP-1, 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 Co and Mo 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, aquifer testing, and compatibility testing with site-specific groundwater will be needed.	Generally reliable as a barrier to groundwater flow; however, treatment of downgradient groundwater is incidental and not the primary objective.

Table 4
Evaluation of Remedial Technologies
Plant Bowen AP-1, Bartow County, Georgia

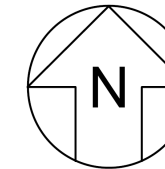
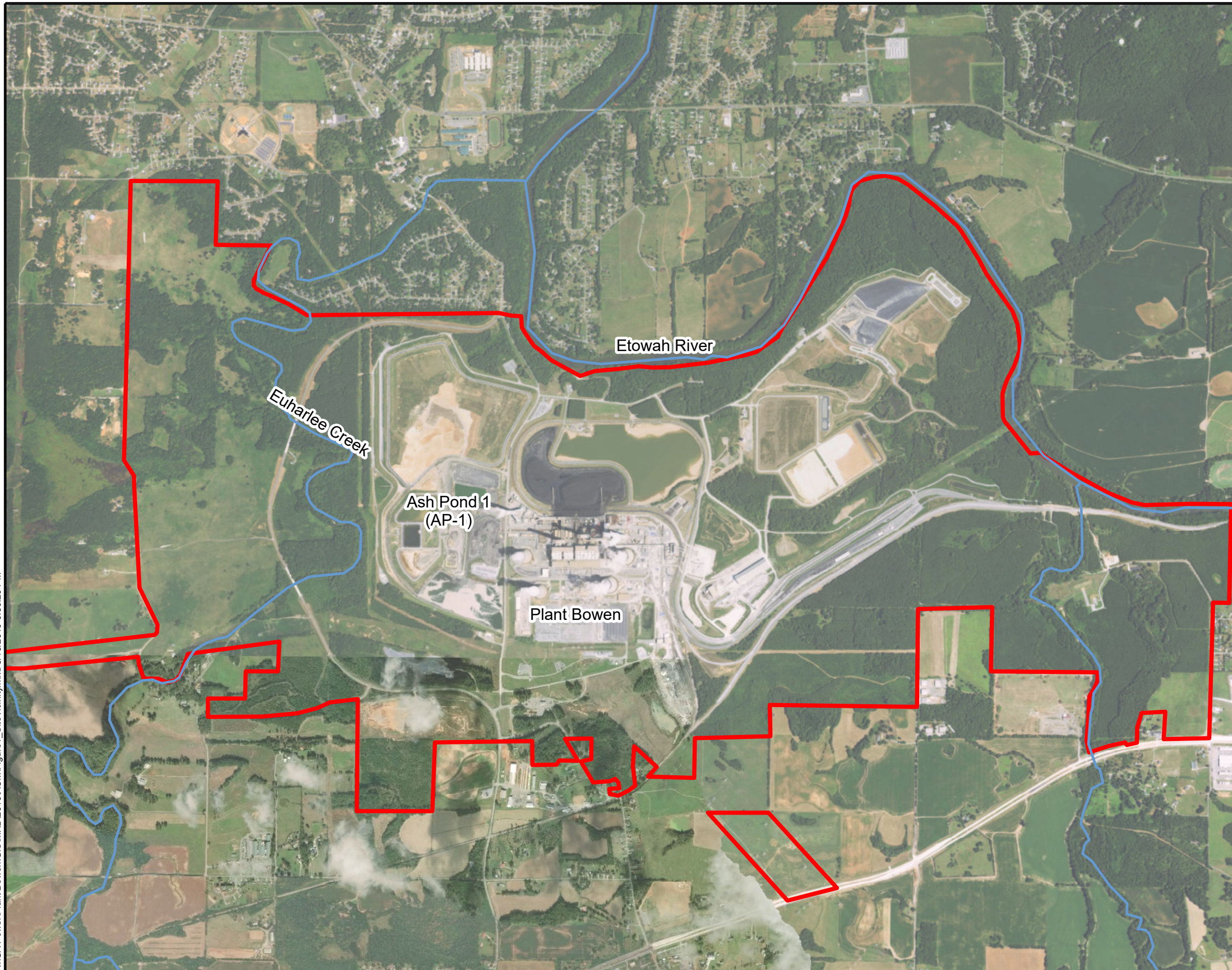
Corrective Measure	40 CFR 257.96(C)(1) Ease of Implementation	40 CFR 257.96(C)(1) Potential Impacts	40 CFR 257.96(C)(2) Time Requirement to Begin/Complete
Geochemical Approaches (In-Situ Injection)	Moderate. Installation of injection well network or other injection infrastructure would be required. Alternative 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 studied and implemented.	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 Mo. 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 Mo.
Monitored Natural Attenuation (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-1 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.
Permeable Reactive Barrier	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.
Phytoremediation / TreeWells	Reasonably implementable to moderate. Engineered approach has been proven effective, and specific depth zones can be targeted. Trees are installed as "tree wells" in a large diameter boring to get the roots deep enough to intercept impacted groundwater flow paths. Area must be clear of above- and below-ground structures (i.e., power lines). The system, once established (approximately three growing seasons), is a self-maintaining, sustainable remedial system that has no external energy requirements and little maintenance (i.e., efforts normally associated with landscaping).	Minimal impacts are expected. In fact, there are several positive impacts expected, including enhanced aesthetics, wildlife habitat, and limited energy consumption.	The design phase will require some groundwater modeling for optimal placement of the TreeWell units, which may take up to 6 months. Depending on the number of required units, the installation effort is expected to last several weeks. Hydraulic capture/control is expected approximately three years after planting and system performance is expected to further improve over time.
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 the construction of the remedy 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. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone that may result in the mobilization of other constituents that may require treatment.	Installation of a barrier wall can be accomplished relatively quickly (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 4
Evaluation of Remedial Technologies
Plant Bowen AP-1, Bartow County, Georgia

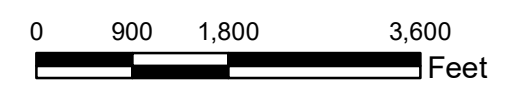
Corrective Measure	40 CFR 257.96(C)(3)		Relative Costs
	Institutional Requirements	Other Env or Public Health Requirements	
Geochemical Approaches (In-Situ Injection)	Deed restrictions may be necessary until in-situ treatment has achieved GWPS. A new UIC permit (for in-situ injections) would be required to implement this corrective measure. No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Potential 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 NPDES permit may be required, or obtaining a new underground injection control (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.	Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. 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)
Monitored Natural Attenuation (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. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1.	Low to medium
Permeable Reactive Barrier	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. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. 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
Phytoremediation / TreeWells	Deed restrictions may be necessary for groundwater areas upgradient of the TreeWell system. No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Innovative and green technology may be positively received by various stakeholders. Following installation, the remedy is passive and does not require external energy.	Medium (for installation) - minimal O&M requirements
Subsurface Vertical Barrier Walls	Deed restrictions may be necessary for groundwater areas downgradient of the barrier wall until remedial goals are met. No other institutional requirements are expected at this time.	Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. 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

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LEGEND
 Approximate Site Boundary
 River or Stream



SITE LOCATION MAP

GEORGIA POWER COMPANY
 PLANT BOWEN AP-1
 BARTOW COUNTY, GEORGIA



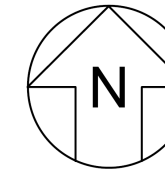



Prepared For:	
Prepared By:	
KENNESAW, GA	MAY 2019

FIGURE
1

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LEGEND

-  Compliance Monitoring Well
-  Groundwater Level Monitoring Piezometer
-  Delineation Monitoring Well



NOTE:
1. All wells and piezometers presented are screened within the weathered fractured bedrock.



MONITORING WELL NETWORK MAP

GEORGIA POWER COMPANY
PLANT BOWEN AP-1
BARTOW COUNTY, GEORGIA

Prepared For:  Georgia Power

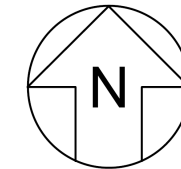
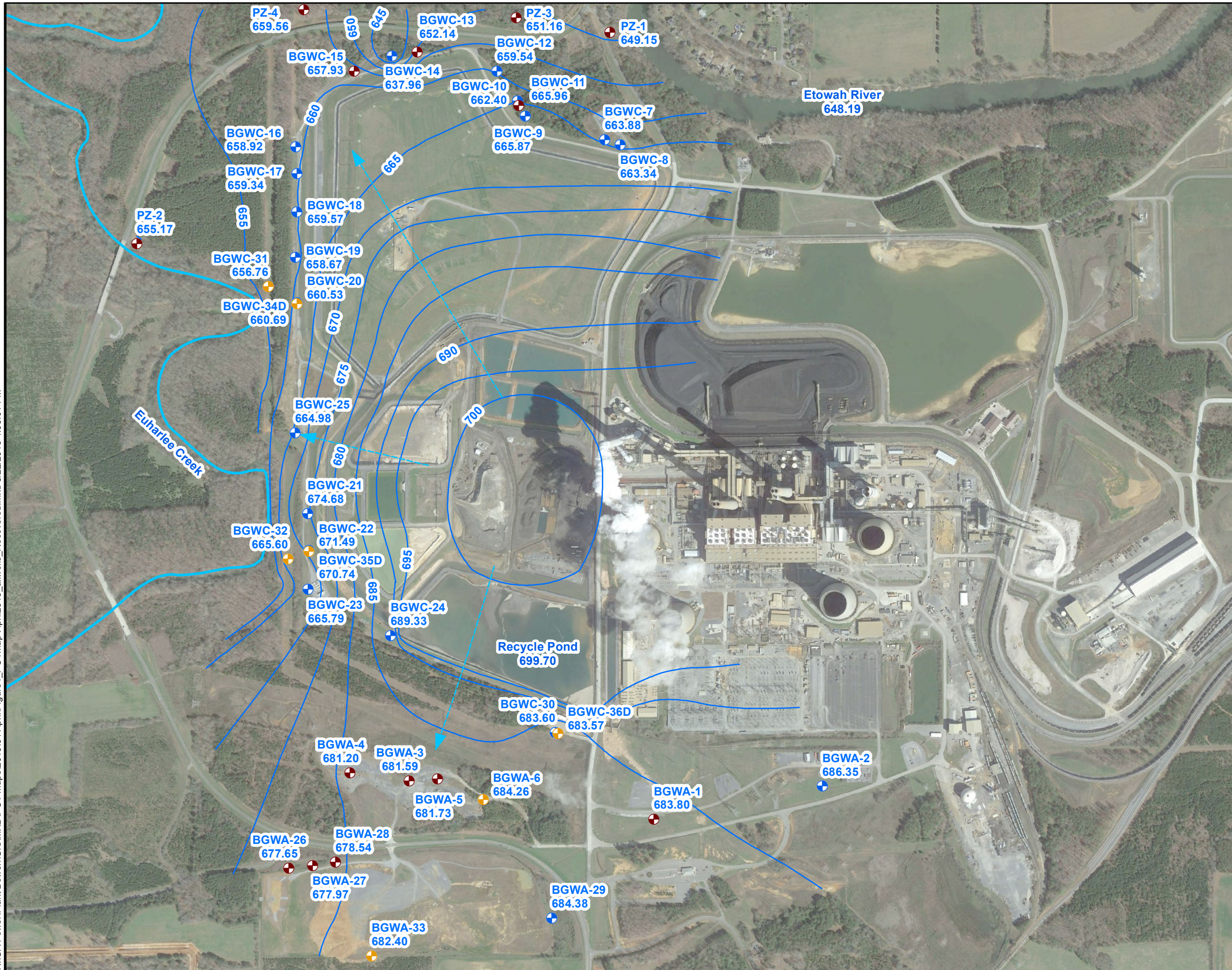
Prepared By:  Geosyntec
consultants

FIGURE
2

KENNESAW, GA

MAY 2019

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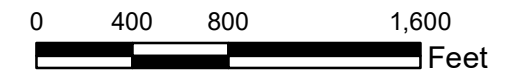


LEGEND

- + Compliance Monitoring Well
- + Groundwater Level Monitoring
- + Delineation Monitoring Well
- Groundwater Elevation Iso-Contour (ft AMSL)
- ➔ Approximate Groundwater Flow



- NOTES:**
1. Water level elevations recorded on April 1, 2019. Elevation provided in feet above mean sea level (ft AMSL) in North American Vertical Datum (NAVD) 88.
 2. Aerial photograph source: Google Earth Pro, 2017.



POTENTIOMETRIC SURFACE CONTOUR MAP - APRIL 2019

GEORGIA POWER COMPANY
PLANT BOWEN AP-1
BARTOW COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA

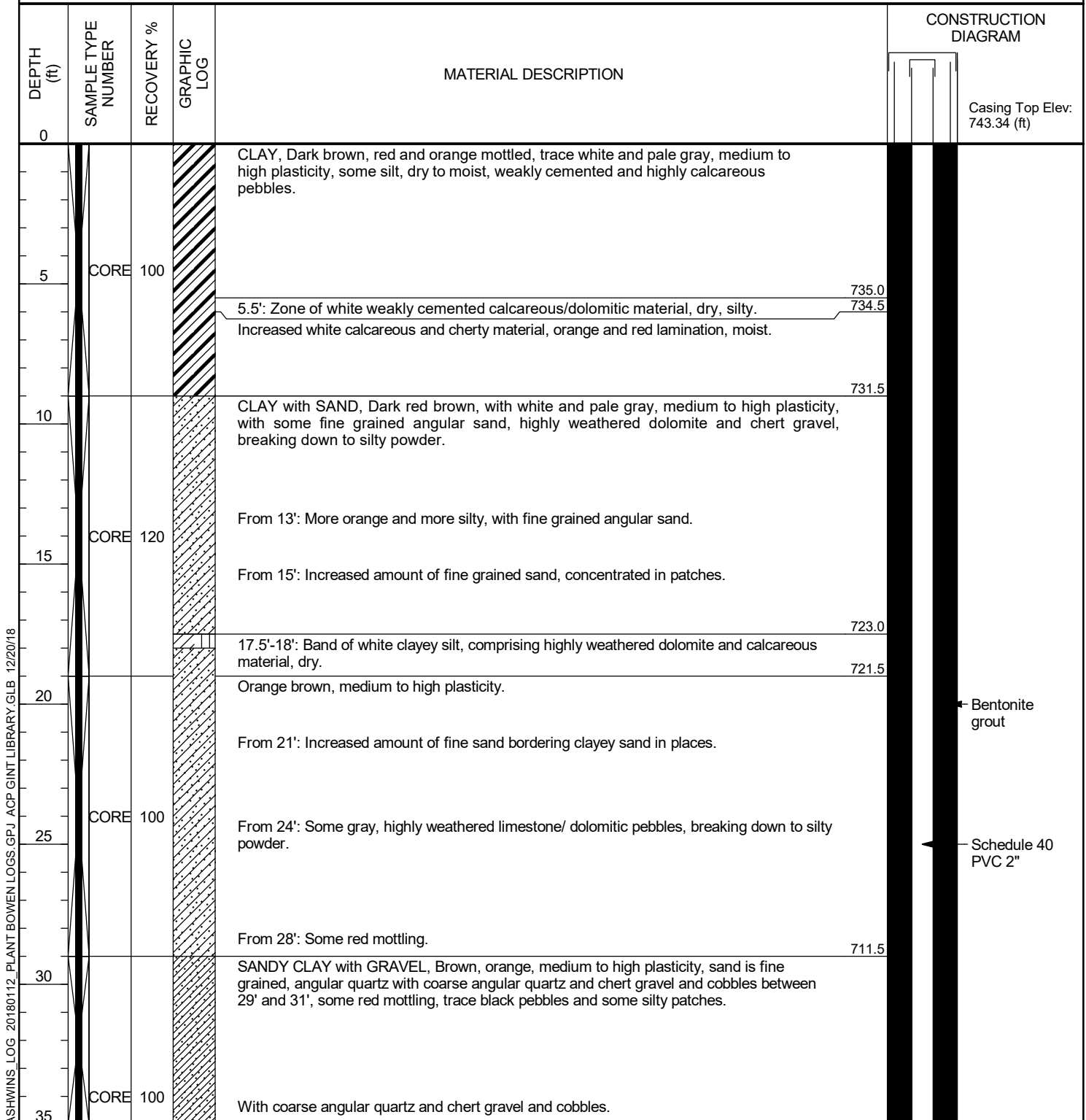
MAY 2019

FIGURE 3

APPENDIX A

Boring and Well Construction Logs

CLIENT Southern Company Services	PROJECT NAME Plant Bowen
PROJECT NUMBER GR6682	PROJECT LOCATION Euharlee Georgia
DATE STARTED 7/10/18	COMPLETED 7/11/18
DRILLER Cascade Drilling	NORTHING 1497973.36 ft
DRILLING METHOD Sonic	EASTING 2064876.5 ft
SAMPLING METHOD 4" core 6" override	GROUND ELEVATION 740.50 ft
RIG TYPE Terrasonic 10S1181	BORING DIAMETER 6 in
	TOP OF CASING ELEVATION 743.34 ft
	GEOPHYSICAL CONTRACTOR ---
	LOGGED BY C. Hug
	CHECKED BY J. Ivanowski



ASHWINS LOG 20180112 PLANT BOWEN LOGS.GPJ ACP GINT LIBRARY.GLB 12/20/18

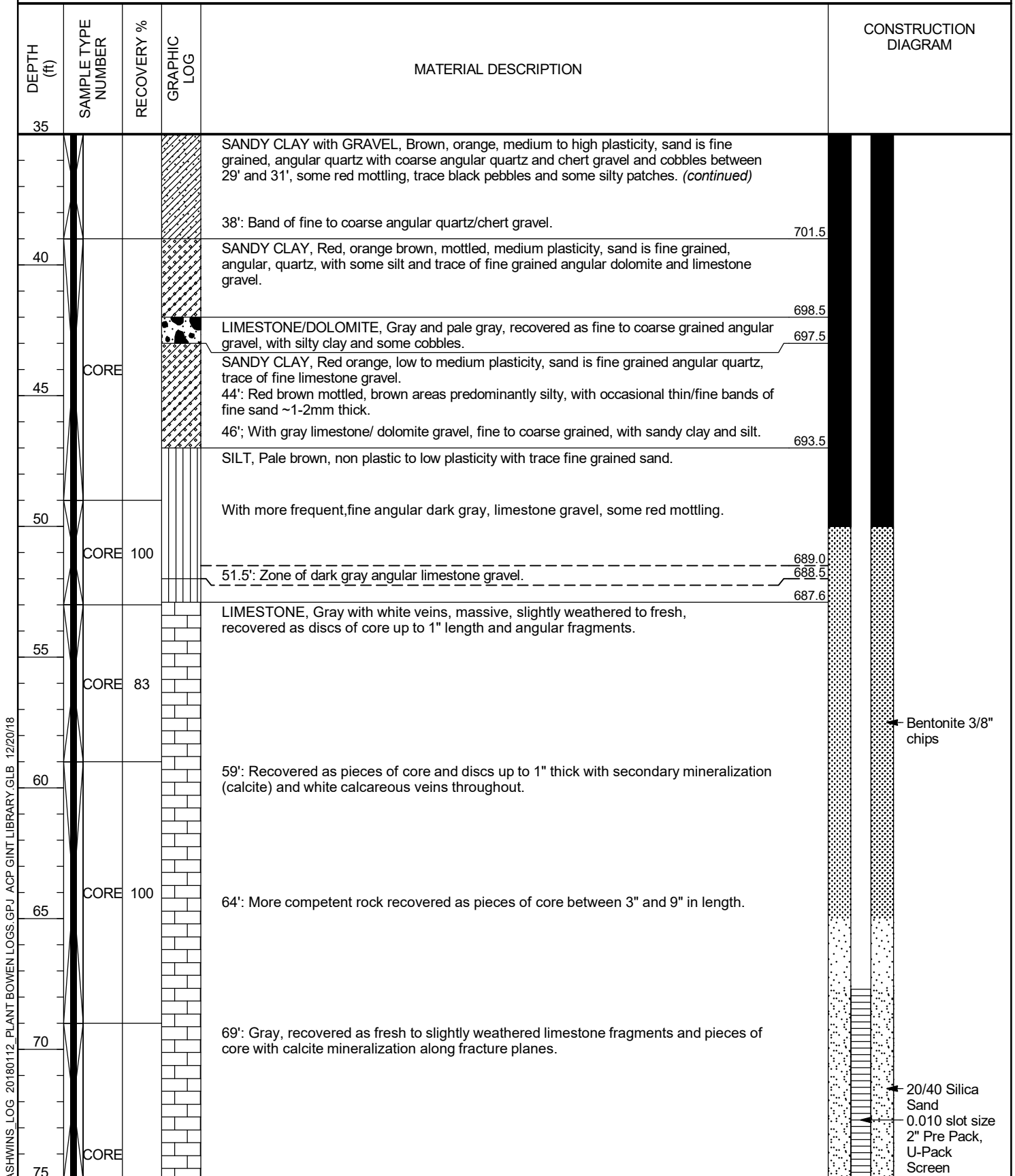
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CLIENT Southern Company Services

PROJECT NAME Plant Bowen

PROJECT NUMBER GR6682

PROJECT LOCATION Euharlee Georgia


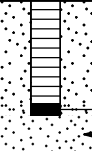


ASHWINS LOG 20180112 PLANT BOWEN LOGS.GPJ ACP GINT LIBRARY.GLB 12/20/18

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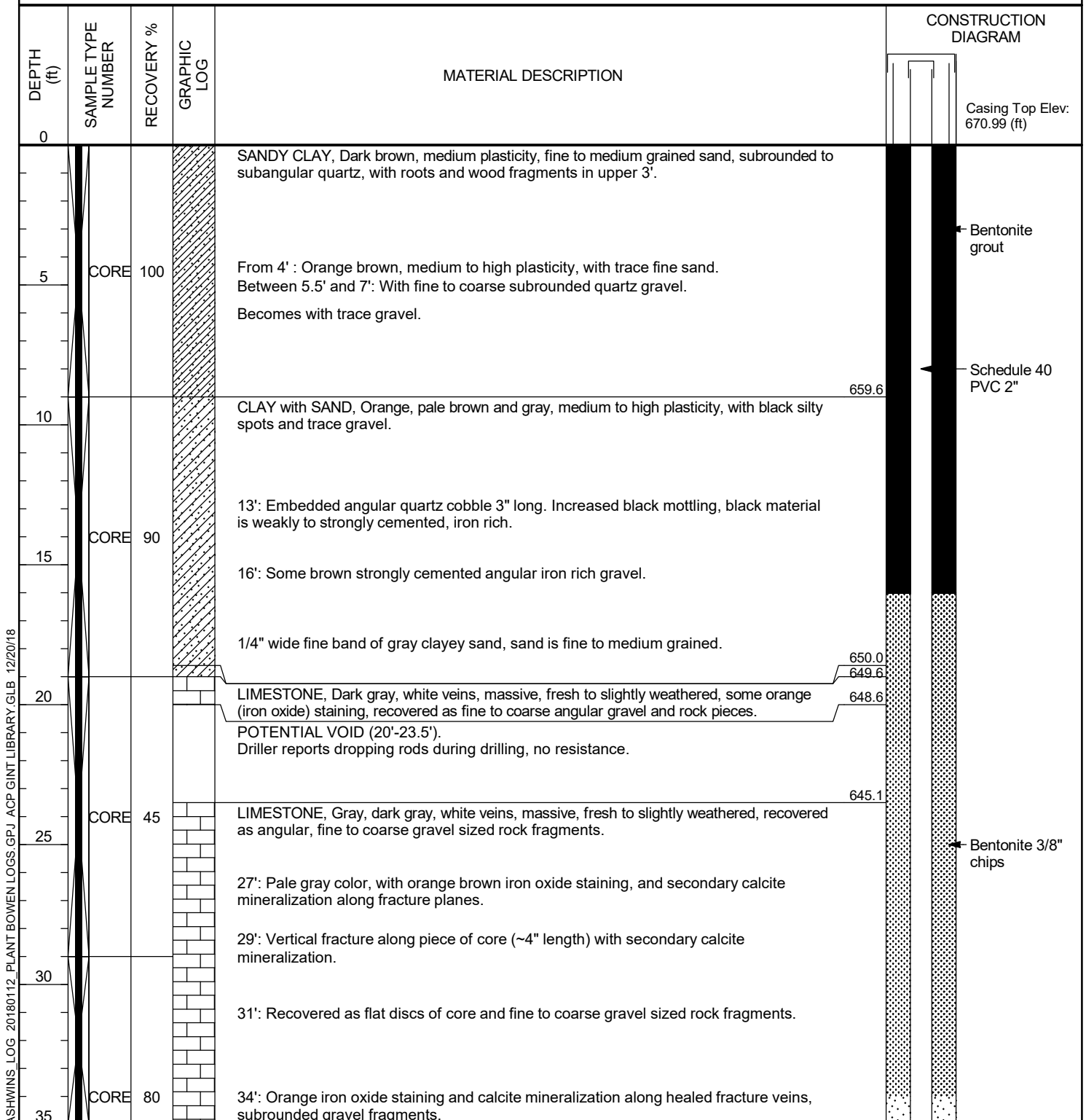
CLIENT Southern Company Services **PROJECT NAME** Plant Bowen

PROJECT NUMBER GR6682 **PROJECT LOCATION** Euharlee Georgia

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
75				LIMESTONE, Gray with white veins, massive, slightly weathered to fresh, recovered as discs of core up to 1" length and angular fragments. <i>(continued)</i>	 <p>Sump 20/40 Silica Sand backfill</p>

Bottom of borehole at 79.0 feet.

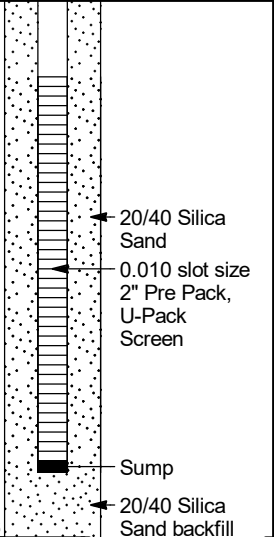
CLIENT Southern Company Services	PROJECT NAME Plant Bowen
PROJECT NUMBER GR6682	PROJECT LOCATION Euharlee Georgia
DATE STARTED 7/17/18	COMPLETED 7/17/18
DRILLER Cascade Drilling	NORTHING 1503498.67 ft
DRILLING METHOD Sonic	EASTING 2064022.77 ft
SAMPLING METHOD 4" core 6" override	GROUND ELEVATION 668.59 ft
RIG TYPE Terrasonic 10S1181	BORING DIAMETER 6 in
	TOP OF CASING ELEVATION 670.99 ft
	GEOPHYSICAL CONTRACTOR ---
	LOGGED BY C. Hug
	CHECKED BY J. Ivanowski



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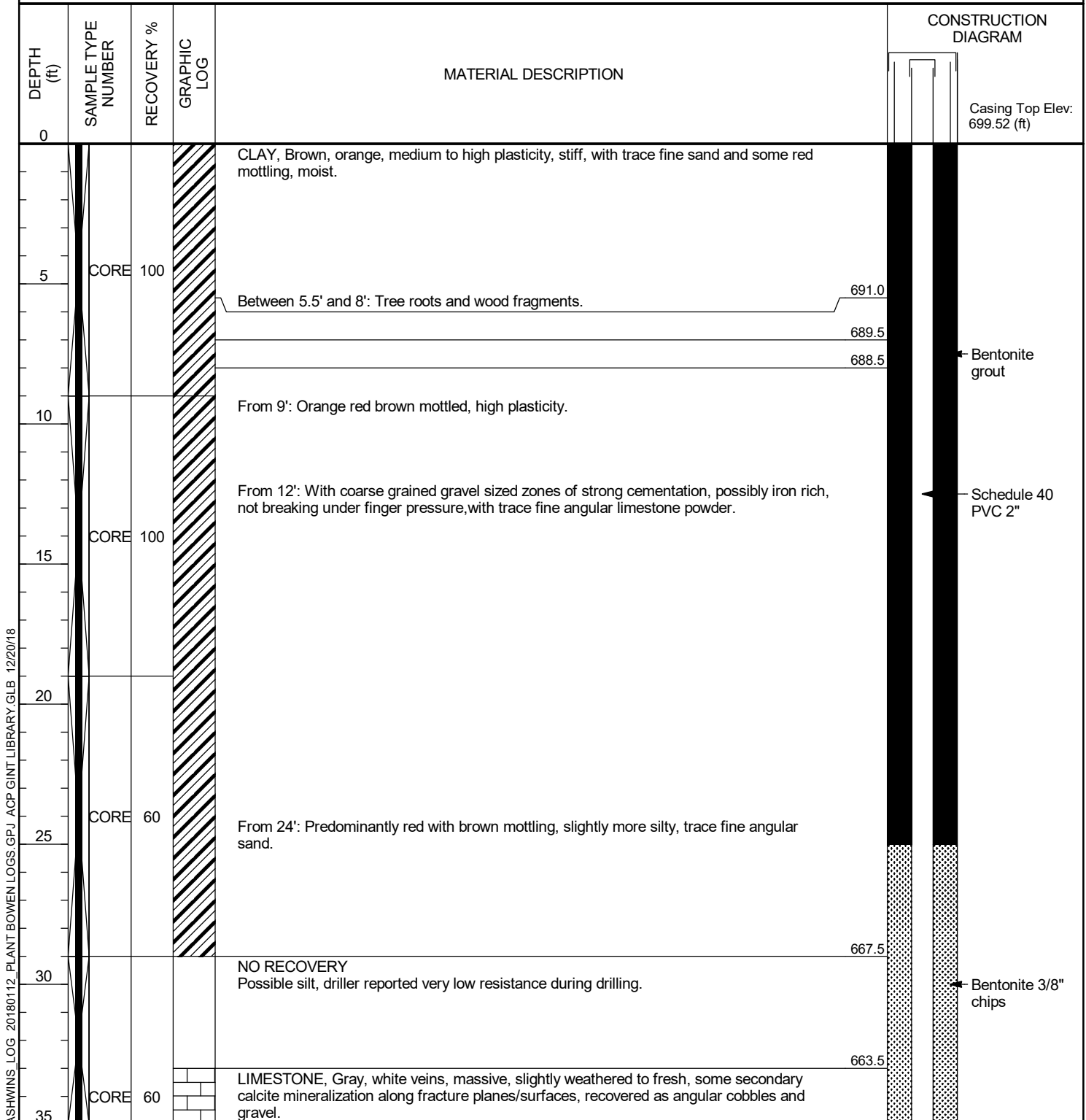
CLIENT Southern Company Services PROJECT NAME Plant Bowen

PROJECT NUMBER GR6682 PROJECT LOCATION Euharlee Georgia

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
35					
40				LIMESTONE, Gray, dark gray, white veins, massive, fresh to slightly weathered, recovered as angular, fine to coarse gravel sized rock fragments. <i>(continued)</i> 39': Some vertical fracture planes, calcite mineralization and calcite filling along healed fractures. Dark gray, recovered as more competent rock, comprising pieces of core up to 8" length, less white veins, fresh bedrock.	
45	CORE 100				

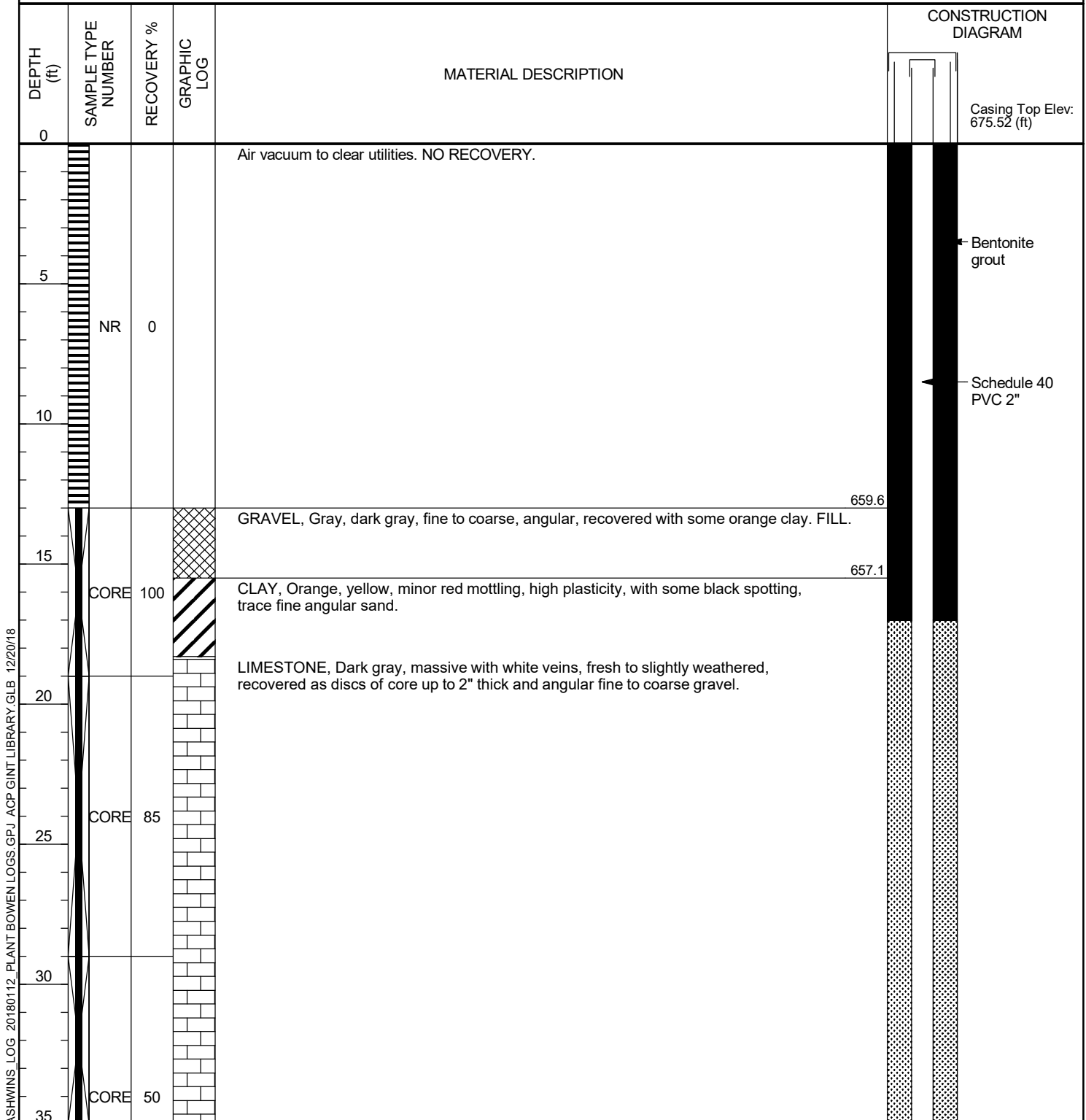
Bottom of borehole at 49.0 feet.

CLIENT Southern Company Services	PROJECT NAME Plant Bowen
PROJECT NUMBER GR6682	PROJECT LOCATION Euharlee Georgia
DATE STARTED 7/18/18	COMPLETED 7/18/18
DRILLER Cascade Drilling	NORTHING 1501251.184 ft
DRILLING METHOD Sonic	EASTING 2064184.426 ft
SAMPLING METHOD 4" core 6" override	GROUND ELEVATION 696.5 ft
RIG TYPE Terrasonic 10S1181	BORING DIAMETER 6 in
	TOP OF CASING ELEVATION 699.52 ft
	GEOPHYSICAL CONTRACTOR ---
	LOGGED BY C. Hug
	CHECKED BY J. Ivanowski



(Continued Next Page)

CLIENT Southern Company Services	PROJECT NAME Plant Bowen
PROJECT NUMBER GR6682	PROJECT LOCATION Euharlee Georgia
DATE STARTED 7/13/18	COMPLETED 7/16/18
DRILLER Cascade Drilling	NORTHING 1503356.623 ft
DRILLING METHOD Sonic	EASTING 2064259.263 ft
SAMPLING METHOD 4" core 6" override	GROUND ELEVATION 672.57 ft
RIG TYPE Terrasonic 10S1181	BORING DIAMETER 6 in
	TOP OF CASING ELEVATION 675.52 ft
	GEOPHYSICAL CONTRACTOR ---
	LOGGED BY C. Hug
	CHECKED BY J. Ivanowski



CLIENT Southern Company Services **PROJECT NAME** Plant Bowen

PROJECT NUMBER GR6682 **PROJECT LOCATION** Euharlee Georgia

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
35				LIMESTONE, Dark gray, massive with white veins, fresh to slightly weathered, recovered as discs of core up to 2" thick and angular fine to coarse gravel. (continued)	
40					
45	CORE 50	50			
50					
55	CORE 30	30			
60				Dark gray and gray, recovered as fine to coarse gravel, angular.	
65	CORE 80	80		64': Increased white calcite veins along sealed fractures and secondary mineralization along fracture planes, recovered as more compact and larger pieces of core up to 4" in length. 67': Recovered as fine to coarse angular gravel and cobble sized fragments of core.	
70				71': Brown orange (iron oxide) staining.	
75	CORE 100	100			

ASHWINS LOG 20180112 PLANT BOWEN LOGS.GPJ ACP GINT LIBRARY.GLB 12/20/18

← Bentonite 3/8" chips

← 20/40 Silica Sand
0.010 slot size
2" Pre Pack,
U-Pack
Screen

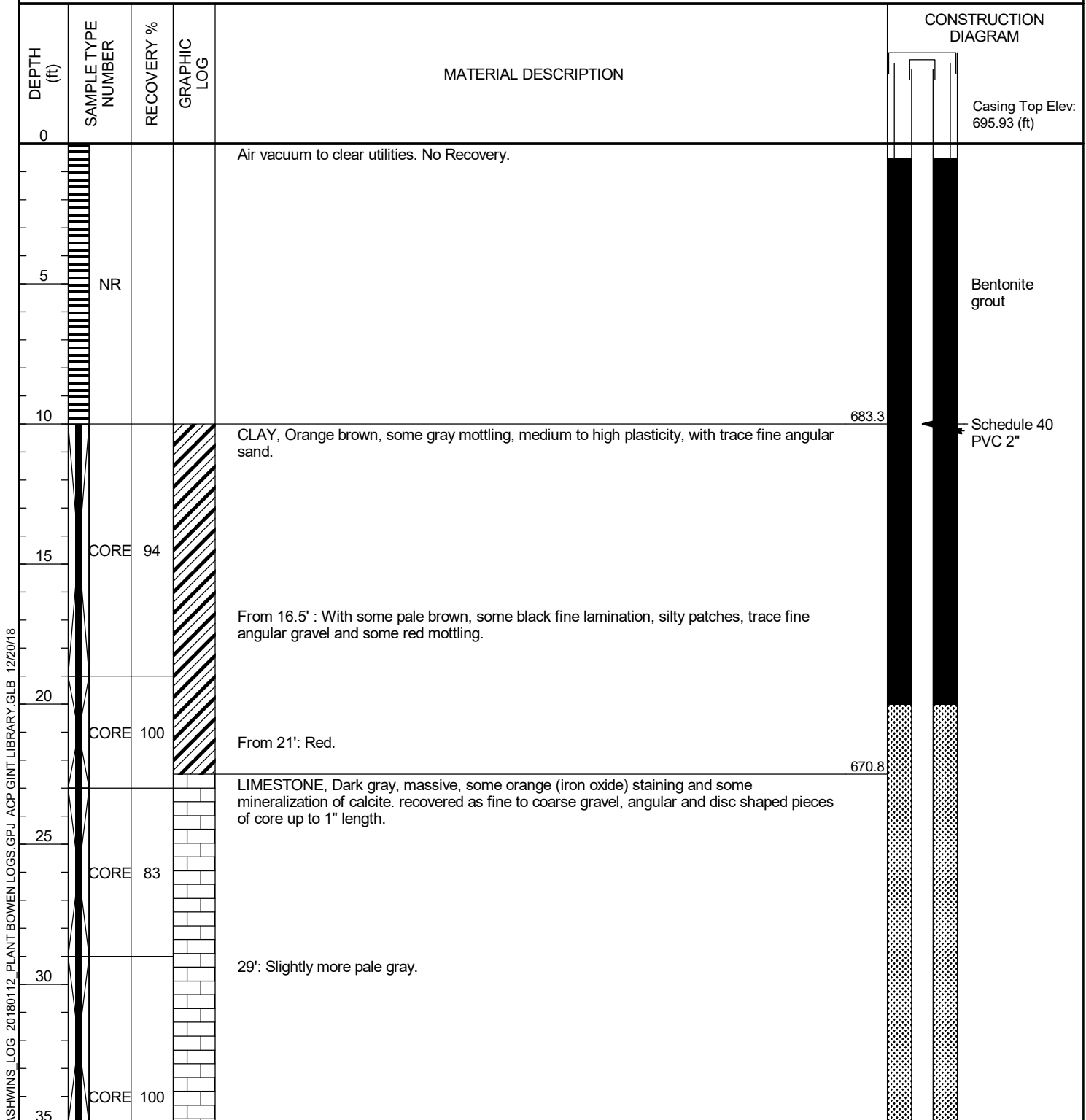
CLIENT Southern Company Services **PROJECT NAME** Plant Bowen

PROJECT NUMBER GR6682 **PROJECT LOCATION** Euharlee Georgia

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
75				LIMESTONE, Dark gray, massive with white veins, fresh to slightly weathered, recovered as discs of core up to 2" thick and angular fine to coarse gravel. <i>(continued)</i> Orange, red and brown (iron oxide) staining.	 Sump 20/40 Silica Sand backfill

Bottom of borehole at 78.0 feet.

CLIENT Southern Company Services	PROJECT NAME Plant Bowen
PROJECT NUMBER GR6682	PROJECT LOCATION Euharlee Georgia
DATE STARTED 7/12/18	COMPLETED 7/12/18
DRILLER Cascade Drilling	NORTHING 1501312.302 ft
DRILLING METHOD Sonic	EASTING 2064359.894 ft
SAMPLING METHOD 4" core 6" override	GROUND ELEVATION 693.32 ft
RIG TYPE Terrasonic 10S1181	BORING DIAMETER 6 in
	TOP OF CASING ELEVATION 695.93 ft
	GEOPHYSICAL CONTRACTOR ---
	LOGGED BY C. Hug
	CHECKED BY J. Ivanowski



CLIENT Southern Company Services

PROJECT NAME Plant Bowen

PROJECT NUMBER GR6682

PROJECT LOCATION Euharlee Georgia

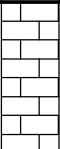
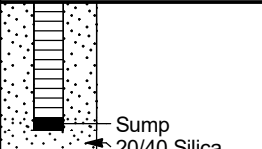
DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
35					
				LIMESTONE, Dark gray, massive, some orange (iron oxide) staining and some mineralization of calcite. recovered as fine to coarse gravel, angular and disc shaped pieces of core up to 1" length. <i>(continued)</i>	
				37': Dark gray with white quartz filled veins and secondary calcite mineralization along fracture lanes/surfaces.	
					654.3
40				POTENTIAL VOID (39'-42'). Driller reports soft drilling	
					651.3
				LIMESTONE, Gray, dark gray massive with white quartz veins and secondary calcite mineralization, fresh.	
45	CORE 70	70			← Bentonite 3/8" chips
				Dark gray, massive sections with no to minor white veins in upper part of run, increased white, secondary calcite mineralization in lower parts of run, fresh to slightly weathered.	
50					
55	CORE 25	25			
60				59': Gray, dark gray with white veins and secondary mineralization along fractured planes/surfaces, recovered as rounded gravel and pebbles of limestone.	
				62': White calcareous and quartz rich veins, recovered as angular and subangular gravel and cobbles.	
65	CORE 60	60			
70				69': Dark gray, recovered as angular fine to coarse grained gravel and cobbles, massive, fresh with white calcite veins.	
75	CORE 40	40			← 20/40 Silica Sand ← 0.010 slot size 2" Pre Pack, U-Pack Screen

ASHWINS LOG 20180112 PLANT BOWEN LOGS.GPJ ACP GINT LIBRARY.GLB 12/20/18

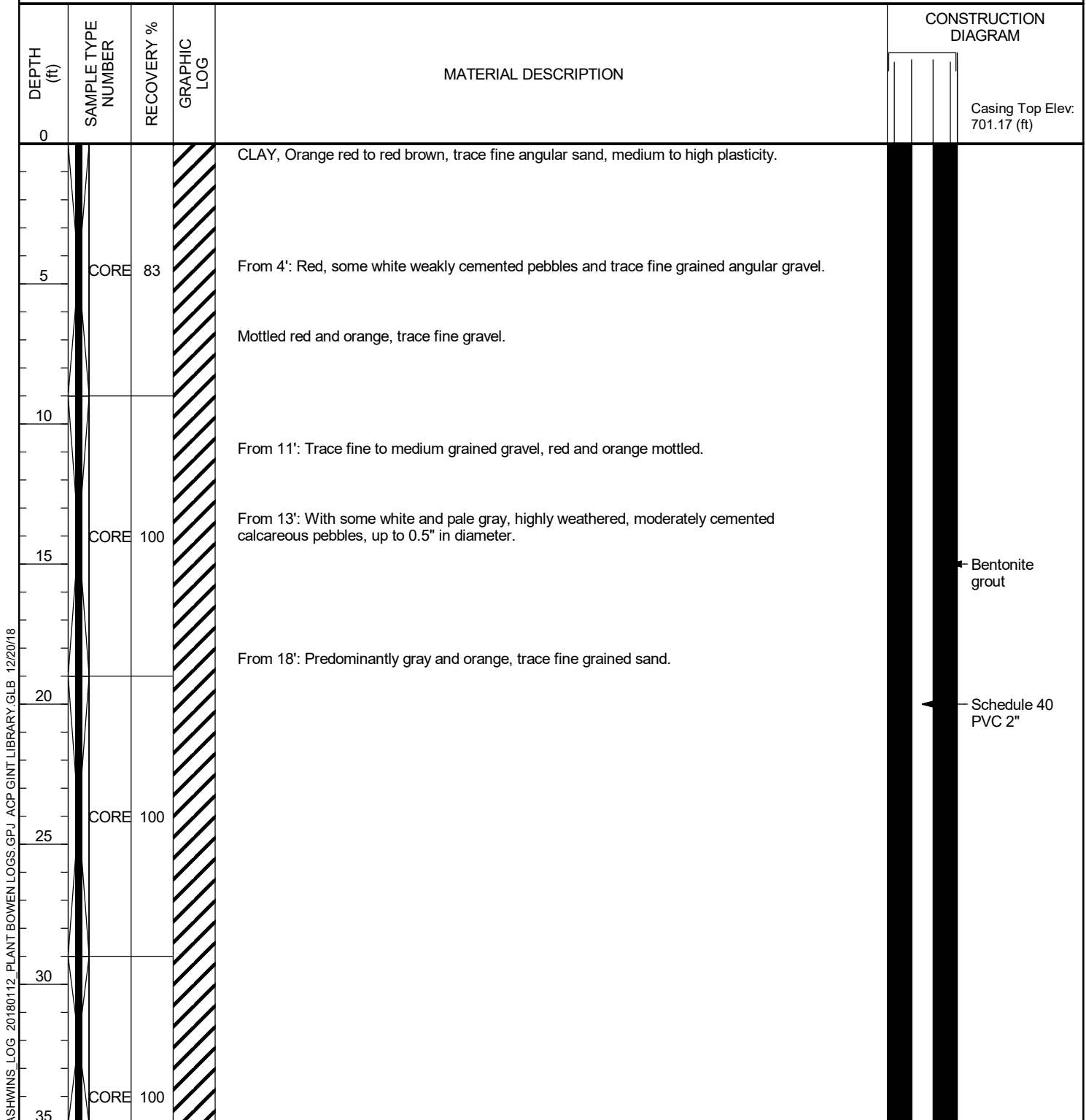
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CLIENT Southern Company Services **PROJECT NAME** Plant Bowen

PROJECT NUMBER GR6682 **PROJECT LOCATION** Euharlee Georgia

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
75				LIMESTONE, Gray, dark gray massive with white quartz veins and secondary calcite mineralization, fresh. <i>(continued)</i>	 <p>614.3</p> <p>Sump 20/40 Silica Sand backfill</p>
Bottom of borehole at 79.0 feet.					

CLIENT <u>Southern Company Services</u>	PROJECT NAME <u>Plant Bowen</u>
PROJECT NUMBER <u>GR6682</u>	PROJECT LOCATION <u>Euharlee Georgia</u>
DATE STARTED <u>7/2/18</u> COMPLETED <u>7/3/18</u>	NORTHING <u>1499808.604 ft</u> EASTING <u>2066415.392 ft</u>
DRILLER <u>Cascade Drilling</u>	GROUND ELEVATION <u>698.22 ft</u> BORING DIAMETER <u>6 in</u>
DRILLING METHOD <u>Sonic</u>	TOP OF CASING ELEVATION <u>701.17 ft</u>
SAMPLING METHOD <u>4" core 6" override</u>	GEOPHYSICAL CONTRACTOR <u>---</u>
RIG TYPE <u>Terrasonic 10S1181</u>	LOGGED BY <u>C. Hug</u> CHECKED BY <u>J. Ivanowski</u>






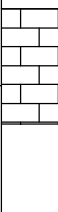


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CLIENT Southern Company Services

PROJECT NAME Plant Bowen

PROJECT NUMBER GR6682

PROJECT LOCATION Euharlee Georgia

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
35					
35				CLAY, Orange red to red brown, trace fine angular sand, medium to high plasticity. (continued) 35': With angular rock fragments up to 3" in diameter (limestone) and quartz gravel, slightly more silty. 37.5': Gray, angular, quartz rich limestone fragment.	
40	CORE 100				
45				LIMESTONE, Gray, white, massive, white calcareous veins throughout, drilled as pieces of rock.	655.2
45	CORE 33			POTENTIAL VOID (45'-47'). Driller reports dropping rods, no resistance.	653.2
45				LIMESTONE, Gray, with white calcareous veins, massive, fresh to slightly weathered, minor brown iron oxide staining. Drilled as discs of core and fragments up to 3" length, angular medium to high strength.	651.2
50				POTENTIAL VOID (50'-52.5'). Driller reports dropping rods, no resistance.	648.2
50	CORE 30			LIMESTONE Gray, white calcareous veins, massive, breaking angular, fresh, high strength, minor iron oxide staining. Recovered as discs of rock fragments.	645.7
55				POTENTIAL VOID (59'-64'). Potential SILT. Driller reports very low resistance during drilling.	639.2
60	CORE 50			LIMESTONE, Gray, white spotted and calcareous veins throughout, massive fresh, high strength, recovered as angular rock core fragments , up to 3" length.	634.2
65				POTENTIAL VOID (69'-72'). Driller reports very low resistance during drilling.	629.2
70	CORE 70			LIMESTONE, Gray, white massive, fresh to slightly weathered, medium to high strength, coarse gravel sized, angular, recovered as disc shaped core fragments up to 2" length.	626.2
75					

← Bentonite 3/8" chips

ASHWINS LOG 20180112 PLANT BOWEN LOGS.GPJ ACP GINT LIBRARY.GLB 12/20/18

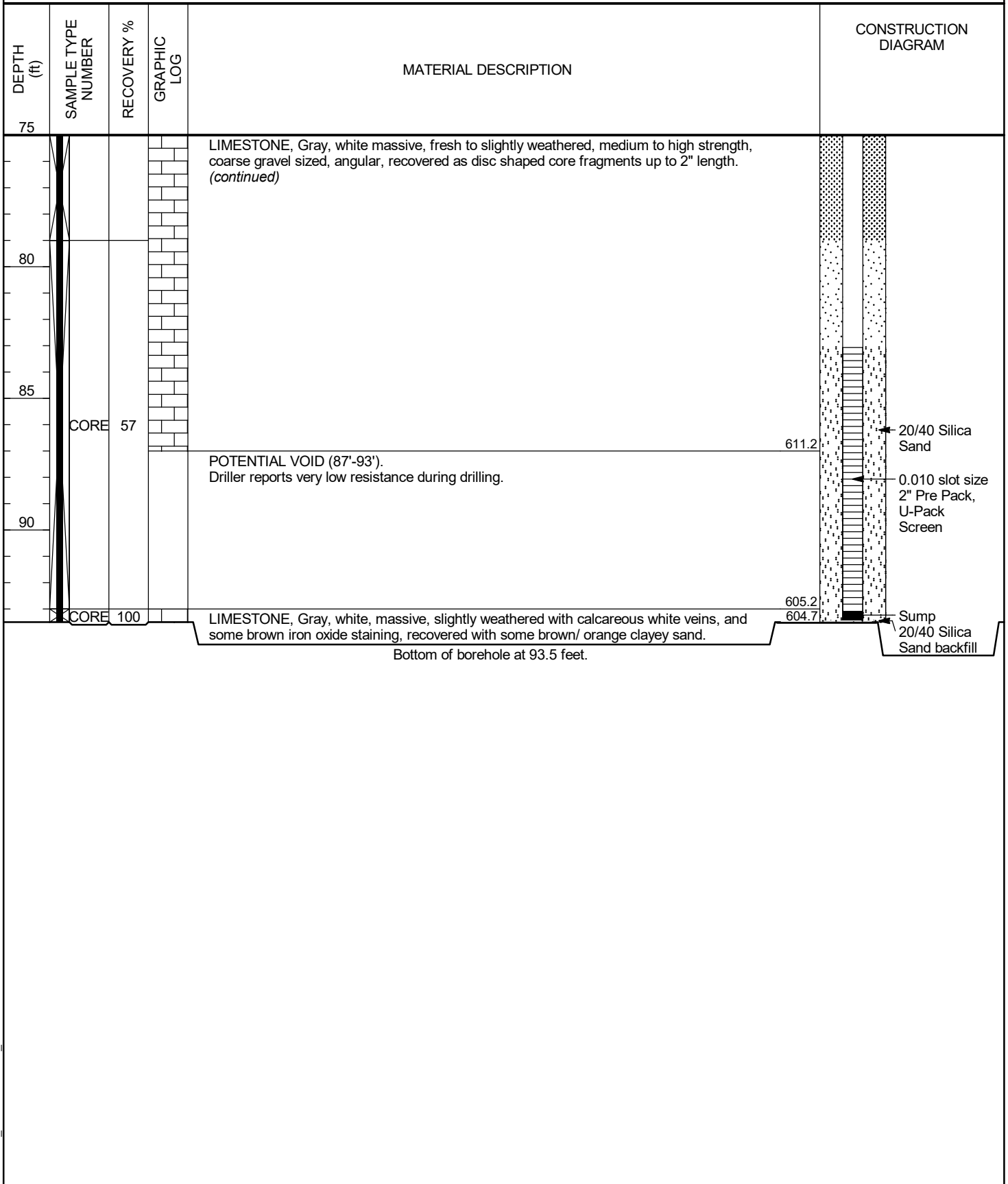
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CLIENT Southern Company Services

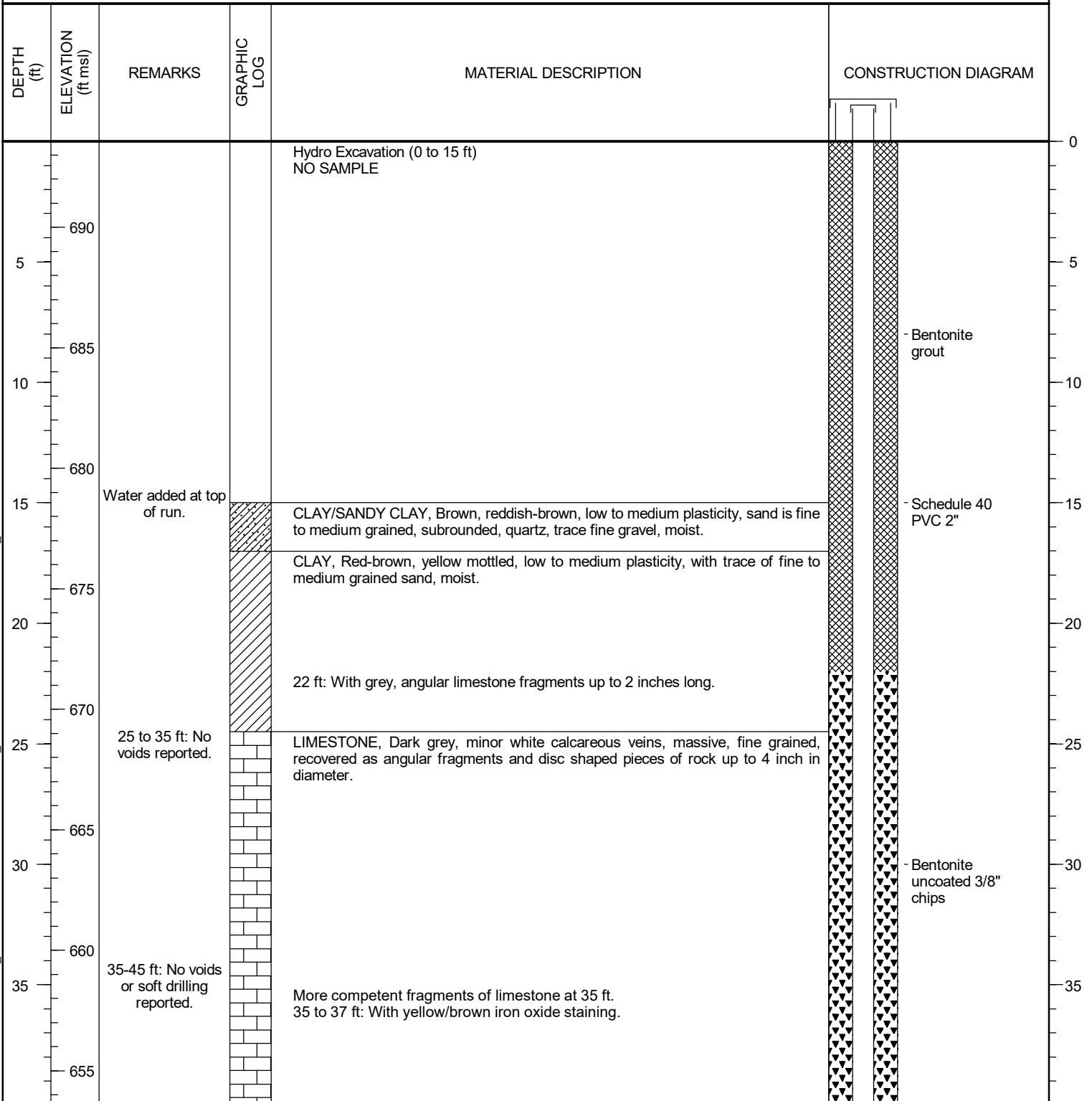
PROJECT NAME Plant Bowen

PROJECT NUMBER GR6682

PROJECT LOCATION Euharlee Georgia



CLIENT Southern Company Services **PROJECT NAME** Groundwater SRV-AP1
PROJECT NUMBER GW6581C **PROJECT LOCATION** Euharlee, GA
DATE STARTED 4/24/19 **COMPLETED** 4/25/19 **NORTHING** 1501293.457 ft **EASTING** 2064363.994 ft
DRILLER Cascade Drilling **GROUND ELEVATION** 693.564 ft **BORING DIAMETER** 6 in
DRILLING METHOD Sonic **TOP OF CASING ELEVATION** 696.12 ft
SAMPLING METHOD 4" core 6" override **GEOPHYSICAL CONTRACTOR** ---
RIG TYPE Terrasonic 11-38212 **LOGGED BY** C. Hug **CHECKED BY** J. Ivanowski



SCS GEORGIA GW6581C_PLANT BOWEN DEEP WELL INSTALL_APRIL 2019.GPJ ACP GINT LIBRARY FROM ASHWIN.GLB 5/8/19

CLIENT Southern Company Services

PROJECT NAME Groundwater SRV-AP1

PROJECT NUMBER GW6581C

PROJECT LOCATION Euharlee, GA

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
40				LIMESTONE, Dark grey, minor white calcareous veins, massive, fine grained, recovered as angular fragments and disc shaped pieces of rock up to 4 inch in diameter. <i>(continued)</i> 41 ft: With white, calcareous mineralization along healed fracture planes.	
45	650	25 to 35 ft: No voids reported.			
50	645				
55	640	No recovery, run was not lost in hole. Very soft drilling with some resistance.		54 ft: Dark grey, some calcareous veins and secondary mineralization along fracture planes, fresh, moderate strength. NO RECOVERY (55 to 65 ft)	
60	635				
65	630	65 to 75 ft: No voids reported.		LIMESTONE, Dark grey, some black, massive, fine grained, minor white calcareous veins, recovered as subrounded gravel sized core fragments and cobbles. Recovered with pale grey, silty coating. Minor yellowish-brown iron oxide staining at 65 ft.	
70	625				
75	620	75 to 85 ft: No voids reported.		With pale grey, silty coating and some secondary calcite mineralization along fracture planes.	Bentonite uncoated 3/8" chips
80	615				
85	610	85 to 95 ft: No voids reported.			

SCS GEORGIA GW6581C PLANT BOWEN DEEP WELL INSTALL APRIL 2019 GPJ ACP GINT LIBRARY FROM ASHWIN.GLB 5/8/19

(Continued Next Page)

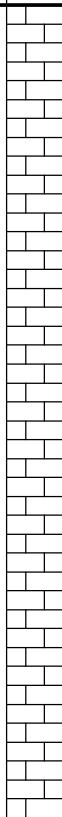
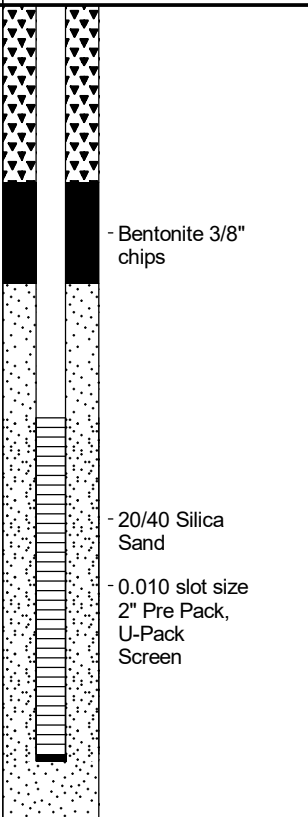
CLIENT Southern Company Services

PROJECT NAME Groundwater SRV-AP1

PROJECT NUMBER GW6581C

PROJECT LOCATION Euharlee, GA

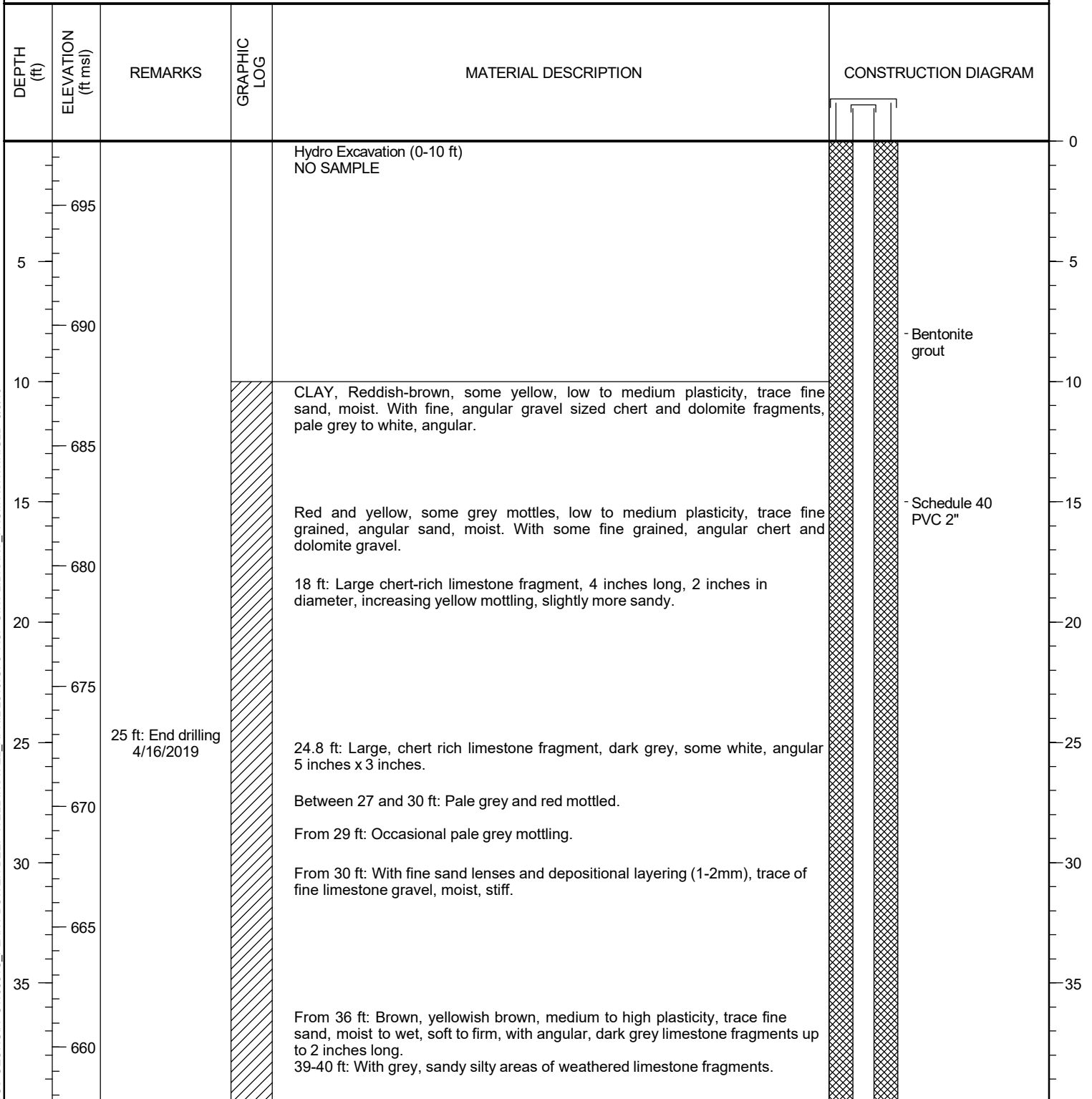
DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
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<p>90</p> <p>605</p> <p>600</p> <p>95</p> <p>595</p> <p>100</p> <p>590</p> <p>105</p> <p>585</p> <p>110</p>	<p>90</p> <p>605</p> <p>600</p> <p>95</p> <p>595</p> <p>100</p> <p>590</p> <p>105</p> <p>585</p> <p>110</p>	<p>95 to 110 ft: No voids reported.</p>		<p>LIMESTONE, Dark grey, some black, massive, fine grained, minor white calcareous veins, recovered as subrounded gravel sized core fragments and cobbles. Recovered with pale grey, silty coating. <i>(continued)</i></p>	 <p>- Bentonite 3/8" chips</p> <p>- 20/40 Silica Sand</p> <p>- 0.010 slot size 2" Pre Pack, U-Pack Screen</p>
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Bottom of borehole at 110.0 feet.

SCS GEORGIA GW6581C_PLANT BOWEN DEEP WELL INSTALL_APRIL 2019.GPJ ACP GINT LIBRARY FROM ASHWIN.GLB 5/8/19

CLIENT Southern Company Services PROJECT NAME Groundwater SRV-AP1
 PROJECT NUMBER GW6581C PROJECT LOCATION Euharlee, GA
 DATE STARTED 4/16/19 COMPLETED 4/18/19 NORTHING 1499803.595 ft EASTING 2066430.571 ft
 DRILLER Cascade Drilling GROUND ELEVATION 697.662 ft BORING DIAMETER 6 in
 DRILLING METHOD Sonic TOP OF CASING ELEVATION 700.47 ft
 SAMPLING METHOD 4" core 6" override GEOPHYSICAL CONTRACTOR ---
 RIG TYPE Terrasonic 11-38212 LOGGED BY C. Hug CHECKED BY J. Ivanowski



SCS GEORGIA GW6581C_PLANT BOWEN DEEP WELL INSTALL_ APRIL 2019.GPJ ACP GINT LIBRARY FROM ASHWIN.GLB 5/8/19

CLIENT Southern Company Services

PROJECT NAME Groundwater SRV-AP1

PROJECT NUMBER GW6581C

PROJECT LOCATION Euharlee, GA

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
40				CLAY, Reddish-brown, some yellow, low to medium plasticity, trace fine sand, moist. With fine, angular gravel sized chert and dolomite fragments, pale grey to white, angular. <i>(continued)</i>	
45				43 ft: Dark grey, angular limestone fragments up to 5 inches long.	
				45 ft: Angular limestone fragment, 5 inches x 3 inches.	
50				48-49 ft: With fine to coarse grained gravel sized limestone fragments, angular, grey, up to 5 inches in diameter.	
				51 ft: Large, angular chert fragment, white to pale grey, 5 inches in diameter.	
				53 ft: Angular limestone fragment, 4 inches long.	
55				56 ft: With dark brown SANDY CLAY, sand is fine to coarse grained, subangular, quartz.	
				From 57 ft: CLAY with SAND, Brown red and yellow, medium to high plasticity, sand is fine to medium grained, subangular, trace of fine limestone gravel.	
60				63 to 64 ft: Lens of fine to coarse gravel sized limestone fragments in sandy, silty clay matrix.	
65		67 to 77 ft: Driller reports general 'easy' drilling, with softer and harder patches.		LIMESTONE, Dark grey, grey, white, massive, with calcareous veins, minor yellowish-brown iron oxide staining, drilled as angular fragments of rock and disc shaped core fragments, with some chert rich fragments.	Bentonite grout
70				Potential VOID (74 to 76 ft)	
75		Driller reports rods dropping between 74 and 76 ft, no resistance.		LIMESTONE, Dark grey, grey, white, massive, with calcareous veins, minor yellowish-brown iron oxide staining, drilled as angular fragments of rock and disc shaped core fragments, with some chert rich fragments.	
80		Softer and harder drilling, but no rod dropping.			Bentonite uncoated 3/8" chips
85					

SCS GEORGIA GW6581C PLANT BOWEN DEEP WELL INSTALL APRIL 2019.GPJ ACP GINT LIBRARY FROM ASHWIN.GLB 5/8/19

CLIENT Southern Company Services

PROJECT NAME Groundwater SRV-AP1

PROJECT NUMBER GW6581C

PROJECT LOCATION Euharlee, GA

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
610				LIMESTONE, Dark grey, grey, white, massive, with calcareous veins, minor yellowish-brown iron oxide staining, drilled as angular fragments of rock and disc shaped core fragments, with some chert rich fragments. (continued)	
90					
605					
95					
600		From 97': Harder drilling, slow progress.		From 97': Larger, competent pieces of limestone up to 4 inches in length, grey, white, massive, fresh.	
100					
595					
105		107 to 117 ft: Fast drilling throughout run, no voids reported.		From 105 to 107 ft: Drilled as three competent pieces of intact limestone core up to 12 inches long, fresh, no fractures to slightly fractured.	
590					
110				Between 109 and 113 ft: Some brown and yellow iron oxide staining along fracture planes. Rock is generally recovered as grey, angular fragments of rock up to 4 inches long, with white calcareous veins and discs of core up to 1 inch length. No staining between 115 and 117 ft.	Bentonite 3/8" chips
585					
115					0.010 slot size 2" Pre Pack, U-Pack Screen
580					20/40 Silica Sand
120					
575					
125					
570				Bottom of borehole at 127.0 feet.	
130					

SCS GEORGIA GW6581C_PLANT BOWEN DEEP WELL INSTALL_APRIL 2019.GPJ ACP GINT LIBRARY FROM ASHWIN.GLB 5/8/19

APPENDIX B

Laboratory Analytical Reports

Full Appendix IV
Scan Sampling Event
February-March 2019

March 06, 2019

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

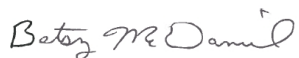
RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2615445

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 27, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Maria Padilla, Georgia Power
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615445

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615445

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2615445001	BGWA-2	Water	02/25/19 11:03	02/27/19 15:43
2615445002	BGWC-8	Water	02/25/19 13:12	02/27/19 15:43
2615445003	BGWC-16	Water	02/25/19 15:50	02/27/19 15:43

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2615445

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2615445001	BGWA-2	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615445002	BGWC-8	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615445003	BGWC-16	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2615445

Sample: BGWA-2		Lab ID: 2615445001		Collected: 02/25/19 11:03		Received: 02/27/19 15:43		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/04/19 10:39	03/04/19 20:01	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/04/19 10:39	03/04/19 20:01	7440-38-2	
Barium	0.16	mg/L	0.010	0.00078	1	03/04/19 10:39	03/04/19 20:01	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/04/19 10:39	03/04/19 20:01	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/04/19 10:39	03/04/19 20:01	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/04/19 10:39	03/04/19 20:01	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/04/19 10:39	03/04/19 20:01	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/04/19 10:39	03/04/19 20:01	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/04/19 10:39	03/04/19 20:01	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/04/19 10:39	03/04/19 20:01	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/04/19 10:39	03/04/19 20:01	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/04/19 10:39	03/04/19 20:01	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	02/28/19 11:45	02/28/19 15:40	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/04/19 12:54	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615445

Sample: BGWC-8		Lab ID: 2615445002		Collected: 02/25/19 13:12		Received: 02/27/19 15:43		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/04/19 10:39	03/04/19 20:23	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/04/19 10:39	03/04/19 20:23	7440-38-2	
Barium	0.030	mg/L	0.010	0.00078	1	03/04/19 10:39	03/04/19 20:23	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/04/19 10:39	03/04/19 20:23	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/04/19 10:39	03/04/19 20:23	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/04/19 10:39	03/04/19 20:23	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/04/19 10:39	03/04/19 20:23	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/04/19 10:39	03/04/19 20:23	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/04/19 10:39	03/04/19 20:23	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/04/19 10:39	03/04/19 20:23	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/04/19 10:39	03/04/19 20:23	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/04/19 10:39	03/04/19 20:23	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	02/28/19 11:45	02/28/19 16:04	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/04/19 13:56	16984-48-8	M1

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615445

Sample: BGWC-16		Lab ID: 2615445003		Collected: 02/25/19 15:50		Received: 02/27/19 15:43		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/04/19 10:39	03/04/19 20:35	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/04/19 10:39	03/04/19 20:35	7440-38-2	
Barium	0.028	mg/L	0.010	0.00078	1	03/04/19 10:39	03/04/19 20:35	7440-39-3	
Beryllium	0.000087J	mg/L	0.0030	0.000050	1	03/04/19 10:39	03/04/19 20:35	7440-41-7	
Cadmium	0.0016	mg/L	0.0010	0.000093	1	03/04/19 10:39	03/04/19 20:35	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/04/19 10:39	03/04/19 20:35	7440-47-3	
Cobalt	0.0071J	mg/L	0.010	0.00052	1	03/04/19 10:39	03/04/19 20:35	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/04/19 10:39	03/04/19 20:35	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/04/19 10:39	03/04/19 20:35	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/04/19 10:39	03/04/19 20:35	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/04/19 10:39	03/04/19 20:35	7782-49-2	
Thallium	0.00023J	mg/L	0.0010	0.00014	1	03/04/19 10:39	03/04/19 20:35	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	02/28/19 11:45	02/28/19 16:06	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.13J	mg/L	0.30	0.029	1		03/04/19 14:37	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615445

QC Batch: 23344

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2615445001, 2615445002, 2615445003

METHOD BLANK: 104469

Matrix: Water

Associated Lab Samples: 2615445001, 2615445002, 2615445003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000036	02/28/19 15:35	

LABORATORY CONTROL SAMPLE: 104470

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 104471

104472

Parameter	Units	104471		104472		% Rec	% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		2615445001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0024	98	98	75-125	0	20		

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615445

QC Batch: 23515 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2615445001, 2615445002, 2615445003

METHOD BLANK: 105353 Matrix: Water

Associated Lab Samples: 2615445001, 2615445002, 2615445003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/04/19 19:49	
Arsenic	mg/L	ND	0.0050	0.00057	03/04/19 19:49	
Barium	mg/L	ND	0.010	0.00078	03/04/19 19:49	
Beryllium	mg/L	ND	0.0030	0.000050	03/04/19 19:49	
Cadmium	mg/L	ND	0.0010	0.000093	03/04/19 19:49	
Chromium	mg/L	ND	0.010	0.0016	03/04/19 19:49	
Cobalt	mg/L	ND	0.010	0.00052	03/04/19 19:49	
Lead	mg/L	ND	0.0050	0.00027	03/04/19 19:49	
Lithium	mg/L	ND	0.050	0.00097	03/04/19 19:49	
Molybdenum	mg/L	ND	0.010	0.0019	03/04/19 19:49	
Selenium	mg/L	ND	0.010	0.0014	03/04/19 19:49	
Thallium	mg/L	ND	0.0010	0.00014	03/04/19 19:49	

LABORATORY CONTROL SAMPLE: 105354

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	105	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.10	101	80-120	
Beryllium	mg/L	0.1	0.10	101	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	102	80-120	
Lead	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	
Molybdenum	mg/L	0.1	0.10	103	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: 105392 105393

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2615445001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	105	103	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20	
Barium	mg/L	0.16	0.1	0.1	0.27	0.27	116	111	75-125	2	20	
Beryllium	mg/L	ND	0.1	0.1	0.098	0.095	98	95	75-125	4	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	101	102	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615445

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 105392		105393		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2615445001 Result	MS Spike Conc.	MSD Spike Conc.									
Chromium	mg/L	ND	0.1	0.1	0.10	0.099	102	99	75-125	3	20		
Cobalt	mg/L	ND	0.1	0.1	0.10	0.097	100	96	75-125	3	20		
Lead	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20		
Lithium	mg/L	ND	0.1	0.1	0.097	0.095	97	95	75-125	2	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20		
Selenium	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20		
Thallium	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20		

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

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615445

QC Batch: 23493 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 2615445001, 2615445002, 2615445003

METHOD BLANK: 105280 Matrix: Water

Associated Lab Samples: 2615445001, 2615445002, 2615445003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	03/04/19 12:13	

LABORATORY CONTROL SAMPLE: 105281

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	9.4	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 105285 105286

Parameter	Units	2615445001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	ND	10	10	9.6	10.4	96	104	90-110	8	15	

MATRIX SPIKE SAMPLE: 105358

Parameter	Units	2615445002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	ND	10	8.8	88	90-110	M1

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

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615445

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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 Bowen Ash Pond

Pace Project No.: 2615445

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615445001	BGWA-2	EPA 3005A	23515	EPA 6020B	23543
2615445002	BGWC-8	EPA 3005A	23515	EPA 6020B	23543
2615445003	BGWC-16	EPA 3005A	23515	EPA 6020B	23543
2615445001	BGWA-2	EPA 7470A	23344	EPA 7470A	23360
2615445002	BGWC-8	EPA 7470A	23344	EPA 7470A	23360
2615445003	BGWC-16	EPA 7470A	23344	EPA 7470A	23360
2615445001	BGWA-2	EPA 300.0	23493		
2615445002	BGWC-8	EPA 300.0	23493		
2615445003	BGWC-16	EPA 300.0	23493		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 2615445

Client Name: GA Power

PM: BM

Due Date: 03/06/19

CLIENT: GAPower-CCR

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

Cooler Temperature 2.5°C Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 2/27/19/CR

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 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: _____

8151A WSC

Project Manager Review: _____

Date: _____

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

March 22, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2615446

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 27, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2615446

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
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: Plant Bowen Ash Pond

Pace Project No.: 2615446

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2615446001	BGWA-2	Water	02/25/19 11:03	02/27/19 15:43
2615446002	BGWC-8	Water	02/25/19 13:12	02/27/19 15:43
2615446003	BGWC-16	Water	02/25/19 15:50	02/27/19 15:43

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2615446

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2615446001	BGWA-2	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615446002	BGWC-8	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615446003	BGWC-16	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615446

Sample: BGWA-2 **Lab ID: 2615446001** Collected: 02/25/19 11:03 Received: 02/27/19 15:43 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.10 ± 0.426 (0.485) C:91% T:NA	pCi/L	03/12/19 09:13	13982-63-3	
Radium-228	EPA 9320	0.327 ± 0.381 (0.802) C:77% T:79%	pCi/L	03/18/19 16:07	15262-20-1	
Total Radium	Total Radium Calculation	1.43 ± 0.807 (1.29)	pCi/L	03/19/19 14:43	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615446

Sample: BGWC-8 **Lab ID: 2615446002** Collected: 02/25/19 13:12 Received: 02/27/19 15:43 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.313 ± 0.236 (0.383) C:94% T:NA	pCi/L	03/12/19 09:13	13982-63-3	
Radium-228	EPA 9320	0.712 ± 0.405 (0.733) C:72% T:87%	pCi/L	03/18/19 16:07	15262-20-1	
Total Radium	Total Radium Calculation	1.03 ± 0.641 (1.12)	pCi/L	03/19/19 14:43	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615446

Sample: BGWC-16 **Lab ID: 2615446003** Collected: 02/25/19 15:50 Received: 02/27/19 15:43 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.606 ± 0.298 (0.357) C:97% T:NA	pCi/L	03/12/19 09:13	13982-63-3	
Radium-228	EPA 9320	0.473 ± 0.340 (0.652) C:76% T:85%	pCi/L	03/18/19 16:07	15262-20-1	
Total Radium	Total Radium Calculation	1.08 ± 0.638 (1.01)	pCi/L	03/19/19 14:43	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615446

QC Batch: 332854

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2615446001, 2615446002, 2615446003

METHOD BLANK: 1619642

Matrix: Water

Associated Lab Samples: 2615446001, 2615446002, 2615446003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.381 ± 0.318 (0.630) C:77% T:89%	pCi/L	03/18/19 16:07	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615446

QC Batch: 332626

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2615446001, 2615446002, 2615446003

METHOD BLANK: 1618580

Matrix: Water

Associated Lab Samples: 2615446001, 2615446002, 2615446003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.397 ± 0.246 (0.344) C:98% T:NA	pCi/L	03/12/19 09:13	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Bowen Ash Pond
Pace Project No.: 2615446

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond

Pace Project No.: 2615446

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615446001	BGWA-2	EPA 9315	332626		
2615446002	BGWC-8	EPA 9315	332626		
2615446003	BGWC-16	EPA 9315	332626		
2615446001	BGWA-2	EPA 9320	332854		
2615446002	BGWC-8	EPA 9320	332854		
2615446003	BGWC-16	EPA 9320	332854		
2615446001	BGWA-2	Total Radium Calculation	334412		
2615446002	BGWC-8	Total Radium Calculation	334412		
2615446003	BGWC-16	Total Radium Calculation	334412		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 2615446

Client Name: GA Power

PM: BM

Due Date: 03/27/19

CLIENT: GAPower-CCR

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

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

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

Thermometer Used 082 Type of Ice: Wet Blue None [] Samples on ice, cooling process has begun

Cooler Temperature 2.5°C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 2/27/19 [initials]

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 type="checkbox"/> Yes <input checked="" 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 checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

8151A WSC

Project Manager Review: _____

Date: _____

March 07, 2019

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

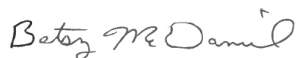
RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2615499

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 28, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Maria Padilla, Georgia Power
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615499

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615499

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2615499001	BGWA-29	Water	02/27/19 11:16	02/28/19 17:00
2615499002	BGWC-17	Water	02/27/19 13:00	02/28/19 17:00
2615499003	BGWC-18	Water	02/27/19 15:00	02/28/19 17:00
2615499004	BGWC-20	Water	02/27/19 16:46	02/28/19 17:00
2615499005	Dup-1	Water	02/27/19 00:00	02/28/19 17:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2615499

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2615499001	BGWA-29	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615499002	BGWC-17	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615499003	BGWC-18	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615499004	BGWC-20	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615499005	Dup-1	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615499

Sample: BGWA-29		Lab ID: 2615499001		Collected: 02/27/19 11:16		Received: 02/28/19 17:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/05/19 11:25	03/06/19 13:06	7440-36-0		
Arsenic	0.0011J	mg/L	0.0050	0.00057	1	03/05/19 11:25	03/06/19 13:06	7440-38-2		
Barium	0.013	mg/L	0.010	0.00078	1	03/05/19 11:25	03/06/19 13:06	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/05/19 11:25	03/06/19 13:06	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/05/19 11:25	03/06/19 13:06	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/05/19 11:25	03/06/19 13:06	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/05/19 11:25	03/06/19 13:06	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/05/19 11:25	03/06/19 13:06	7439-92-1		
Lithium	ND	mg/L	0.050	0.00097	1	03/05/19 11:25	03/06/19 13:06	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	03/05/19 11:25	03/06/19 13:06	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/05/19 11:25	03/06/19 13:06	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/05/19 11:25	03/06/19 13:06	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	0.000065J	mg/L	0.00050	0.000036	1	03/04/19 10:46	03/05/19 12:45	7439-97-6	B	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/04/19 22:12	16984-48-8	M1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615499

Sample: BGWC-17		Lab ID: 2615499002		Collected: 02/27/19 13:00		Received: 02/28/19 17:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/05/19 11:25	03/06/19 13:11	7440-36-0		
Arsenic	0.0010J	mg/L	0.0050	0.00057	1	03/05/19 11:25	03/06/19 13:11	7440-38-2		
Barium	0.014	mg/L	0.010	0.00078	1	03/05/19 11:25	03/06/19 13:11	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/05/19 11:25	03/06/19 13:11	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/05/19 11:25	03/06/19 13:11	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/05/19 11:25	03/06/19 13:11	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/05/19 11:25	03/06/19 13:11	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/05/19 11:25	03/06/19 13:11	7439-92-1		
Lithium	ND	mg/L	0.050	0.00097	1	03/05/19 11:25	03/06/19 13:11	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	03/05/19 11:25	03/06/19 13:11	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/05/19 11:25	03/06/19 13:11	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/05/19 11:25	03/06/19 13:11	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	0.00029J	mg/L	0.00050	0.000036	1	03/04/19 10:46	03/05/19 12:47	7439-97-6	B	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	0.26J	mg/L	0.30	0.029	1		03/04/19 23:14	16984-48-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615499

Sample: BGWC-18		Lab ID: 2615499003		Collected: 02/27/19 15:00		Received: 02/28/19 17:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/05/19 11:25	03/06/19 13:17	7440-36-0		
Arsenic	0.00083J	mg/L	0.0050	0.00057	1	03/05/19 11:25	03/06/19 13:17	7440-38-2		
Barium	0.027	mg/L	0.010	0.00078	1	03/05/19 11:25	03/06/19 13:17	7440-39-3		
Beryllium	0.00011J	mg/L	0.0030	0.000050	1	03/05/19 11:25	03/06/19 13:17	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/05/19 11:25	03/06/19 13:17	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/05/19 11:25	03/06/19 13:17	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/05/19 11:25	03/06/19 13:17	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/05/19 11:25	03/06/19 13:17	7439-92-1		
Lithium	ND	mg/L	0.050	0.00097	1	03/05/19 11:25	03/06/19 13:17	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	03/05/19 11:25	03/06/19 13:17	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/05/19 11:25	03/06/19 13:17	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/05/19 11:25	03/06/19 13:17	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	0.000079J	mg/L	0.00050	0.000036	1	03/04/19 10:46	03/05/19 12:50	7439-97-6	B	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/04/19 23:55	16984-48-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615499

Sample: BGWC-20		Lab ID: 2615499004		Collected: 02/27/19 16:46		Received: 02/28/19 17:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/05/19 11:25	03/06/19 13:23	7440-36-0		
Arsenic	0.0014J	mg/L	0.0050	0.00057	1	03/05/19 11:25	03/06/19 13:23	7440-38-2		
Barium	0.032	mg/L	0.010	0.00078	1	03/05/19 11:25	03/06/19 13:23	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/05/19 11:25	03/06/19 13:23	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/05/19 11:25	03/06/19 13:23	7440-43-9		
Chromium	0.0048J	mg/L	0.010	0.0016	1	03/05/19 11:25	03/06/19 13:23	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/05/19 11:25	03/06/19 13:23	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/05/19 11:25	03/06/19 13:23	7439-92-1		
Lithium	0.015J	mg/L	0.050	0.00097	1	03/05/19 11:25	03/06/19 13:23	7439-93-2		
Molybdenum	0.013	mg/L	0.010	0.0019	1	03/05/19 11:25	03/06/19 13:23	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/05/19 11:25	03/06/19 13:23	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/05/19 11:25	03/06/19 13:23	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	0.000066J	mg/L	0.00050	0.000036	1	03/04/19 10:46	03/05/19 12:52	7439-97-6	B	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	0.13J	mg/L	0.30	0.029	1		03/05/19 00:16	16984-48-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615499

Sample: Dup-1		Lab ID: 2615499005		Collected: 02/27/19 00:00		Received: 02/28/19 17:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/05/19 11:25	03/06/19 13:28	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/05/19 11:25	03/06/19 13:28	7440-38-2	
Barium	0.013	mg/L	0.010	0.00078	1	03/05/19 11:25	03/06/19 13:28	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/05/19 11:25	03/06/19 13:28	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/05/19 11:25	03/06/19 13:28	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/05/19 11:25	03/06/19 13:28	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/05/19 11:25	03/06/19 13:28	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/05/19 11:25	03/06/19 13:28	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/05/19 11:25	03/06/19 13:28	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/05/19 11:25	03/06/19 13:28	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/05/19 11:25	03/06/19 13:28	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/05/19 11:25	03/06/19 13:28	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	0.000054J	mg/L	0.00050	0.000036	1	03/04/19 10:46	03/05/19 12:59	7439-97-6	B
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/05/19 00:36	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615499

QC Batch: 23510

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2615499001, 2615499002, 2615499003, 2615499004, 2615499005

METHOD BLANK: 105333

Matrix: Water

Associated Lab Samples: 2615499001, 2615499002, 2615499003, 2615499004, 2615499005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	0.000058J	0.00050	0.000036	03/05/19 12:05	

LABORATORY CONTROL SAMPLE: 105334

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: 105335

105336

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Spike Conc.	Result	Spike Conc.	Result						
Mercury	mg/L	0.000074J	0.0025	0.0025	0.0025	0.0025	99	97	75-125	2	20

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2615499

QC Batch: 23567 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2615499001, 2615499002, 2615499003, 2615499004, 2615499005

METHOD BLANK: 105477 Matrix: Water
Associated Lab Samples: 2615499001, 2615499002, 2615499003, 2615499004, 2615499005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/06/19 12:37	
Arsenic	mg/L	ND	0.0050	0.00057	03/06/19 12:37	
Barium	mg/L	ND	0.010	0.00078	03/06/19 12:37	
Beryllium	mg/L	ND	0.0030	0.000050	03/06/19 12:37	
Cadmium	mg/L	ND	0.0010	0.000093	03/06/19 12:37	
Chromium	mg/L	ND	0.010	0.0016	03/06/19 12:37	
Cobalt	mg/L	ND	0.010	0.00052	03/06/19 12:37	
Lead	mg/L	ND	0.0050	0.00027	03/06/19 12:37	
Lithium	mg/L	ND	0.050	0.00097	03/06/19 12:37	
Molybdenum	mg/L	ND	0.010	0.0019	03/06/19 12:37	
Selenium	mg/L	ND	0.010	0.0014	03/06/19 12:37	
Thallium	mg/L	ND	0.0010	0.00014	03/06/19 12:37	

LABORATORY CONTROL SAMPLE: 105478

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	0.097	97	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.098	98	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	0.10	102	80-120	
Lead	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.099	99	80-120	
Molybdenum	mg/L	0.1	0.10	101	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 105479 105480

Parameter	Units	2615503001 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	ND	0.1	0.1	0.10	0.11	104	107	75-125	3	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20	
Barium	mg/L	0.0067J	0.1	0.1	0.11	0.11	104	104	75-125	0	20	
Beryllium	mg/L	0.00016J	0.1	0.1	0.096	0.098	96	98	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	103	100	75-125	2	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615499

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 105479		105480		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2615503001 Result	MS Spike Conc.	MSD Spike Conc.									
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	104	103	75-125	1	20		
Cobalt	mg/L	ND	0.1	0.1	0.10	0.10	103	100	75-125	3	20		
Lead	mg/L	ND	0.1	0.1	0.10	0.10	102	101	75-125	1	20		
Lithium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	105	105	75-125	0	20		
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	104	100	75-125	4	20		
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	0	20		

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2615499

QC Batch: 23494 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2615499001, 2615499002, 2615499003, 2615499004, 2615499005

METHOD BLANK: 105287 Matrix: Water
Associated Lab Samples: 2615499001, 2615499002, 2615499003, 2615499004, 2615499005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	03/04/19 21:30	

LABORATORY CONTROL SAMPLE: 105288

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 105374 105375

Parameter	Units	2615499001		2615499002		2615499003		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Fluoride	mg/L	ND	10	10	8.5	8.9	85	89	90-110	5	15 M1

MATRIX SPIKE SAMPLE: 105376

Parameter	Units	2615499002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.26J	10	9.9	96	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615499

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2615499

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615499001	BGWA-29	EPA 3005A	23567	EPA 6020B	23647
2615499002	BGWC-17	EPA 3005A	23567	EPA 6020B	23647
2615499003	BGWC-18	EPA 3005A	23567	EPA 6020B	23647
2615499004	BGWC-20	EPA 3005A	23567	EPA 6020B	23647
2615499005	Dup-1	EPA 3005A	23567	EPA 6020B	23647
2615499001	BGWA-29	EPA 7470A	23510	EPA 7470A	23534
2615499002	BGWC-17	EPA 7470A	23510	EPA 7470A	23534
2615499003	BGWC-18	EPA 7470A	23510	EPA 7470A	23534
2615499004	BGWC-20	EPA 7470A	23510	EPA 7470A	23534
2615499005	Dup-1	EPA 7470A	23510	EPA 7470A	23534
2615499001	BGWA-29	EPA 300.0	23494		
2615499002	BGWC-17	EPA 300.0	23494		
2615499003	BGWC-18	EPA 300.0	23494		
2615499004	BGWC-20	EPA 300.0	23494		
2615499005	Dup-1	EPA 300.0	23494		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 2615499

Client Name: Georgia Power

PM: BM

Due Date: 03/07/19

CLIENT: GAPower-CCR

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

Cooler Temperature 4.1°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 2/28/19 COJ

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) <u>Pads</u>	<input checked="" 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: _____

8151A WSC

Project Manager Review: _____

Date: _____

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

March 22, 2019

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

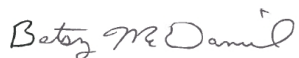
RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2615500

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 28, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2615500

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
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: Plant Bowen Ash Pond

Pace Project No.: 2615500

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2615500001	BGWA-29	Water	02/27/19 11:16	02/28/19 17:00
2615500002	BGWC-17	Water	02/27/19 13:00	02/28/19 17:00
2615500003	BGWC-18	Water	02/27/19 15:00	02/28/19 17:00
2615500004	BGWC-20	Water	02/27/19 16:46	02/28/19 17:00
2615500005	Dup-1	Water	02/27/19 00:00	02/28/19 17:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2615500

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2615500001	BGWA-29	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615500002	BGWC-17	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615500003	BGWC-18	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615500004	BGWC-20	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615500005	Dup-1	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615500

Sample: BGWA-29 **Lab ID: 2615500001** Collected: 02/27/19 11:16 Received: 02/28/19 17:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.343 ± 0.176 (0.290) C:94% T:NA	pCi/L	03/13/19 18:50	13982-63-3	
Radium-228	EPA 9320	0.598 ± 0.412 (0.787) C:74% T:79%	pCi/L	03/18/19 16:07	15262-20-1	
Total Radium	Total Radium Calculation	0.941 ± 0.588 (1.08)	pCi/L	03/19/19 14:44	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615500

Sample: BGWC-17 **Lab ID: 2615500002** Collected: 02/27/19 13:00 Received: 02/28/19 17:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.430 ± 0.149 (0.177) C:87% T:NA	pCi/L	03/13/19 18:50	13982-63-3	
Radium-228	EPA 9320	1.14 ± 0.513 (0.847) C:74% T:75%	pCi/L	03/18/19 16:07	15262-20-1	
Total Radium	Total Radium Calculation	1.57 ± 0.662 (1.02)	pCi/L	03/19/19 14:44	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615500

Sample: BGWC-18 **Lab ID: 2615500003** Collected: 02/27/19 15:00 Received: 02/28/19 17:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.519 ± 0.174 (0.227) C:93% T:NA	pCi/L	03/13/19 18:50	13982-63-3	
Radium-228	EPA 9320	0.605 ± 0.428 (0.823) C:70% T:80%	pCi/L	03/18/19 16:08	15262-20-1	
Total Radium	Total Radium Calculation	1.12 ± 0.602 (1.05)	pCi/L	03/21/19 13:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615500

Sample: BGWC-20 **Lab ID: 2615500004** Collected: 02/27/19 16:46 Received: 02/28/19 17:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.986 ± 0.237 (0.232) C:97% T:NA	pCi/L	03/13/19 18:50	13982-63-3	
Radium-228	EPA 9320	0.258 ± 0.338 (0.716) C:72% T:78%	pCi/L	03/18/19 16:08	15262-20-1	
Total Radium	Total Radium Calculation	1.24 ± 0.575 (0.948)	pCi/L	03/21/19 13:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615500

Sample: Dup-1 **Lab ID: 2615500005** Collected: 02/27/19 00:00 Received: 02/28/19 17:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.401 ± 0.135 (0.156) C:93% T:NA	pCi/L	03/13/19 18:50	13982-63-3	
Radium-228	EPA 9320	0.588 ± 0.352 (0.632) C:76% T:83%	pCi/L	03/18/19 16:07	15262-20-1	
Total Radium	Total Radium Calculation	0.989 ± 0.487 (0.788)	pCi/L	03/19/19 14:44	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615500

QC Batch: 332854

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2615500001, 2615500002, 2615500003, 2615500004, 2615500005

METHOD BLANK: 1619642

Matrix: Water

Associated Lab Samples: 2615500001, 2615500002, 2615500003, 2615500004, 2615500005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.381 ± 0.318 (0.630) C:77% T:89%	pCi/L	03/18/19 16:07	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615500

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2615500

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615500001	BGWA-29	EPA 9315	332856		
2615500002	BGWC-17	EPA 9315	332856		
2615500003	BGWC-18	EPA 9315	332856		
2615500004	BGWC-20	EPA 9315	332856		
2615500005	Dup-1	EPA 9315	332856		
2615500001	BGWA-29	EPA 9320	332854		
2615500002	BGWC-17	EPA 9320	332854		
2615500003	BGWC-18	EPA 9320	332854		
2615500004	BGWC-20	EPA 9320	332854		
2615500005	Dup-1	EPA 9320	332854		
2615500001	BGWA-29	Total Radium Calculation	334415		
2615500002	BGWC-17	Total Radium Calculation	334415		
2615500003	BGWC-18	Total Radium Calculation	334844		
2615500004	BGWC-20	Total Radium Calculation	334844		
2615500005	Dup-1	Total Radium Calculation	334415		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: Georgia Power

WO#: **2615500**

Due Date: **03/28/19**

PM: **BM**

CLIENT: **GAPower-CCR**

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

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

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used 082 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 11°C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 2/28/19 [Signature]

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input 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) <u>Pads</u>	<input checked="" 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: _____

8151A WSC

Project Manager Review: _____

Date: _____

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

March 11, 2019

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

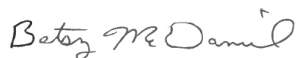
RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2615551

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 01, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615551

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615551

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2615551001	BGWC-10	Water	02/28/19 12:26	03/01/19 16:22
2615551002	BGWC-7	Water	02/28/19 13:32	03/01/19 16:22
2615551003	BGWC-12	Water	02/28/19 15:14	03/01/19 16:22

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2615551

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2615551001	BGWC-10	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615551002	BGWC-7	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615551003	BGWC-12	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615551

Sample: BGWC-10		Lab ID: 2615551001		Collected: 02/28/19 12:26		Received: 03/01/19 16:22		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/06/19 19:53	7440-36-0		
Arsenic	0.0058	mg/L	0.0050	0.00057	1	03/06/19 11:40	03/06/19 19:53	7440-38-2		
Barium	0.053	mg/L	0.010	0.00078	1	03/06/19 11:40	03/06/19 19:53	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/06/19 11:40	03/07/19 13:55	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/06/19 19:53	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/06/19 11:40	03/06/19 19:53	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/06/19 11:40	03/06/19 19:53	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/06/19 19:53	7439-92-1		
Lithium	0.0017J	mg/L	0.050	0.00097	1	03/06/19 11:40	03/06/19 19:53	7439-93-2		
Molybdenum	0.0035J	mg/L	0.010	0.0019	1	03/06/19 11:40	03/06/19 19:53	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/06/19 11:40	03/06/19 19:53	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/06/19 19:53	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	0.000048J	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 14:29	7439-97-6	B	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	0.14J	mg/L	0.30	0.029	1		03/07/19 20:28	16984-48-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615551

Sample: BGWC-7		Lab ID: 2615551002		Collected: 02/28/19 13:32		Received: 03/01/19 16:22		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/06/19 20:16	7440-36-0	
Arsenic	0.0011J	mg/L	0.0050	0.00057	1	03/06/19 11:40	03/06/19 20:16	7440-38-2	
Barium	0.041	mg/L	0.010	0.00078	1	03/06/19 11:40	03/06/19 20:16	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/06/19 11:40	03/07/19 14:12	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/06/19 20:16	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/06/19 11:40	03/06/19 20:16	7440-47-3	
Cobalt	0.00067J	mg/L	0.010	0.00052	1	03/06/19 11:40	03/06/19 20:16	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/06/19 20:16	7439-92-1	
Lithium	0.0086J	mg/L	0.050	0.00097	1	03/06/19 11:40	03/06/19 20:16	7439-93-2	
Molybdenum	0.016	mg/L	0.010	0.0019	1	03/06/19 11:40	03/06/19 20:16	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/06/19 11:40	03/06/19 20:16	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/06/19 20:16	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	0.000053J	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 14:39	7439-97-6	B
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.23J	mg/L	0.30	0.029	1		03/07/19 21:37	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615551

Sample: BGWC-12		Lab ID: 2615551003		Collected: 02/28/19 15:14		Received: 03/01/19 16:22		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/06/19 20:21	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/06/19 11:40	03/06/19 20:21	7440-38-2	
Barium	0.033	mg/L	0.010	0.00078	1	03/06/19 11:40	03/06/19 20:21	7440-39-3	
Beryllium	0.000076J	mg/L	0.0030	0.000050	1	03/06/19 11:40	03/07/19 14:18	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/06/19 20:21	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/06/19 11:40	03/06/19 20:21	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/06/19 11:40	03/06/19 20:21	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/06/19 20:21	7439-92-1	
Lithium	0.0011J	mg/L	0.050	0.00097	1	03/06/19 11:40	03/06/19 20:21	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/06/19 11:40	03/06/19 20:21	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/06/19 11:40	03/06/19 20:21	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/06/19 20:21	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	0.000058J	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 14:41	7439-97-6	B
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.18J	mg/L	0.30	0.029	1		03/07/19 22:00	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2615551

QC Batch: 23535 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2615551001, 2615551002, 2615551003

METHOD BLANK: 105394 Matrix: Water
Associated Lab Samples: 2615551001, 2615551002, 2615551003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	0.000050J	0.00050	0.000036	03/05/19 14:25	

LABORATORY CONTROL SAMPLE: 105395

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: 105396 105397

Parameter	Units	105396		105397		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2615551001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result					
Mercury	mg/L	0.000048J	0.0025	0.0025	0.0027	0.0022	104	87	75-125	18 20

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2615551

QC Batch: 23687 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2615551001, 2615551002, 2615551003

METHOD BLANK: 106016 Matrix: Water
Associated Lab Samples: 2615551001, 2615551002, 2615551003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/06/19 18:24	
Arsenic	mg/L	ND	0.0050	0.00057	03/06/19 18:24	
Barium	mg/L	ND	0.010	0.00078	03/06/19 18:24	
Beryllium	mg/L	ND	0.0030	0.000050	03/06/19 18:24	
Cadmium	mg/L	ND	0.0010	0.000093	03/06/19 18:24	
Chromium	mg/L	ND	0.010	0.0016	03/06/19 18:24	
Cobalt	mg/L	ND	0.010	0.00052	03/06/19 18:24	
Lead	mg/L	ND	0.0050	0.00027	03/06/19 18:24	
Lithium	mg/L	ND	0.050	0.00097	03/06/19 18:24	
Molybdenum	mg/L	ND	0.010	0.0019	03/06/19 18:24	
Selenium	mg/L	ND	0.010	0.0014	03/06/19 18:24	
Thallium	mg/L	ND	0.0010	0.00014	03/06/19 18:24	

LABORATORY CONTROL SAMPLE: 106017

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	108	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Cadmium	mg/L	0.1	0.10	102	80-120	
Chromium	mg/L	0.1	0.10	102	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	102	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	
Molybdenum	mg/L	0.1	0.10	105	80-120	
Selenium	mg/L	0.1	0.10	104	80-120	
Thallium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 106018 106019

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2615551001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.10	0.11	105	107	75-125	2	20	
Arsenic	mg/L	0.0058	0.1	0.1	0.11	0.11	101	103	75-125	2	20	
Barium	mg/L	0.053	0.1	0.1	0.15	0.16	102	106	75-125	3	20	
Beryllium	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.10	99	100	75-125	2	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615551

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 106018		106019		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2615551001 Result	MS Spike Conc.	MSD Spike Conc.								
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Cobalt	mg/L	ND	0.1	0.1	0.099	0.10	99	100	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20	
Lithium	mg/L	0.0017J	0.1	0.1	0.096	0.095	95	94	75-125	1	20	
Molybdenum	mg/L	0.0035J	0.1	0.1	0.10	0.11	101	104	75-125	3	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.11	103	106	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.098	0.10	98	100	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615551

QC Batch: 23823 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2615551001, 2615551002, 2615551003

METHOD BLANK: 106696 Matrix: Water

Associated Lab Samples: 2615551001, 2615551002, 2615551003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	03/07/19 19:43	

LABORATORY CONTROL SAMPLE: 106697

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	9.8	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 106698 106699

Parameter	Units	106698		106699		% Rec Limits	RPD	Max RPD	Qual		
		2615551001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result					MSD Result	
Fluoride	mg/L	0.14J	10	10	10.0	10	99	98	90-110	0	15

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615551

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond

Pace Project No.: 2615551

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615551001	BGWC-10	EPA 3005A	23687	EPA 6020B	23738
2615551002	BGWC-7	EPA 3005A	23687	EPA 6020B	23738
2615551003	BGWC-12	EPA 3005A	23687	EPA 6020B	23738
2615551001	BGWC-10	EPA 7470A	23535	EPA 7470A	23568
2615551002	BGWC-7	EPA 7470A	23535	EPA 7470A	23568
2615551003	BGWC-12	EPA 7470A	23535	EPA 7470A	23568
2615551001	BGWC-10	EPA 300.0	23823		
2615551002	BGWC-7	EPA 300.0	23823		
2615551003	BGWC-12	EPA 300.0	23823		

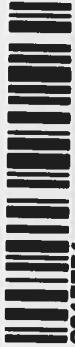
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CHAIN-OF-CUSTODY / A
The Chain-of-Custody is a LEGAL DOC

WO#: 2615551



2615551

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company: Georgia Power - Coal Combustion Residuals	Report To: Joli Abraham	Copy To: Geosyntec	Project Name: Plant Bowen Ash Pond	Attention: Joli Abraham	Company Name: Pace Labs
Address: 2480 Maner Road	Copy To: Geosyntec	Purchase Order #: SCS10348606	Project #: 315	Address: 2480 Maner Road	Regulatory Agency: Pace Labs
Atlanta, GA 30339				State / Location: GA	
Email: jabraham@southernco.com					
Phone: (404)506-7239					
Requested Due Date:					

ITEM #	MATRIX CODE Drinking Water: DW Water: WT Waste Water: WW Product: P Soil/Solid: SL Oil: OL Wipe: WP Air: AR Other: OT Tissue: TS	SAMPLE ID One Character per box. (A-Z, 0-9 /, -) Sample IDs must be unique	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H2SO4 HNO3 HCl NaOH Na2SO3 Methanol Other	Analyses Test Y/N TDS, Cl, F, SO4 Metals 6020/7470 (CCR list) Radium 226, 228	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
					START DATE	END TIME						
1		B6W-10	WT	G	3/28/14	12:46		4	1	1		
2		B6W-7	WT	G	3/28/14	13:32		4	1	1		
3		B6W-12	WT	G	3/28/14	15:14		4	1	1		
4												
5												
6												
7												
8												
9												
10												
11												
12												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Judy Andrews	3/11/14	11:29	Brian Steele	3/11/14	11:29	
	Indy Andrews	3/11/14	10:00	Jessica Walker	3-19-14	16:22	Y N Y

TEMP in C

Received on

Ice (Y/N)

Custody Sealed (Y/N)

Cooler (Y/N)

Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brian Steele

SIGNATURE of SAMPLER: [Signature]

DATE Signed: 3/28/14



Client Name: Georgia Power
Coal Combustion

PM: BM

Due Date: 03/08/19

CLIENT: GAPower-CCR

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 083 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: 3/1/19

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>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
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):		Lot # of added preservative

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: Robert Mull Date/Time: 3/4/2019

Comments/ Resolution: Per consultant, these samples set only App. IV list; no Cl, no 504, no TDS, no B, no Ca.

Project Manager Review: BMCD

Date: 3/4/2019

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

March 22, 2019

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

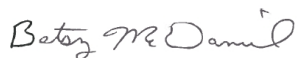
RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2615552

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 01, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615552

Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

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: Plant Bowen Ash Pond

Pace Project No.: 2615552

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2615552001	BGWC-10	Water	02/28/19 12:26	03/01/19 16:22
2615552002	BGWC-7	Water	02/28/19 13:32	03/01/19 16:22
2615552003	BGWC-12	Water	02/28/19 15:14	03/01/19 16:22

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2615552

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2615552001	BGWC-10	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615552002	BGWC-7	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615552003	BGWC-12	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615552

Sample: BGWC-10 **Lab ID: 2615552001** Collected: 02/28/19 12:26 Received: 03/01/19 16:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.11 ± 0.245 (0.171) C:88% T:NA	pCi/L	03/13/19 20:28	13982-63-3	
Radium-228	EPA 9320	0.768 ± 0.429 (0.764) C:71% T:81%	pCi/L	03/18/19 16:07	15262-20-1	
Total Radium	Total Radium Calculation	1.88 ± 0.674 (0.935)	pCi/L	03/19/19 14:44	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615552

Sample: BGWC-7 **Lab ID: 2615552002** Collected: 02/28/19 13:32 Received: 03/01/19 16:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.883 ± 0.206 (0.160) C:91% T:NA	pCi/L	03/13/19 20:28	13982-63-3	
Radium-228	EPA 9320	0.495 ± 0.403 (0.800) C:77% T:77%	pCi/L	03/18/19 16:07	15262-20-1	
Total Radium	Total Radium Calculation	1.38 ± 0.609 (0.960)	pCi/L	03/19/19 14:44	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615552

Sample: BGWC-12 **Lab ID: 2615552003** Collected: 02/28/19 15:14 Received: 03/01/19 16:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.461 ± 0.142 (0.157) C:96% T:NA	pCi/L	03/13/19 20:28	13982-63-3	
Radium-228	EPA 9320	0.575 ± 0.339 (0.607) C:75% T:86%	pCi/L	03/18/19 16:07	15262-20-1	
Total Radium	Total Radium Calculation	1.04 ± 0.481 (0.764)	pCi/L	03/19/19 14:44	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615552

QC Batch: 332854

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2615552001, 2615552002, 2615552003

METHOD BLANK: 1619642

Matrix: Water

Associated Lab Samples: 2615552001, 2615552002, 2615552003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.381 ± 0.318 (0.630) C:77% T:89%	pCi/L	03/18/19 16:07	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615552

QC Batch:	332856	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2615552001, 2615552002, 2615552003		

METHOD BLANK:	1619644	Matrix:	Water
Associated Lab Samples:	2615552001, 2615552002, 2615552003		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.265 ± 0.116 (0.162) C:92% T:NA	pCi/L	03/13/19 20:28	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Bowen Ash Pond
Pace Project No.: 2615552

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond

Pace Project No.: 2615552

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615552001	BGWC-10	EPA 9315	332856		
2615552002	BGWC-7	EPA 9315	332856		
2615552003	BGWC-12	EPA 9315	332856		
2615552001	BGWC-10	EPA 9320	332854		
2615552002	BGWC-7	EPA 9320	332854		
2615552003	BGWC-12	EPA 9320	332854		
2615552001	BGWC-10	Total Radium Calculation	334415		
2615552002	BGWC-7	Total Radium Calculation	334415		
2615552003	BGWC-12	Total Radium Calculation	334415		

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CHAIN-OF-CUSTODY / A
The Chain-of-Custody is a LEGAL DOC

WO# : 2615552



1 of 1

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

Section B
 Required Project Information:
 Report To: Jpu Abraham
 Copy To: Geosyntec
 Purchase Order # SC510348605
 Project Name: Plant Bowen Ash Pond
 Project #: 315

Section C
 Invoice Information:
 Attention: []
 Company Name: Pace Analytical
 Address: []
 Pace Project Manager: beisy.mcdaniel@pacelabs.com
 Pace Profile #: 315
 Regulatory Agency: []
 State / Location: GA

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES						Analyses Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME				Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3			
1	Boiler-10	Water	3/28/19 12:42		WTG	WTG	4	1	3							1
2	Boiler-7	Water	3/28/19 13:52		WTG	WTG	4	1	3							2
3	Boiler-12	Water	3/28/19 15:14		WTG	WTG	4	1	3							3
4																
5																
6																
7																
8																
9																
10																
11																
12																

ADDITIONAL COMMENTS
 Cindy Mander 3/28/19 11:29
 Cindy Mander 3/28/19 13:09
 Cindy Mander 3/28/19 16:22

RELINQUISHED BY / AFFILIATION:
 DATE: 3/28/19
 TIME: 11:29
 ACCEPTED BY / AFFILIATION: [Signature]
 DATE: 3/28/19
 TIME: 13:09

TEMP in C
 2.8°

SAMPLE CONDITIONS
 Received on: []
 Ice (Y/N): []
 Custody (Y/N): []
 Sealed Cooler (Y/N): []
 Samples Intact (Y/N): []

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Robert M. J. Brian Steele
 SIGNATURE of SAMPLER: [Signature]
 DATE Signed: 2/28/19



Sample Condition Upon Receipt

WO#: 2615552

Client Name: Georgia Power Coal Combustion

PM: BM

Due Date: 03/08/19

CLIENT: GPower-CCR

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 083

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: 3/1/19

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>WT</u>			
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input 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)

March 08, 2019

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

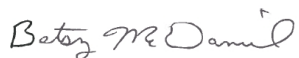
RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2615560

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 01, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2615560001	BGWC-30	Water	03/01/19 11:35	03/01/19 16:57
2615560002	BGWC-22	Water	03/01/19 11:40	03/01/19 16:57
2615560003	BGWC-24	Water	03/01/19 12:04	03/01/19 16:57
2615560004	BGWC-25	Water	03/01/19 13:04	03/01/19 16:57
2615560005	BGWC-19	Water	03/01/19 13:56	03/01/19 16:57
2615560006	BGWC-23	Water	03/01/19 14:07	03/01/19 16:57
2615560007	Dup-2	Water	03/01/19 00:00	03/01/19 16:57
2615560008	FBL030119	Water	03/01/19 14:40	03/01/19 16:57
2615560009	EQBL030119	Water	03/01/19 14:45	03/01/19 16:57

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2615560001	BGWC-30	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615560002	BGWC-22	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615560003	BGWC-24	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615560004	BGWC-25	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615560005	BGWC-19	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615560006	BGWC-23	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615560007	Dup-2	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615560008	FBL030119	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615560009	EQBL030119	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Sample: BGWC-30		Lab ID: 2615560001		Collected: 03/01/19 11:35		Received: 03/01/19 16:57		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/06/19 20:27	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/06/19 11:40	03/06/19 20:27	7440-38-2	
Barium	0.078	mg/L	0.010	0.00078	1	03/06/19 11:40	03/06/19 20:27	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/06/19 11:40	03/07/19 14:23	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/06/19 20:27	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/06/19 11:40	03/06/19 20:27	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/06/19 11:40	03/06/19 20:27	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/06/19 20:27	7439-92-1	
Lithium	0.0044J	mg/L	0.050	0.00097	1	03/06/19 11:40	03/06/19 20:27	7439-93-2	
Molybdenum	0.011	mg/L	0.010	0.0019	1	03/06/19 11:40	03/06/19 20:27	7439-98-7	
Selenium	0.010J	mg/L	0.010	0.0014	1	03/06/19 11:40	03/06/19 20:27	7782-49-2	
Thallium	0.00024J	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/06/19 20:27	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	0.00010J	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 14:44	7439-97-6	B
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.24J	mg/L	0.30	0.029	1		03/05/19 11:14	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Sample: BGWC-22		Lab ID: 2615560002		Collected: 03/01/19 11:40		Received: 03/01/19 16:57		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/06/19 20:33	7440-36-0		
Arsenic	0.0011J	mg/L	0.0050	0.00057	1	03/06/19 11:40	03/06/19 20:33	7440-38-2		
Barium	0.087	mg/L	0.010	0.00078	1	03/06/19 11:40	03/06/19 20:33	7440-39-3		
Beryllium	0.00012J	mg/L	0.0030	0.000050	1	03/06/19 11:40	03/07/19 14:29	7440-41-7		
Cadmium	0.00013J	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/06/19 20:33	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/06/19 11:40	03/06/19 20:33	7440-47-3		
Cobalt	0.017	mg/L	0.010	0.00052	1	03/06/19 11:40	03/06/19 20:33	7440-48-4		
Lead	0.00033J	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/06/19 20:33	7439-92-1		
Lithium	0.022J	mg/L	0.050	0.00097	1	03/06/19 11:40	03/06/19 20:33	7439-93-2		
Molybdenum	0.039	mg/L	0.010	0.0019	1	03/06/19 11:40	03/06/19 20:33	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/06/19 11:40	03/06/19 20:33	7782-49-2		
Thallium	0.00074J	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/06/19 20:33	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	0.000042J	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 14:46	7439-97-6	B	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	0.34	mg/L	0.30	0.029	1		03/05/19 11:37	16984-48-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Sample: BGWC-24		Lab ID: 2615560003		Collected: 03/01/19 12:04		Received: 03/01/19 16:57		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/06/19 20:50	7440-36-0		
Arsenic	0.0032J	mg/L	0.025	0.0028	5	03/06/19 11:40	03/07/19 14:48	7440-38-2	D3	
Barium	0.12	mg/L	0.010	0.00078	1	03/06/19 11:40	03/06/19 20:50	7440-39-3		
Beryllium	ND	mg/L	0.015	0.00025	5	03/06/19 11:40	03/07/19 14:48	7440-41-7	D3	
Cadmium	0.0058	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/06/19 20:50	7440-43-9		
Chromium	ND	mg/L	0.050	0.0078	5	03/06/19 11:40	03/07/19 14:48	7440-47-3	D3	
Cobalt	0.0055J	mg/L	0.050	0.0026	5	03/06/19 11:40	03/07/19 14:48	7440-48-4	D3	
Lead	ND	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/06/19 20:50	7439-92-1		
Lithium	0.0068J	mg/L	0.050	0.00097	1	03/06/19 11:40	03/06/19 20:50	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	03/06/19 11:40	03/06/19 20:50	7439-98-7		
Selenium	ND	mg/L	0.050	0.0068	5	03/06/19 11:40	03/07/19 14:48	7782-49-2	D3	
Thallium	0.00070J	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/06/19 20:50	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	0.00093	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 14:53	7439-97-6		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	1.0	mg/L	0.30	0.029	1		03/05/19 12:00	16984-48-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Sample: BGWC-25		Lab ID: 2615560004		Collected: 03/01/19 13:04		Received: 03/01/19 16:57		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/06/19 20:56	7440-36-0	
Arsenic	0.0022J	mg/L	0.0050	0.00057	1	03/06/19 11:40	03/07/19 14:54	7440-38-2	
Barium	0.021	mg/L	0.010	0.00078	1	03/06/19 11:40	03/06/19 20:56	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/06/19 11:40	03/07/19 14:54	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/06/19 20:56	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/06/19 11:40	03/07/19 14:54	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/06/19 11:40	03/07/19 14:54	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/06/19 20:56	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/06/19 11:40	03/06/19 20:56	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/06/19 11:40	03/06/19 20:56	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/06/19 11:40	03/07/19 14:54	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/06/19 20:56	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	0.000047J	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 14:56	7439-97-6	B
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.12J	mg/L	0.30	0.029	1		03/05/19 13:13	16984-48-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Sample: BGWC-19		Lab ID: 2615560005		Collected: 03/01/19 13:56	Received: 03/01/19 16:57	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/06/19 21:02	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	03/06/19 11:40	03/07/19 14:59	7440-38-2		
Barium	0.028	mg/L	0.010	0.00078	1	03/06/19 11:40	03/06/19 21:02	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/06/19 11:40	03/07/19 14:59	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/06/19 21:02	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/06/19 11:40	03/07/19 14:59	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/06/19 11:40	03/07/19 14:59	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/06/19 21:02	7439-92-1		
Lithium	ND	mg/L	0.050	0.00097	1	03/06/19 11:40	03/06/19 21:02	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	03/06/19 11:40	03/06/19 21:02	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/06/19 11:40	03/07/19 14:59	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/06/19 21:02	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	0.000050J	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 14:58	7439-97-6	B	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	0.14J	mg/L	0.30	0.029	1		03/05/19 13:36	16984-48-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Sample: BGWC-23		Lab ID: 2615560006		Collected: 03/01/19 14:07		Received: 03/01/19 16:57		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/07/19 16:52	7440-36-0		
Arsenic	0.0023J	mg/L	0.0050	0.00057	1	03/06/19 11:40	03/07/19 16:52	7440-38-2		
Barium	0.097	mg/L	0.010	0.00078	1	03/06/19 11:40	03/07/19 16:52	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/06/19 11:40	03/07/19 16:52	7440-41-7		
Cadmium	0.00019J	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/07/19 16:52	7440-43-9		
Chromium	0.0033J	mg/L	0.010	0.0016	1	03/06/19 11:40	03/07/19 16:52	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/06/19 11:40	03/07/19 16:52	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/07/19 16:52	7439-92-1		
Lithium	0.017J	mg/L	0.050	0.00097	1	03/06/19 11:40	03/07/19 16:52	7439-93-2		
Molybdenum	0.013	mg/L	0.010	0.0019	1	03/06/19 11:40	03/07/19 16:52	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/06/19 11:40	03/07/19 16:52	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/07/19 16:52	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	0.000044J	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 15:00	7439-97-6	B	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	0.38	mg/L	0.30	0.029	1		03/05/19 13:59	16984-48-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Sample: Dup-2		Lab ID: 2615560007		Collected: 03/01/19 00:00		Received: 03/01/19 16:57		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/06/19 21:07	7440-36-0	
Arsenic	0.0022J	mg/L	0.0050	0.00057	1	03/06/19 11:40	03/07/19 15:05	7440-38-2	
Barium	0.086	mg/L	0.010	0.00078	1	03/06/19 11:40	03/06/19 21:07	7440-39-3	
Beryllium	0.00013J	mg/L	0.0030	0.000050	1	03/06/19 11:40	03/07/19 15:05	7440-41-7	
Cadmium	0.00013J	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/06/19 21:07	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/06/19 11:40	03/07/19 15:05	7440-47-3	
Cobalt	0.017	mg/L	0.010	0.00052	1	03/06/19 11:40	03/07/19 15:05	7440-48-4	
Lead	0.00031J	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/06/19 21:07	7439-92-1	
Lithium	0.021J	mg/L	0.050	0.00097	1	03/06/19 11:40	03/06/19 21:07	7439-93-2	
Molybdenum	0.038	mg/L	0.010	0.0019	1	03/06/19 11:40	03/06/19 21:07	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/06/19 11:40	03/07/19 15:05	7782-49-2	
Thallium	0.00071J	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/06/19 21:07	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	0.000047J	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 15:03	7439-97-6	B
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.37	mg/L	0.30	0.029	1		03/05/19 14:21	16984-48-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Sample: FBL030119		Lab ID: 2615560008		Collected: 03/01/19 14:40	Received: 03/01/19 16:57	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/07/19 17:21	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	03/06/19 11:40	03/07/19 17:21	7440-38-2		
Barium	ND	mg/L	0.010	0.00078	1	03/06/19 11:40	03/07/19 17:21	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/06/19 11:40	03/07/19 17:21	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/07/19 17:21	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/06/19 11:40	03/07/19 17:21	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/06/19 11:40	03/07/19 17:21	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/07/19 17:21	7439-92-1		
Lithium	ND	mg/L	0.050	0.00097	1	03/06/19 11:40	03/07/19 17:21	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	03/06/19 11:40	03/07/19 17:21	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/06/19 11:40	03/07/19 17:21	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/07/19 17:21	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	0.000047J	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 15:05	7439-97-6	B	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/05/19 16:16	16984-48-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Sample: EQBL030119		Lab ID: 2615560009		Collected: 03/01/19 14:45		Received: 03/01/19 16:57		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/06/19 11:40	03/07/19 17:27	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/06/19 11:40	03/07/19 17:27	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/06/19 11:40	03/07/19 17:27	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/06/19 11:40	03/07/19 17:27	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/06/19 11:40	03/07/19 17:27	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/06/19 11:40	03/07/19 17:27	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/06/19 11:40	03/07/19 17:27	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/06/19 11:40	03/07/19 17:27	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/06/19 11:40	03/07/19 17:27	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/06/19 11:40	03/07/19 17:27	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/06/19 11:40	03/07/19 17:27	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/06/19 11:40	03/07/19 17:27	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	0.000043J	mg/L	0.00050	0.000036	1	03/04/19 15:02	03/05/19 15:07	7439-97-6	B
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/05/19 16:39	16984-48-8	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2615560

QC Batch: 23535 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2615560001, 2615560002, 2615560003, 2615560004, 2615560005, 2615560006, 2615560007, 2615560008, 2615560009

METHOD BLANK: 105394 Matrix: Water
Associated Lab Samples: 2615560001, 2615560002, 2615560003, 2615560004, 2615560005, 2615560006, 2615560007, 2615560008, 2615560009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	0.000050J	0.00050	0.000036	03/05/19 14:25	

LABORATORY CONTROL SAMPLE: 105395

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: 105396 105397

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		2615551001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Mercury	mg/L	0.000048J	0.0025	0.0025	0.0027	0.0022	104	87	75-125	18	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 Bowen Ash Pond
Pace Project No.: 2615560

QC Batch: 23687 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2615560001, 2615560002, 2615560003, 2615560004, 2615560005, 2615560007

METHOD BLANK: 106016 Matrix: Water
Associated Lab Samples: 2615560001, 2615560002, 2615560003, 2615560004, 2615560005, 2615560007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/06/19 18:24	
Arsenic	mg/L	ND	0.0050	0.00057	03/06/19 18:24	
Barium	mg/L	ND	0.010	0.00078	03/06/19 18:24	
Beryllium	mg/L	ND	0.0030	0.000050	03/06/19 18:24	
Cadmium	mg/L	ND	0.0010	0.000093	03/06/19 18:24	
Chromium	mg/L	ND	0.010	0.0016	03/06/19 18:24	
Cobalt	mg/L	ND	0.010	0.00052	03/06/19 18:24	
Lead	mg/L	ND	0.0050	0.00027	03/06/19 18:24	
Lithium	mg/L	ND	0.050	0.00097	03/06/19 18:24	
Molybdenum	mg/L	ND	0.010	0.0019	03/06/19 18:24	
Selenium	mg/L	ND	0.010	0.0014	03/06/19 18:24	
Thallium	mg/L	ND	0.0010	0.00014	03/06/19 18:24	

LABORATORY CONTROL SAMPLE: 106017

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	108	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Cadmium	mg/L	0.1	0.10	102	80-120	
Chromium	mg/L	0.1	0.10	102	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	102	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	
Molybdenum	mg/L	0.1	0.10	105	80-120	
Selenium	mg/L	0.1	0.10	104	80-120	
Thallium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 106018 106019

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		261551001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.10	0.11	105	107	75-125	2	20	
Arsenic	mg/L	0.0058	0.1	0.1	0.11	0.11	101	103	75-125	2	20	
Barium	mg/L	0.053	0.1	0.1	0.15	0.16	102	106	75-125	3	20	
Beryllium	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.10	99	100	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 106018		106019		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2615551001 Result	MS Spike Conc.	MSD Spike Conc.								
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Cobalt	mg/L	ND	0.1	0.1	0.099	0.10	99	100	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20	
Lithium	mg/L	0.0017J	0.1	0.1	0.096	0.095	95	94	75-125	1	20	
Molybdenum	mg/L	0.0035J	0.1	0.1	0.10	0.11	101	104	75-125	3	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.11	103	106	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.098	0.10	98	100	75-125	2	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2615560

QC Batch: 23688 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2615560006, 2615560008, 2615560009

METHOD BLANK: 106022 Matrix: Water
Associated Lab Samples: 2615560006, 2615560008, 2615560009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/07/19 16:35	
Arsenic	mg/L	ND	0.0050	0.00057	03/07/19 16:35	
Barium	mg/L	ND	0.010	0.00078	03/07/19 16:35	
Beryllium	mg/L	ND	0.0030	0.000050	03/07/19 16:35	
Cadmium	mg/L	ND	0.0010	0.000093	03/07/19 16:35	
Chromium	mg/L	ND	0.010	0.0016	03/07/19 16:35	
Cobalt	mg/L	ND	0.010	0.00052	03/07/19 16:35	
Lead	mg/L	ND	0.0050	0.00027	03/07/19 16:35	
Lithium	mg/L	ND	0.050	0.00097	03/07/19 16:35	
Molybdenum	mg/L	ND	0.010	0.0019	03/07/19 16:35	
Selenium	mg/L	ND	0.010	0.0014	03/07/19 16:35	
Thallium	mg/L	ND	0.0010	0.00014	03/07/19 16:35	

LABORATORY CONTROL SAMPLE: 106023

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.098	98	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.095	95	80-120	
Cadmium	mg/L	0.1	0.097	97	80-120	
Chromium	mg/L	0.1	0.10	100	80-120	
Cobalt	mg/L	0.1	0.095	95	80-120	
Lead	mg/L	0.1	0.095	95	80-120	
Lithium	mg/L	0.1	0.096	96	80-120	
Molybdenum	mg/L	0.1	0.098	98	80-120	
Selenium	mg/L	0.1	0.10	100	80-120	
Thallium	mg/L	0.1	0.094	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 106024 106025

Parameter	Units	2615560006 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MSD Result						
Antimony	mg/L	ND	0.1	0.1	0.10	0.11	102	105	75-125	3	20	
Arsenic	mg/L	0.0023J	0.1	0.1	0.10	0.11	101	104	75-125	3	20	
Barium	mg/L	0.097	0.1	0.1	0.21	0.22	112	121	75-125	4	20	
Beryllium	mg/L	ND	0.1	0.1	0.093	0.099	93	99	75-125	6	20	
Cadmium	mg/L	0.00019J	0.1	0.1	0.095	0.096	95	96	75-125	1	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 106024		106025		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2615560006 Result	MS Spike Conc.	MSD Spike Conc.									
Chromium	mg/L	0.0033J	0.1	0.1	0.10	0.11	98	104	75-125	5	20		
Cobalt	mg/L	ND	0.1	0.1	0.094	0.098	93	97	75-125	4	20		
Lead	mg/L	ND	0.1	0.1	0.090	0.093	90	93	75-125	3	20		
Lithium	mg/L	0.017J	0.1	0.1	0.12	0.12	100	106	75-125	5	20		
Molybdenum	mg/L	0.013	0.1	0.1	0.11	0.12	101	105	75-125	3	20		
Selenium	mg/L	ND	0.1	0.1	0.099	0.10	99	103	75-125	4	20		
Thallium	mg/L	ND	0.1	0.1	0.092	0.094	92	94	75-125	2	20		

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2615560

QC Batch: 23574 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2615560001, 2615560002, 2615560003, 2615560004, 2615560005, 2615560006, 2615560007, 2615560008, 2615560009

METHOD BLANK: 105501 Matrix: Water
Associated Lab Samples: 2615560001, 2615560002, 2615560003, 2615560004, 2615560005, 2615560006, 2615560007, 2615560008, 2615560009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	03/05/19 03:59	

LABORATORY CONTROL SAMPLE: 105502

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	10.3	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 105503 105504

Parameter	Units	2615503012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.22J	10	10	10.1	10.1	99	99	90-110	0	15	

MATRIX SPIKE SAMPLE: 105505

Parameter	Units	2615503013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.14J	10	9.7	96	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615560

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2615560

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615560001	BGWC-30	EPA 3005A	23687	EPA 6020B	23738
2615560002	BGWC-22	EPA 3005A	23687	EPA 6020B	23738
2615560003	BGWC-24	EPA 3005A	23687	EPA 6020B	23738
2615560004	BGWC-25	EPA 3005A	23687	EPA 6020B	23738
2615560005	BGWC-19	EPA 3005A	23687	EPA 6020B	23738
2615560006	BGWC-23	EPA 3005A	23688	EPA 6020B	23745
2615560007	Dup-2	EPA 3005A	23687	EPA 6020B	23738
2615560008	FBL030119	EPA 3005A	23688	EPA 6020B	23745
2615560009	EQBL030119	EPA 3005A	23688	EPA 6020B	23745
2615560001	BGWC-30	EPA 7470A	23535	EPA 7470A	23568
2615560002	BGWC-22	EPA 7470A	23535	EPA 7470A	23568
2615560003	BGWC-24	EPA 7470A	23535	EPA 7470A	23568
2615560004	BGWC-25	EPA 7470A	23535	EPA 7470A	23568
2615560005	BGWC-19	EPA 7470A	23535	EPA 7470A	23568
2615560006	BGWC-23	EPA 7470A	23535	EPA 7470A	23568
2615560007	Dup-2	EPA 7470A	23535	EPA 7470A	23568
2615560008	FBL030119	EPA 7470A	23535	EPA 7470A	23568
2615560009	EQBL030119	EPA 7470A	23535	EPA 7470A	23568
2615560001	BGWC-30	EPA 300.0	23574		
2615560002	BGWC-22	EPA 300.0	23574		
2615560003	BGWC-24	EPA 300.0	23574		
2615560004	BGWC-25	EPA 300.0	23574		
2615560005	BGWC-19	EPA 300.0	23574		
2615560006	BGWC-23	EPA 300.0	23574		
2615560007	Dup-2	EPA 300.0	23574		
2615560008	FBL030119	EPA 300.0	23574		
2615560009	EQBL030119	EPA 300.0	23574		

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Sample Condition Upon Receipt

WO#: 2615560

Client Name: GA Power

PM: BM

Due Date: 03/08/19

CLIENT: GAPower-CCR

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 4.8°C

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

Cooler Temperature 082

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 3/11/19 CCR

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 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: _____

8151A WSC

Project Manager Review: _____

Date: _____

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

March 22, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2615561

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 01, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2615561

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2615561001	BGWC-30	Water	03/01/19 11:35	03/01/19 16:57
2615561002	BGWC-22	Water	03/01/19 11:40	03/01/19 16:57
2615561003	BGWC-24	Water	03/01/19 12:04	03/01/19 16:57
2615561004	BGWC-25	Water	03/01/19 13:04	03/01/19 16:57
2615561005	BGWC-19	Water	03/01/19 13:56	03/01/19 16:57
2615561006	BGWC-23	Water	03/01/19 14:07	03/01/19 16:57
2615561007	Dup-2	Water	03/01/19 00:00	03/01/19 16:57
2615561008	FBL030119	Water	03/01/19 14:40	03/01/19 16:57
2615561009	EQBL030119	Water	03/01/19 14:45	03/01/19 16:57

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2615561001	BGWC-30	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615561002	BGWC-22	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615561003	BGWC-24	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615561004	BGWC-25	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615561005	BGWC-19	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615561006	BGWC-23	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615561007	Dup-2	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615561008	FBL030119	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2615561009	EQBL030119	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Sample: BGWC-30 **Lab ID: 2615561001** Collected: 03/01/19 11:35 Received: 03/01/19 16:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.79 ± 0.417 (0.354) C:48% T:NA	pCi/L	03/13/19 18:51	13982-63-3	
Radium-228	EPA 9320	0.678 ± 0.391 (0.703) C:76% T:81%	pCi/L	03/18/19 16:08	15262-20-1	
Total Radium	Total Radium Calculation	2.47 ± 0.808 (1.06)	pCi/L	03/21/19 13:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Sample: BGWC-22 **Lab ID: 2615561002** Collected: 03/01/19 11:40 Received: 03/01/19 16:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	2.20 ± 0.410 (0.243) C:93% T:NA	pCi/L	03/13/19 18:51	13982-63-3	
Radium-228	EPA 9320	1.12 ± 0.501 (0.818) C:73% T:75%	pCi/L	03/18/19 16:08	15262-20-1	
Total Radium	Total Radium Calculation	3.32 ± 0.911 (1.06)	pCi/L	03/21/19 13:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Sample: BGWC-24 **Lab ID: 2615561003** Collected: 03/01/19 12:04 Received: 03/01/19 16:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	2.69 ± 0.717 (0.522) C:87% T:NA	pCi/L	03/14/19 08:17	13982-63-3	
Radium-228	EPA 9320	0.676 ± 0.537 (1.06) C:72% T:80%	pCi/L	03/18/19 18:20	15262-20-1	
Total Radium	Total Radium Calculation	3.37 ± 1.25 (1.58)	pCi/L	03/21/19 13:16	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Sample: BGWC-25 **Lab ID: 2615561004** Collected: 03/01/19 13:04 Received: 03/01/19 16:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.324 ± 0.125 (0.165) C:97% T:NA	pCi/L	03/13/19 18:51	13982-63-3	
Radium-228	EPA 9320	0.310 ± 0.464 (1.000) C:75% T:79%	pCi/L	03/18/19 18:20	15262-20-1	
Total Radium	Total Radium Calculation	0.634 ± 0.589 (1.17)	pCi/L	03/21/19 13:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Sample: BGWC-19 **Lab ID: 2615561005** Collected: 03/01/19 13:56 Received: 03/01/19 16:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.515 ± 0.177 (0.233) C:88% T:NA	pCi/L	03/13/19 18:51	13982-63-3	
Radium-228	EPA 9320	0.474 ± 0.390 (0.780) C:69% T:86%	pCi/L	03/20/19 11:11	15262-20-1	
Total Radium	Total Radium Calculation	0.989 ± 0.567 (1.01)	pCi/L	03/21/19 13:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.27 ± 0.271 (0.185) C:92% T:NA	pCi/L	03/13/19 18:51	13982-63-3	
Radium-228	EPA 9320	0.971 ± 0.497 (0.890) C:69% T:84%	pCi/L	03/20/19 11:11	15262-20-1	
Total Radium	Total Radium Calculation	2.24 ± 0.768 (1.08)	pCi/L	03/21/19 13:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Sample: Dup-2 **Lab ID: 2615561007** Collected: 03/01/19 00:00 Received: 03/01/19 16:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	4.94 ± 0.867 (0.339) C:47% T:NA	pCi/L	03/13/19 18:51	13982-63-3	
Radium-228	EPA 9320	0.309 ± 0.497 (1.08) C:73% T:83%	pCi/L	03/18/19 18:19	15262-20-1	
Total Radium	Total Radium Calculation	5.25 ± 1.36 (1.42)	pCi/L	03/21/19 13:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Sample: FBL030119 **Lab ID: 2615561008** Collected: 03/01/19 14:40 Received: 03/01/19 16:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.309 ± 0.116 (0.146) C:98% T:NA	pCi/L	03/13/19 20:28	13982-63-3	
Radium-228	EPA 9320	0.420 ± 0.420 (0.869) C:67% T:85%	pCi/L	03/20/19 11:11	15262-20-1	
Total Radium	Total Radium Calculation	0.729 ± 0.536 (1.02)	pCi/L	03/21/19 13:16	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Sample: EQBL030119 **Lab ID: 2615561009** Collected: 03/01/19 14:45 Received: 03/01/19 16:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.657 ± 0.321 (0.369) C:95% T:NA	pCi/L	03/14/19 08:13	13982-63-3	
Radium-228	EPA 9320	0.411 ± 0.320 (0.627) C:73% T:89%	pCi/L	03/20/19 11:11	15262-20-1	
Total Radium	Total Radium Calculation	1.07 ± 0.641 (0.996)	pCi/L	03/21/19 13:16	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

QC Batch: 332854

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2615561001, 2615561002, 2615561003, 2615561004, 2615561007

METHOD BLANK: 1619642

Matrix: Water

Associated Lab Samples: 2615561001, 2615561002, 2615561003, 2615561004, 2615561007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.381 ± 0.318 (0.630) C:77% T:89%	pCi/L	03/18/19 16:07	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

QC Batch:	332855	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2615561005, 2615561006, 2615561008, 2615561009		

METHOD BLANK:	1619643	Matrix:	Water
Associated Lab Samples:	2615561005, 2615561006, 2615561008, 2615561009		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.349 ± 0.394 (0.830) C:71% T:87%	pCi/L	03/20/19 11:10	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

QC Batch:	332856	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2615561001, 2615561002, 2615561003, 2615561004, 2615561005, 2615561006, 2615561007, 2615561008		

METHOD BLANK:	1619644	Matrix:	Water
Associated Lab Samples:	2615561001, 2615561002, 2615561003, 2615561004, 2615561005, 2615561006, 2615561007, 2615561008		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.265 ± 0.116 (0.162) C:92% T:NA	pCi/L	03/13/19 20:28	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

QC Batch: 332857

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2615561009

METHOD BLANK: 1619645

Matrix: Water

Associated Lab Samples: 2615561009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.424 ± 0.162 (0.231) C:91% T:NA	pCi/L	03/13/19 18:54	

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

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond

Pace Project No.: 2615561

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615561001	BGWC-30	EPA 9315	332856		
2615561002	BGWC-22	EPA 9315	332856		
2615561003	BGWC-24	EPA 9315	332856		
2615561004	BGWC-25	EPA 9315	332856		
2615561005	BGWC-19	EPA 9315	332856		
2615561006	BGWC-23	EPA 9315	332856		
2615561007	Dup-2	EPA 9315	332856		
2615561008	FBL030119	EPA 9315	332856		
2615561009	EQBL030119	EPA 9315	332857		
2615561001	BGWC-30	EPA 9320	332854		
2615561002	BGWC-22	EPA 9320	332854		
2615561003	BGWC-24	EPA 9320	332854		
2615561004	BGWC-25	EPA 9320	332854		
2615561005	BGWC-19	EPA 9320	332855		
2615561006	BGWC-23	EPA 9320	332855		
2615561007	Dup-2	EPA 9320	332854		
2615561008	FBL030119	EPA 9320	332855		
2615561009	EQBL030119	EPA 9320	332855		
2615561001	BGWC-30	Total Radium Calculation	334844		
2615561002	BGWC-22	Total Radium Calculation	334844		
2615561003	BGWC-24	Total Radium Calculation	334844		
2615561004	BGWC-25	Total Radium Calculation	334844		
2615561005	BGWC-19	Total Radium Calculation	334844		
2615561006	BGWC-23	Total Radium Calculation	334844		
2615561007	Dup-2	Total Radium Calculation	334844		
2615561008	FBL030119	Total Radium Calculation	334844		
2615561009	EQBL030119	Total Radium Calculation	334844		

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention:	Company Name	Page: Of	
Address: 2480 Maner Road	Copy To: Geosyntec	Address:	Regulatory Agency		
Allanta, GA 30339					
Email: j Abraham@southernco.com	Purchase Order #: SCS10348606	Pace Project Manager: betisy.mcdaniel@pace-labs.com	State / Location		
Phone: (404) 506-7239	Project Name: Plant Bowen Ash Pond	Pace Profile #: 315	GA		
Requested Due Date:	Project #:				

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analyses Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
			START	END					Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3			
	Drinking Water	DW	DATE	TIME	(G=GRAB C=COMP)												
1	BGWC - 30	WT	3/1/19	1135	G			4	1	3					X		
2	BGWC - 22	WT	3/1/19	1140	G			6	1	5					X		
3	BGWC - 24	WT	3/1/19	1204	G			6	1	5					X		
4	BGWC - 25	WT	3/1/19	1304	G			4	1	3					X		
5	BGWC - 19	WT	3/1/19	1356	G			4	1	3					X		
6	BGWC - 23	WT	3/1/19	1407	G			4	1	3					X		
7	DUP - 2	WT	3/1/19	---	G			4	1	3					X		
8	FBL030119	WT	3/1/19	1440	G			4	1	3					X		
9	EQBL030119	WT	3/1/19	1445	G			4	1	3					X		
10																	
11																	
12																	

RECEIVED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	RECEIVED BY	TEMP in C	Received	Ice	Custody	Sealed	Cooler	Samples	Intact
<i>[Signature]</i>	3/1/19	1657	<i>[Signature]</i>	3/1/19	1657		4.8	Y	Y	Y	Y	Y	Y	Y

JO# : 2615561

2615561

Page 20 of 21

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Robert Mull, Kevin Stephenson, Audrey Crafton

SIGNATURE of SAMPLER: *[Signature]* DATE Signed: 3/1/19



Sample Condition Upon Receipt

WO#: 2615561

Client Name: GA Power

PM: BM

Due Date: 03/29/19

CLIENT: GAPower-CCR

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 4.8C Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 082 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 3/11/19 CCR

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

8151A WSC

Project Manager Review: _____

Date: _____

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

March 18, 2019

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

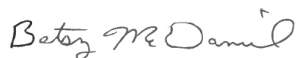
RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2615876

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615876

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2615876

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2615876001	BGWC-14	Water	03/06/19 13:55	03/09/19 09:05
2615876002	FBL030619	Water	03/06/19 15:18	03/09/19 09:05
2615876003	EQBL030619	Water	03/06/19 15:23	03/09/19 09:05

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2615876

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2615876001	BGWC-14	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615876002	FBL030619	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2615876003	EQBL030619	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615876

Sample: BGWC-14		Lab ID: 2615876001		Collected: 03/06/19 13:55		Received: 03/09/19 09:05		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/13/19 10:50	03/14/19 14:12	7440-36-0		
Arsenic	0.0015J	mg/L	0.0050	0.00057	1	03/13/19 10:50	03/14/19 14:12	7440-38-2		
Barium	0.065	mg/L	0.010	0.00078	1	03/13/19 10:50	03/14/19 14:12	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/13/19 10:50	03/14/19 14:12	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/13/19 10:50	03/14/19 14:12	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/13/19 10:50	03/14/19 14:12	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/13/19 10:50	03/14/19 14:12	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/13/19 10:50	03/14/19 14:12	7439-92-1		
Lithium	ND	mg/L	0.050	0.00097	1	03/13/19 10:50	03/14/19 14:12	7439-93-2		
Molybdenum	0.013	mg/L	0.010	0.0019	1	03/13/19 10:50	03/14/19 14:12	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/13/19 10:50	03/14/19 14:12	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/13/19 10:50	03/14/19 14:12	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/13/19 08:25	03/13/19 11:57	7439-97-6		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	0.88	mg/L	0.30	0.029	1		03/12/19 22:30	16984-48-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615876

Sample: FBL030619		Lab ID: 2615876002		Collected: 03/06/19 15:18		Received: 03/09/19 09:05		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/13/19 10:50	03/14/19 14:18	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/13/19 10:50	03/14/19 14:18	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/13/19 10:50	03/14/19 14:18	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/13/19 10:50	03/14/19 14:18	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/13/19 10:50	03/14/19 14:18	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/13/19 10:50	03/14/19 14:18	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/13/19 10:50	03/14/19 14:18	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/13/19 10:50	03/14/19 14:18	7439-92-1	
Lithium	0.0020J	mg/L	0.050	0.00097	1	03/13/19 10:50	03/14/19 14:18	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/13/19 10:50	03/14/19 14:18	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/13/19 10:50	03/14/19 14:18	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/13/19 10:50	03/14/19 14:18	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/13/19 08:25	03/13/19 12:09	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/12/19 23:38	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615876

Sample: EQBL030619		Lab ID: 2615876003		Collected: 03/06/19 15:23		Received: 03/09/19 09:05		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/13/19 10:50	03/14/19 14:24	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/13/19 10:50	03/14/19 14:24	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/13/19 10:50	03/14/19 14:24	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/13/19 10:50	03/14/19 14:24	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/13/19 10:50	03/14/19 14:24	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/13/19 10:50	03/14/19 14:24	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/13/19 10:50	03/14/19 14:24	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/13/19 10:50	03/14/19 14:24	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/13/19 10:50	03/14/19 14:24	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/13/19 10:50	03/14/19 14:24	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/13/19 10:50	03/14/19 14:24	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/13/19 10:50	03/14/19 14:24	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/13/19 08:25	03/13/19 12:16	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/13/19 00:00	16984-48-8	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615876

QC Batch: 24123 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2615876001, 2615876002, 2615876003

METHOD BLANK: 108124 Matrix: Water

Associated Lab Samples: 2615876001, 2615876002, 2615876003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000036	03/13/19 11:53	

LABORATORY CONTROL SAMPLE: 108125

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 108126 108127

Parameter	Units	2615876001 Result	MS		MSD		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result	MSD Spike Conc.							
Mercury	mg/L	ND	0.0025	0.0025	0.0028	0.0026	111	103	75-125	8	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2615876

QC Batch: 24189 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2615876001, 2615876002, 2615876003

METHOD BLANK: 108347 Matrix: Water
Associated Lab Samples: 2615876001, 2615876002, 2615876003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/14/19 14:01	
Arsenic	mg/L	ND	0.0050	0.00057	03/14/19 14:01	
Barium	mg/L	ND	0.010	0.00078	03/14/19 14:01	
Beryllium	mg/L	ND	0.0030	0.000050	03/14/19 14:01	
Cadmium	mg/L	ND	0.0010	0.000093	03/14/19 14:01	
Chromium	mg/L	ND	0.010	0.0016	03/14/19 14:01	
Cobalt	mg/L	ND	0.010	0.00052	03/14/19 14:01	
Lead	mg/L	ND	0.0050	0.00027	03/14/19 14:01	
Lithium	mg/L	ND	0.050	0.00097	03/14/19 14:01	
Molybdenum	mg/L	ND	0.010	0.0019	03/14/19 14:01	
Selenium	mg/L	ND	0.010	0.0014	03/14/19 14:01	
Thallium	mg/L	ND	0.0010	0.00014	03/14/19 14:01	

LABORATORY CONTROL SAMPLE: 108348

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	0.098	98	80-120	
Barium	mg/L	0.1	0.099	99	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Cadmium	mg/L	0.1	0.098	98	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.097	97	80-120	
Lead	mg/L	0.1	0.095	95	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	0.10	101	80-120	
Thallium	mg/L	0.1	0.095	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 108349 108350

Parameter	Units	2615879006 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MSD Result						
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	100	101	75-125	0	20	
Arsenic	mg/L	0.00085J	0.1	0.1	0.10	0.10	99	100	75-125	0	20	
Barium	mg/L	0.042	0.1	0.1	0.14	0.14	97	102	75-125	3	20	
Beryllium	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2615876

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 108349		108350		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2615879006 Result	MS Spike Conc.	MSD Spike Conc.									
Chromium	mg/L	ND	0.1	0.1	0.098	0.099	98	98	75-125	1	20		
Cobalt	mg/L	ND	0.1	0.1	0.096	0.097	96	97	75-125	1	20		
Lead	mg/L	ND	0.1	0.1	0.096	0.097	96	97	75-125	1	20		
Lithium	mg/L	0.0015J	0.1	0.1	0.096	0.10	94	99	75-125	5	20		
Molybdenum	mg/L	0.0061J	0.1	0.1	0.11	0.11	103	102	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	2	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: Plant Bowen Ash Pond
Pace Project No.: 2615876

QC Batch: 24135 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2615876001, 2615876002, 2615876003

METHOD BLANK: 108159 Matrix: Water
Associated Lab Samples: 2615876001, 2615876002, 2615876003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	03/12/19 21:45	

LABORATORY CONTROL SAMPLE: 108160

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 108161 108162

Parameter	Units	108161		108162		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2615876001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Fluoride	mg/L	0.88	10	10	10.0	10.1	92	92	90-110	1	15

MATRIX SPIKE SAMPLE: 108163

Parameter	Units	2615876002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	ND	10	9.6	96	90-110	

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2615876

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2615876

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615876001	BGWC-14	EPA 3005A	24189	EPA 6020B	24210
2615876002	FBL030619	EPA 3005A	24189	EPA 6020B	24210
2615876003	EQBL030619	EPA 3005A	24189	EPA 6020B	24210
2615876001	BGWC-14	EPA 7470A	24123	EPA 7470A	24183
2615876002	FBL030619	EPA 7470A	24123	EPA 7470A	24183
2615876003	EQBL030619	EPA 7470A	24123	EPA 7470A	24183
2615876001	BGWC-14	EPA 300.0	24135		
2615876002	FBL030619	EPA 300.0	24135		
2615876003	EQBL030619	EPA 300.0	24135		

REPORT OF LABORATORY ANALYSIS

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CHAIN OF CUSTODY RECORD

Pace Analytical Services, Inc.
110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092
(770) 734-4200 : FAX (770) 734-4201 : www.asi-lab.com

PAGE: 1 OF 1

CLIENT NAME: Southern Company Services
 CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:
2480 Niner Road
Atlanta, GA 30339
 REPORT TO: John Abraham CC: Geosyntec
 REQUESTED COMPLETION DATE: PO# SC510348606
 PROJECT NAME/STATE: Plant Bowen Ash Pond
 PROJECT #:

CONTAINER TYPE	ANALYSIS REQUESTED				CONTAINER TYPE	PRESERVATION
	# of	P	P	P		
Fluoride EPA 300	1	1	1	1	7	3
Metals App. IV EPA 602/720	2	2	2	2	3	3
Rad: um 226 + 228	2	2	2	2	3	3
5W846 9315+9320	2	2	2	2	3	3

Collection DATE	Collection TIME	MATRIX CODE	COMPOUND	SAMPLE IDENTIFICATION
3/6/19	1355	GW	X	BGWC-14
3/6/19	1518	W	X	FBLO30619
3/6/19	1523	W	X	EQ13LO30619

RECEIVED BY AND TITLE: Robert M. V. Aubrey Crafton DATE/TIME: 3/6/19 1600
 RECEIVED BY: Robert M. V. Aubrey Crafton DATE/TIME: 3/6/19 1600
 RECEIVED BY: Robert M. V. Aubrey Crafton DATE/TIME: 3/6/19 0905
 pH checked: NA No NA Yes NA No NA Max: 11.0 Min: 11.0
 SAMPLE SHIPPED VIA: Fed-Ex UPS Fed-Ex USPS Fed-Ex COURIER Fed-Ex CLIENT Fed-Ex OTHER Fed-Ex FS
 CUSTODY SEAL: Intact Broken Intact Not Present Intact # of Coolers 1
 RELINQUISHED BY: Robert M. V. Aubrey Crafton DATE/TIME: 3/6/19 1600
 RELINQUISHED BY: Robert M. V. Aubrey Crafton DATE/TIME: 3/6/19 1600
 RELINQUISHED BY: Robert M. V. Aubrey Crafton DATE/TIME: 3/6/19 0905

W0#: 2615876



2615876

Pace COC Revised



Sample Condition Upon Receipt

WO#: 2615876

Client Name: GA Power

PM: BM Due Date: 03/18/19 CLIENT: GAPower-CCR

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

Tracking #: _____

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

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

Thermometer Used 082 Type of Ice: [x] Wet [] Blue [] None [] Samples on ice, cooling process has begun

Cooler Temperature 1.1°C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 3/9/19 [Signature]

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____

Date: _____

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

First Semiannual Sampling
Event
April 2019

May 07, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2617064

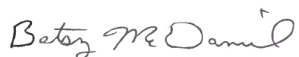
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/15/2019. The report has been revised to correct metals units and target list per consultant request. No other changes have been made to this report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617064

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617064

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617064001	BGWC-32	Water	04/05/19 09:36	04/05/19 12:42

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2617064

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617064001	BGWC-32	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617064

Sample: BGWC-32		Lab ID: 2617064001		Collected: 04/05/19 09:36		Received: 04/05/19 12:42		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00093J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 22:28	7440-38-2		
Barium	0.085	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 22:28	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 22:28	7440-41-7		
Boron	4.6J	mg/L	5.0	0.13	50	04/09/19 20:29	04/11/19 17:59	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 22:28	7440-43-9		
Calcium	265	mg/L	25.0	1.0	50	04/09/19 20:29	04/11/19 17:59	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 22:28	7440-47-3		
Cobalt	0.011	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 22:28	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 22:28	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 22:28	7439-93-2		
Molybdenum	0.0035J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 22:28	7439-98-7		
Selenium	0.00015J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 22:28	7782-49-2		
Thallium	0.00046J	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 22:28	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:01	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	1160	mg/L	25.0	10.0	1		04/11/19 20:53			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	270	mg/L	12.5	1.2	50		04/09/19 11:11	16887-00-6		
Fluoride	0.66	mg/L	0.30	0.029	1		04/09/19 09:27	16984-48-8		
Sulfate	312	mg/L	50.0	0.85	50		04/09/19 11:11	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617064

QC Batch:	468368	Analysis Method:	EPA 7470A
QC Batch Method:	EPA 7470A	Analysis Description:	7470 Mercury
Associated Lab Samples:	2617064001		

METHOD BLANK: 2544203 Matrix: Water
Associated Lab Samples: 2617064001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00020	0.00010	04/11/19 17:59	

LABORATORY CONTROL SAMPLE: 2544204

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0023	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2544205 2544206

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92421822002 Result	Spike Conc.	Spike Conc.	Result						
Mercury	mg/L				0.0024	0.0023			2	25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617064

QC Batch: 468329 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET
Associated Lab Samples: 2617064001

METHOD BLANK: 2544088 Matrix: Water
Associated Lab Samples: 2617064001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	0.000062J	0.0050	0.000060	04/10/19 19:29	
Barium	mg/L	ND	0.010	0.000060	04/10/19 19:29	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 19:29	
Boron	mg/L	ND	0.10	0.0026	04/10/19 19:29	
Cadmium	mg/L	ND	0.0010	0.000070	04/10/19 19:29	
Calcium	mg/L	ND	0.50	0.021	04/10/19 19:29	
Chromium	mg/L	ND	0.010	0.00042	04/10/19 19:29	
Cobalt	mg/L	ND	0.010	0.000050	04/10/19 19:29	
Lead	mg/L	ND	0.0050	0.000050	04/10/19 19:29	BC
Lithium	mg/L	ND	0.050	0.00042	04/10/19 19:29	
Molybdenum	mg/L	ND	0.010	0.00010	04/10/19 19:29	
Selenium	mg/L	ND	0.010	0.000080	04/10/19 19:29	
Thallium	mg/L	ND	0.0010	0.000060	04/10/19 19:29	

LABORATORY CONTROL SAMPLE: 2544089

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.010	103	80-120	
Barium	mg/L	0.05	0.050	99	80-120	
Beryllium	mg/L	0.01	0.0095	95	80-120	
Boron	mg/L	0.05	0.049J	98	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.050	101	80-120	
Cobalt	mg/L	0.01	0.010	101	80-120	
Lead	mg/L	0.05	0.051	101	80-120	BC
Lithium	mg/L	0.05	0.052	104	80-120	
Molybdenum	mg/L	0.05	0.052	103	80-120	
Selenium	mg/L	0.05	0.051	102	80-120	
Thallium	mg/L	0.01	0.010	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2544090 2544091

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2617082009 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Arsenic	mg/L	0.00012J	0.01	0.01	0.0092	0.0091	91	90	75-125	1	20	
Barium	mg/L	0.025	0.05	0.05	0.068	0.067	87	85	75-125	2	20	
Beryllium	mg/L	ND	0.01	0.01	0.0081	0.0080	80	79	75-125	2	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617064

Parameter	Units	2544090		2544091		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2617082009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Boron	mg/L	0.49J	0.05	0.05	0.56	0.58	137	180	75-125	4	20	M1	
Cadmium	mg/L	ND	0.01	0.01	0.0091	0.0091	91	90	75-125	0	20		
Calcium	mg/L	55.8	0.62	0.62	54.5	53.7	-203	-330	75-125	1	20	M6	
Chromium	mg/L	ND	0.05	0.05	0.045	0.044	89	88	75-125	1	20		
Cobalt	mg/L	0.00010J	0.01	0.01	0.0089J	0.0088J	88	87	75-125	1	20		
Lead	mg/L	ND	0.05	0.05	0.044	0.045	88	90	75-125	2	20		
Lithium	mg/L	ND	0.05	0.05	0.044J	0.044J	89	87	75-125	2	20		
Molybdenum	mg/L	ND	0.05	0.05	0.046	0.046	92	93	75-125	1	20		
Selenium	mg/L	0.00091J	0.05	0.05	0.046	0.045	90	88	75-125	2	20		
Thallium	mg/L	ND	0.01	0.01	0.0088	0.0090	88	90	75-125	2	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617064

QC Batch: 26252	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617064001	

LABORATORY CONTROL SAMPLE: 118510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

SAMPLE DUPLICATE: 118512

Parameter	Units	2617150003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2310	2380	3	10	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617064

QC Batch:	25956	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
Associated Lab Samples:	2617064001		

METHOD BLANK: 117263 Matrix: Water

Associated Lab Samples: 2617064001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.066J	0.25	0.024	04/08/19 22:43	
Fluoride	mg/L	ND	0.30	0.029	04/08/19 22:43	
Sulfate	mg/L	0.045J	1.0	0.017	04/08/19 22:43	

LABORATORY CONTROL SAMPLE: 117264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.8	98	90-110	
Fluoride	mg/L	10	9.7	97	90-110	
Sulfate	mg/L	10	9.7	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117265 117266

Parameter	Units	2617035001		2617035002		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Chloride	mg/L	4.3	10	10	14.3	14.4	100	101	90-110	1	15		
Fluoride	mg/L	ND	10	10	9.7	9.8	97	98	90-110	1	15		
Sulfate	mg/L	8.5	10	10	17.6	17.7	91	92	90-110	0	15		

MATRIX SPIKE SAMPLE: 117267

Parameter	Units	2617035002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	4.2	10	13.9	96	90-110	
Fluoride	mg/L	ND	10	9.3	93	90-110	
Sulfate	mg/L	2.1	10	11.2	91	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617064

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

BC The same analyte was detected in an associated blank at a concentration above 1/2 the reporting limit but below the laboratory reporting limit.

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

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2617064

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617064001	BGWC-32	EPA 3010A	468329	EPA 6020B	468391
2617064001	BGWC-32	EPA 7470A	468368	EPA 7470A	468610
2617064001	BGWC-32	SM 2540C	26252		
2617064001	BGWC-32	EPA 300.0	25956		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:

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

Report To: Jolu Abraham
 Copy To: Geosyntec
 Whitney Law
 Purchase Order #: SCS10348606
 Project Name: Plant Bowen Ash Pond
 Project #: []

Attention: []
 Company Name: []
 Address: []
 Pace Quote: []
 Pace Project Manager: betsy.mcdaniel@paceclabs.com
 Pace Profile #: 315

Regulatory Agency: []
 State / Location: GA

Section B Required Project Information:

MATRIX CODE (see valid codes to left)
 DWG 4/15/19 0936
 SAMPLE TYPE (G=GRAB C=COMP)
 PRESERVATIVES: H2SO4, HNO3, HCl, NaOH, Na2S2O3, Methanol, Other
 # OF CONTAINERS: 4
 ANALYSES TEST: TDS, Cl, F, SO4, Metals 6020 App, III, Metals 6020/470 App, IV (List*), Radium 226, 228

Section C Invoice Information:

Requested Analysis Filtered (Y/N)

ITEM #	MATRIX CODE (see valid codes to left)	DATE	TIME	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	Received on	Ice (Y/N)	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)	
																	COLLECTED
1	DWG	4/15/19	0936	Veronica Fay / Resolute	4/15/19	1242	Veronica Fay	4/15/19	242	200	Y						
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

ADDITIONAL COMMENTS

TEMP in C

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Veronica Fay
 SIGNATURE of SAMPLER: *Veronica Fay*
 DATE Signed: 4/15/19

WO#: 2617064

2617064



Sample Condition Upon Receipt

WO#: 2617064

Client Name: GA Power

PM: BM

Due Date: 04/12/19

CLIENT: GAPower-CCR

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 082 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 2.0°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/5/19 CCR

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 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)

April 29, 2019

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

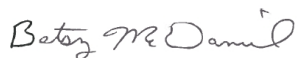
RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2617065

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617065

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond
Pace Project No.: 2617065

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617065001	BGWC-32	Water	04/05/19 09:36	04/05/19 12:42

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond
Pace Project No.: 2617065

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617065001	BGWC-32	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617065

Sample: BGWC-32 **Lab ID: 2617065001** Collected: 04/05/19 09:36 Received: 04/05/19 12:42 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.18 ± 0.450 (0.450) C:88% T:NA	pCi/L	04/17/19 08:36	13982-63-3	
Radium-228	EPA 9320	1.02 ± 0.402 (0.629) C:86% T:88%	pCi/L	04/18/19 12:30	15262-20-1	
Total Radium	Total Radium Calculation	2.20 ± 0.852 (1.08)	pCi/L	04/22/19 11:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617065

QC Batch: 337917

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617065001

METHOD BLANK: 1644525

Matrix: Water

Associated Lab Samples: 2617065001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.221 ± 0.211 (0.378) C:90% T:NA	pCi/L	04/17/19 08:36	

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: Plant Bowen Ash Pond

Pace Project No.: 2617065

QC Batch: 337911

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617065001

METHOD BLANK: 1644521

Matrix: Water

Associated Lab Samples: 2617065001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.526 ± 0.315 (0.569) C:87% T:76%	pCi/L	04/18/19 12:31	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617065

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond

Pace Project No.: 2617065

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617065001	BGWC-32	EPA 9315	337917		
2617065001	BGWC-32	EPA 9320	337911		
2617065001	BGWC-32	Total Radium Calculation	339290		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 2617065

Client Name: GAPower

PM: BM

Due Date: 05/03/19

CLIENT: GAPower-CCR

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 082 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 2.0°C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/5/19 CCR

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 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 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)

May 03, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2617076

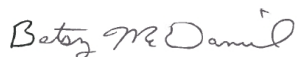
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/13/2019. The report has been revised to correct metals units and target list per consultant request. No other changes have been made to this report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617076001	BGWA-33	Water	04/03/19 10:28	04/05/19 11:20
2617076002	BGWC-19	Water	04/03/19 11:55	04/05/19 11:20
2617076003	BGWC-20	Water	04/03/19 10:30	04/05/19 11:20
2617076004	BGWC-21	Water	04/03/19 14:05	04/05/19 11:20
2617076005	BGWC-22	Water	04/03/19 11:18	04/05/19 11:20
2617076006	BGWC-23	Water	04/03/19 09:38	04/05/19 11:20
2617076007	BGWC-24	Water	04/03/19 16:36	04/05/19 11:20
2617076008	FBL040319	Water	04/03/19 12:46	04/05/19 11:20
2617076009	EQBL040319	Water	04/03/19 12:50	04/05/19 11:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond
Pace Project No.: 2617076

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617076001	BGWA-33	EPA 6020B	JMW1	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617076002	BGWC-19	EPA 6020B	JMW1	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617076003	BGWC-20	EPA 6020B	JMW1	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617076004	BGWC-21	EPA 6020B	JMW1	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617076005	BGWC-22	EPA 6020B	JMW1	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617076006	BGWC-23	EPA 6020B	JMW1	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617076007	BGWC-24	EPA 6020B	JMW1, KQ	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617076008	FBL040319	EPA 6020B	JMW1	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617076009	EQBL040319	EPA 6020B	JMW1	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

Sample: BGWA-33		Lab ID: 2617076001		Collected: 04/03/19 10:28	Received: 04/05/19 11:20	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.0020J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:14	7440-38-2	
Barium	0.025	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 02:14	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:14	7440-41-7	
Boron	0.66	mg/L	0.10	0.0026	1	04/09/19 10:55	04/10/19 02:14	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:14	7440-43-9	
Calcium	44.9	mg/L	0.50	0.021	1	04/09/19 10:55	04/10/19 02:14	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:14	7440-47-3	
Cobalt	0.00011J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:14	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 02:14	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:14	7439-93-2	
Molybdenum	0.034	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:14	7439-98-7	
Selenium	0.00013J	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:14	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:14	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:22	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	235	mg/L	25.0	10.0	1		04/10/19 16:34		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	5.2	mg/L	0.25	0.024	1		04/10/19 02:15	16887-00-6	
Fluoride	0.085J	mg/L	0.30	0.029	1		04/10/19 02:15	16984-48-8	
Sulfate	26.2	mg/L	1.0	0.017	1		04/10/19 02:15	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

Sample: BGWC-19 Lab ID: 2617076002 Collected: 04/03/19 11:55 Received: 04/05/19 11:20 Matrix: Water										
Parameters	Results	Units	Report Limit		MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS Analytical Method: EPA 6020B Preparation Method: EPA 3010A										
Arsenic	0.00017J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:18	7440-38-2		
Barium	0.033	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 02:18	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:18	7440-41-7		
Boron	0.51	mg/L	0.10	0.0026	1	04/09/19 10:55	04/10/19 02:18	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:18	7440-43-9		
Calcium	51.3	mg/L	0.50	0.021	1	04/09/19 10:55	04/10/19 02:18	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:18	7440-47-3		
Cobalt	0.000072J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:18	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 02:18	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:18	7439-93-2		
Molybdenum	0.00023J	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:18	7439-98-7		
Selenium	0.00058J	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:18	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:18	7440-28-0		
7470 Mercury Analytical Method: EPA 7470A Preparation Method: EPA 7470A										
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:25	7439-97-6		
2540C Total Dissolved Solids Analytical Method: SM 2540C										
Total Dissolved Solids	259	mg/L	25.0	10.0	1		04/10/19 16:34			
300.0 IC Anions 28 Days Analytical Method: EPA 300.0										
Chloride	9.7	mg/L	0.25	0.024	1		04/10/19 02:39	16887-00-6		
Fluoride	0.051J	mg/L	0.30	0.029	1		04/10/19 02:39	16984-48-8		
Sulfate	90.6	mg/L	10.0	0.17	10		04/10/19 09:31	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617076

Sample: BGWC-20		Lab ID: 2617076003		Collected: 04/03/19 10:30		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00027J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:21	7440-38-2		
Barium	0.029	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 02:21	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:21	7440-41-7		
Boron	2.6	mg/L	0.10	0.0026	1	04/09/19 10:55	04/10/19 02:21	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:21	7440-43-9		
Calcium	220	mg/L	0.50	0.021	1	04/09/19 10:55	04/10/19 02:21	7440-70-2		
Chromium	0.00088J	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:21	7440-47-3		
Cobalt	0.00024J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:21	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 02:21	7439-92-1		
Lithium	0.012J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:21	7439-93-2		
Molybdenum	0.012	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:21	7439-98-7		
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:21	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:21	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:27	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	1090	mg/L	25.0	10.0	1		04/10/19 16:34			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	144	mg/L	12.5	1.2	50		04/10/19 09:54	16887-00-6		
Fluoride	0.072J	mg/L	0.30	0.029	1		04/10/19 03:02	16984-48-8		
Sulfate	593	mg/L	50.0	0.85	50		04/10/19 09:54	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

Sample: BGWC-21		Lab ID: 2617076004		Collected: 04/03/19 14:05		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00038J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:35	7440-38-2		
Barium	0.033	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 02:35	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:35	7440-41-7		
Boron	0.12	mg/L	0.10	0.0026	1	04/09/19 10:55	04/10/19 02:35	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:35	7440-43-9		
Calcium	43.4	mg/L	0.50	0.021	1	04/09/19 10:55	04/10/19 02:35	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:35	7440-47-3		
Cobalt	0.00064J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:35	7440-48-4		
Lead	0.000068J	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 02:35	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:35	7439-93-2		
Molybdenum	0.0019J	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:35	7439-98-7		
Selenium	0.00012J	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:35	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:35	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:29	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	244	mg/L	25.0	10.0	1		04/10/19 16:35			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	5.0	mg/L	0.25	0.024	1		04/10/19 03:25	16887-00-6		
Fluoride	0.032J	mg/L	0.30	0.029	1		04/10/19 03:25	16984-48-8		
Sulfate	61.9	mg/L	5.0	0.085	5		04/10/19 11:49	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

Sample: BGWC-22		Lab ID: 2617076005		Collected: 04/03/19 11:18		Received: 04/05/19 11:20		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.0021J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:38	7440-38-2	
Barium	0.082	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 02:38	7440-39-3	
Beryllium	0.000067J	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:38	7440-41-7	
Boron	7.9	mg/L	0.10	0.0026	1	04/09/19 10:55	04/10/19 02:38	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:38	7440-43-9	
Calcium	458	mg/L	0.50	0.021	1	04/09/19 10:55	04/10/19 02:38	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:38	7440-47-3	
Cobalt	0.019	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:38	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 02:38	7439-92-1	
Lithium	0.024J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:38	7439-93-2	
Molybdenum	0.039	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:38	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:38	7782-49-2	
Thallium	0.00070J	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:38	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:32	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	2180	mg/L	25.0	10.0	1		04/10/19 16:35		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	856	mg/L	12.5	1.2	50		04/10/19 12:11	16887-00-6	
Fluoride	0.23J	mg/L	0.30	0.029	1		04/10/19 03:48	16984-48-8	
Sulfate	720	mg/L	50.0	0.85	50		04/10/19 12:11	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

Sample: BGWC-23		Lab ID: 2617076006		Collected: 04/03/19 09:38	Received: 04/05/19 11:20	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.00093J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:42	7440-38-2	
Barium	0.087	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 02:42	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:42	7440-41-7	
Boron	6.5	mg/L	0.10	0.0026	1	04/09/19 10:55	04/10/19 02:42	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:42	7440-43-9	
Calcium	396	mg/L	0.50	0.021	1	04/09/19 10:55	04/10/19 02:42	7440-70-2	
Chromium	0.00057J	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:42	7440-47-3	
Cobalt	0.00058J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:42	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 02:42	7439-92-1	
Lithium	0.013J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:42	7439-93-2	
Molybdenum	0.012	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:42	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:42	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:42	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:34	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	1990	mg/L	25.0	10.0	1		04/10/19 16:35		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	679	mg/L	12.5	1.2	50		04/10/19 12:34	16887-00-6	
Fluoride	0.10J	mg/L	0.30	0.029	1		04/10/19 04:10	16984-48-8	
Sulfate	603	mg/L	50.0	0.85	50		04/10/19 12:34	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

Sample: BGWC-24		Lab ID: 2617076007		Collected: 04/03/19 16:36	Received: 04/05/19 11:20	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.0019J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:45	7440-38-2	
Barium	0.095	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 02:45	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:45	7440-41-7	
Boron	23.3	mg/L	0.10	0.0026	1	04/09/19 10:55	04/10/19 02:45	7440-42-8	
Cadmium	0.0053	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:45	7440-43-9	
Calcium	945	mg/L	50.0	2.1	100	05/01/19 17:00	05/03/19 12:09	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:45	7440-47-3	
Cobalt	0.0048J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:45	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 02:45	7439-92-1	
Lithium	0.0048J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:45	7439-93-2	
Molybdenum	0.00095J	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:45	7439-98-7	
Selenium	0.0038J	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:45	7782-49-2	
Thallium	0.00064J	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:45	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	0.0013	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:36	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	13.0J	mg/L	25.0	10.0	1		04/10/19 16:35		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	1890	mg/L	12.5	1.2	50		04/12/19 15:33	16887-00-6	
Fluoride	3.0	mg/L	0.30	0.029	1		04/10/19 04:34	16984-48-8	
Sulfate	648	mg/L	50.0	0.85	50		04/12/19 15:33	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

Sample: FBL040319		Lab ID: 2617076008		Collected: 04/03/19 12:46	Received: 04/05/19 11:20	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	ND	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:49	7440-38-2		
Barium	0.000086J	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 02:49	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:49	7440-41-7		
Boron	0.93	mg/L	0.10	0.0026	1	04/09/19 10:55	04/10/19 02:49	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:49	7440-43-9		
Calcium	0.090J	mg/L	0.50	0.021	1	04/09/19 10:55	04/10/19 02:49	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:49	7440-47-3		
Cobalt	ND	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:49	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 02:49	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:49	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:49	7439-98-7		
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:49	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:49	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:39	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	12.0J	mg/L	25.0	10.0	1		04/10/19 16:35			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	0.31	mg/L	0.25	0.024	1		04/10/19 06:28	16887-00-6	B	
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 06:28	16984-48-8		
Sulfate	ND	mg/L	1.0	0.017	1		04/10/19 06:28	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

Sample: EQBL040319		Lab ID: 2617076009		Collected: 04/03/19 12:50		Received: 04/05/19 11:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	ND	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:52	7440-38-2	
Barium	ND	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 02:52	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:52	7440-41-7	
Boron	0.32	mg/L	0.10	0.0026	1	04/09/19 10:55	04/10/19 02:52	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:52	7440-43-9	
Calcium	0.026J	mg/L	0.50	0.021	1	04/09/19 10:55	04/10/19 02:52	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:52	7440-47-3	
Cobalt	ND	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:52	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 02:52	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:52	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:52	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:52	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:52	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:41	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	45.0	mg/L	25.0	10.0	1		04/10/19 16:35		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	0.32	mg/L	0.25	0.024	1		04/10/19 06:51	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 06:51	16984-48-8	
Sulfate	ND	mg/L	1.0	0.017	1		04/10/19 06:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617076

QC Batch: 468366 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2617076001, 2617076002, 2617076003, 2617076004, 2617076005, 2617076006, 2617076007, 2617076008, 2617076009

METHOD BLANK: 2544199 Matrix: Water
Associated Lab Samples: 2617076001, 2617076002, 2617076003, 2617076004, 2617076005, 2617076006, 2617076007, 2617076008, 2617076009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00020	0.00010	04/11/19 19:03	

LABORATORY CONTROL SAMPLE: 2544200

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2544201 2544202

Parameter	Units	2617069003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L				0.0019	0.0021				10	25	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617076

QC Batch: 468126 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET
Associated Lab Samples: 2617076001, 2617076002, 2617076003, 2617076004, 2617076005, 2617076006, 2617076007, 2617076008, 2617076009

METHOD BLANK: 2543175 Matrix: Water
Associated Lab Samples: 2617076001, 2617076002, 2617076003, 2617076004, 2617076005, 2617076006, 2617076007, 2617076008, 2617076009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 00:58	
Barium	mg/L	ND	0.010	0.000060	04/11/19 00:58	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 00:56	
Boron	mg/L	ND	0.10	0.0026	04/11/19 00:58	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 00:58	
Calcium	mg/L	ND	0.50	0.021	04/11/19 00:58	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 00:58	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 00:58	
Lead	mg/L	ND	0.0050	0.000050	04/11/19 00:58	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 00:58	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 00:58	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 00:58	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 00:58	

LABORATORY CONTROL SAMPLE: 2543176

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	98	80-120	
Beryllium	mg/L	0.01	0.0095	95	80-120	
Boron	mg/L	0.05	0.047J	94	80-120	
Cadmium	mg/L	0.01	0.010	101	80-120	
Calcium	mg/L	0.62	0.63	101	80-120	
Chromium	mg/L	0.05	0.050	99	80-120	
Cobalt	mg/L	0.01	0.010J	100	80-120	
Lead	mg/L	0.05	0.050	100	80-120	
Lithium	mg/L	0.05	0.050J	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.050	99	80-120	
Thallium	mg/L	0.01	0.0099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2543177 2543178

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2617072001 Result	Spike Conc.	Spike Conc.	MS Result						
Arsenic	mg/L	0.00017J	0.01	0.01	0.010	0.010	102	99	75-125	3	20
Barium	mg/L	0.018	0.05	0.05	0.069	0.068	101	99	75-125	1	20

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617076

Parameter	Units	2543177		2543178		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Beryllium	mg/L	ND	0.01	0.01	0.0088	0.0084	87	84	75-125	4	20	
Boron	mg/L	2.3	0.05	0.05	2.4	2.4	205	248	75-125	1	20	M6
Cadmium	mg/L	0.0018	0.01	0.01	0.012	0.011	97	96	75-125	1	20	
Calcium	mg/L	214	0.62	0.62	218	216	575	271	75-125	1	20	M6
Chromium	mg/L	ND	0.05	0.05	0.050	0.049	99	98	75-125	1	20	
Cobalt	mg/L	0.035	0.01	0.01	0.044	0.044	97	94	75-125	1	20	
Lead	mg/L	0.000072J	0.05	0.05	0.052	0.051	103	102	75-125	1	20	
Lithium	mg/L	0.00090J	0.05	0.05	0.046J	0.045J	90	88	75-125	2	20	
Molybdenum	mg/L	ND	0.05	0.05	0.052	0.052	104	103	75-125	1	20	
Selenium	mg/L	0.00021J	0.05	0.05	0.050	0.049	99	97	75-125	2	20	
Thallium	mg/L	ND	0.01	0.01	0.010	0.010	104	102	75-125	1	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

QC Batch: 473123

Analysis Method: EPA 6020B

QC Batch Method: EPA 3010A

Analysis Description: 6020 MET

Associated Lab Samples: 2617076007

METHOD BLANK: 2566181

Matrix: Water

Associated Lab Samples: 2617076007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	0.20	0.021	05/03/19 12:02	

LABORATORY CONTROL SAMPLE: 2566182

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	0.62	0.64	103	80-120	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617076

QC Batch: 26131 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617076001, 2617076002, 2617076003, 2617076004, 2617076005, 2617076006, 2617076007, 2617076008, 2617076009

LABORATORY CONTROL SAMPLE: 117963

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

SAMPLE DUPLICATE: 117964

Parameter	Units	2617035001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	111	103	7	10	

SAMPLE DUPLICATE: 117965

Parameter	Units	2617076005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2180	2110	3	10	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617076

QC Batch: 26061 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2617076001, 2617076002, 2617076003, 2617076004, 2617076005, 2617076006, 2617076007, 2617076008, 2617076009

METHOD BLANK: 117670 Matrix: Water
Associated Lab Samples: 2617076001, 2617076002, 2617076003, 2617076004, 2617076005, 2617076006, 2617076007, 2617076008, 2617076009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.31	0.25	0.024	04/09/19 19:01	
Fluoride	mg/L	ND	0.30	0.029	04/09/19 19:01	
Sulfate	mg/L	ND	1.0	0.017	04/09/19 19:01	

LABORATORY CONTROL SAMPLE: 117671

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	9.4	94	90-110	
Sulfate	mg/L	10	10.8	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117672 117673

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2617069001 Result	Spike Conc.	Spike Conc.	MS Result						
Chloride	mg/L	6.9	10	10	16.0	16.1	91	92	90-110	1	15
Fluoride	mg/L	0.042J	10	10	9.0	9.1	89	91	90-110	2	15 M1
Sulfate	mg/L	358	10	10	224	224	-1340	-1330	90-110	0	15 M1

MATRIX SPIKE SAMPLE: 117674

Parameter	Units	2617069002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	7.2	10	16.3	91	90-110	
Fluoride	mg/L	0.045J	10	9.3	92	90-110	
Sulfate	mg/L	369	10	226	-1430	90-110 M1	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond

Pace Project No.: 2617076

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617076001	BGWA-33	EPA 3010A	468126	EPA 6020B	468248
2617076002	BGWC-19	EPA 3010A	468126	EPA 6020B	468248
2617076003	BGWC-20	EPA 3010A	468126	EPA 6020B	468248
2617076004	BGWC-21	EPA 3010A	468126	EPA 6020B	468248
2617076005	BGWC-22	EPA 3010A	468126	EPA 6020B	468248
2617076006	BGWC-23	EPA 3010A	468126	EPA 6020B	468248
2617076007	BGWC-24	EPA 3010A	468126	EPA 6020B	468248
2617076007	BGWC-24	EPA 3010A	473123	EPA 6020B	473134
2617076008	FBL040319	EPA 3010A	468126	EPA 6020B	468248
2617076009	EQBL040319	EPA 3010A	468126	EPA 6020B	468248
2617076001	BGWA-33	EPA 7470A	468366	EPA 7470A	468612
2617076002	BGWC-19	EPA 7470A	468366	EPA 7470A	468612
2617076003	BGWC-20	EPA 7470A	468366	EPA 7470A	468612
2617076004	BGWC-21	EPA 7470A	468366	EPA 7470A	468612
2617076005	BGWC-22	EPA 7470A	468366	EPA 7470A	468612
2617076006	BGWC-23	EPA 7470A	468366	EPA 7470A	468612
2617076007	BGWC-24	EPA 7470A	468366	EPA 7470A	468612
2617076008	FBL040319	EPA 7470A	468366	EPA 7470A	468612
2617076009	EQBL040319	EPA 7470A	468366	EPA 7470A	468612
2617076001	BGWA-33	SM 2540C	26131		
2617076002	BGWC-19	SM 2540C	26131		
2617076003	BGWC-20	SM 2540C	26131		
2617076004	BGWC-21	SM 2540C	26131		
2617076005	BGWC-22	SM 2540C	26131		
2617076006	BGWC-23	SM 2540C	26131		
2617076007	BGWC-24	SM 2540C	26131		
2617076008	FBL040319	SM 2540C	26131		
2617076009	EQBL040319	SM 2540C	26131		
2617076001	BGWA-33	EPA 300.0	26061		
2617076002	BGWC-19	EPA 300.0	26061		
2617076003	BGWC-20	EPA 300.0	26061		
2617076004	BGWC-21	EPA 300.0	26061		
2617076005	BGWC-22	EPA 300.0	26061		
2617076006	BGWC-23	EPA 300.0	26061		
2617076007	BGWC-24	EPA 300.0	26061		
2617076008	FBL040319	EPA 300.0	26061		
2617076009	EQBL040319	EPA 300.0	26061		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: GCA Power

Project # _____

WO#: **2617076**

PH: **BM** Due Date: **04/12/19**
CLIENT: **GAPower-CCR**

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 83 Type of Ice: Wet Blue None

Cooler Temperature 0.3

Biological Tissue is Frozen: Yes No

Samples on ice, cooling process has begun

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/5/19 MK

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: _____

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Field Data Required? Y / N

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 (ie out of hold, incorrect preservative, out of temp, incorrect containers)

April 29, 2019

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


RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2617077

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617077

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617077001	BGWA-33	Water	04/03/19 10:28	04/05/19 11:20
2617077002	BGWC-19	Water	04/03/19 11:55	04/05/19 11:20
2617077003	BGWC-20	Water	04/03/19 10:30	04/05/19 11:20
2617077004	BGWC-21	Water	04/03/19 14:05	04/05/19 11:20
2617077005	BGWC-22	Water	04/03/19 11:18	04/05/19 11:20
2617077006	BGWC-23	Water	04/03/19 09:38	04/05/19 11:20
2617077007	BGWC-24	Water	04/03/19 16:36	04/05/19 11:20
2617077008	FBL040319	Water	04/03/19 12:46	04/05/19 11:20
2617077009	EQBL040319	Water	04/03/19 12:50	04/05/19 11:20

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond
Pace Project No.: 2617077

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617077001	BGWA-33	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617077002	BGWC-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617077003	BGWC-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617077004	BGWC-21	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617077005	BGWC-22	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617077006	BGWC-23	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617077007	BGWC-24	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617077008	FBL040319	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617077009	EQBL040319	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

Sample: BGWA-33 **Lab ID: 2617077001** Collected: 04/03/19 10:28 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.303 ± 0.314 (0.621) C:71% T:NA	pCi/L	04/17/19 07:55	13982-63-3	
Radium-228	EPA 9320	0.387 ± 0.439 (0.926) C:82% T:77%	pCi/L	04/18/19 12:27	15262-20-1	
Total Radium	Total Radium Calculation	0.690 ± 0.753 (1.55)	pCi/L	04/22/19 11:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

Sample: BGWC-19 **Lab ID: 2617077002** Collected: 04/03/19 11:55 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.668 ± 0.388 (0.627) C:91% T:NA	pCi/L	04/17/19 07:57	13982-63-3	
Radium-228	EPA 9320	0.312 ± 0.356 (0.747) C:81% T:80%	pCi/L	04/18/19 11:48	15262-20-1	
Total Radium	Total Radium Calculation	0.980 ± 0.744 (1.37)	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

Sample: BGWC-20 **Lab ID: 2617077003** Collected: 04/03/19 10:30 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.478 ± 0.297 (0.454) C:94% T:NA	pCi/L	04/17/19 07:55	13982-63-3	
Radium-228	EPA 9320	0.0890 ± 0.377 (0.848) C:82% T:89%	pCi/L	04/18/19 12:27	15262-20-1	
Total Radium	Total Radium Calculation	0.567 ± 0.674 (1.30)	pCi/L	04/22/19 11:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

Sample: BGWC-21 **Lab ID: 2617077004** Collected: 04/03/19 14:05 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.315 ± 0.232 (0.335) C:91% T:NA	pCi/L	04/17/19 08:07	13982-63-3	
Radium-228	EPA 9320	0.217 ± 0.307 (0.659) C:82% T:82%	pCi/L	04/18/19 14:52	15262-20-1	
Total Radium	Total Radium Calculation	0.532 ± 0.539 (0.994)	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

Sample: BGWC-22 **Lab ID: 2617077005** Collected: 04/03/19 11:18 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	2.01 ± 0.615 (0.618) C:96% T:NA	pCi/L	04/17/19 07:57	13982-63-3	
Radium-228	EPA 9320	0.465 ± 0.349 (0.677) C:80% T:78%	pCi/L	04/18/19 11:47	15262-20-1	
Total Radium	Total Radium Calculation	2.48 ± 0.964 (1.30)	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

Sample: BGWC-23 **Lab ID: 2617077006** Collected: 04/03/19 09:38 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.76 ± 0.601 (0.631) C:83% T:NA	pCi/L	04/17/19 07:54	13982-63-3	
Radium-228	EPA 9320	1.10 ± 0.457 (0.760) C:84% T:85%	pCi/L	04/18/19 12:27	15262-20-1	
Total Radium	Total Radium Calculation	2.86 ± 1.06 (1.39)	pCi/L	04/22/19 11:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

Sample: BGWC-24 **Lab ID: 2617077007** Collected: 04/03/19 16:36 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	2.38 ± 0.651 (0.375) C:98% T:NA	pCi/L	04/17/19 08:07	13982-63-3	
Radium-228	EPA 9320	1.22 ± 0.463 (0.705) C:77% T:90%	pCi/L	04/18/19 14:52	15262-20-1	
Total Radium	Total Radium Calculation	3.60 ± 1.11 (1.08)	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

Sample: FBL040319 **Lab ID: 2617077008** Collected: 04/03/19 12:46 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.0891 ± 0.172 (0.395) C:96% T:NA	pCi/L	04/17/19 08:07	13982-63-3	
Radium-228	EPA 9320	-0.388 ± 0.247 (0.665) C:80% T:84%	pCi/L	04/18/19 11:48	15262-20-1	
Total Radium	Total Radium Calculation	0.0891 ± 0.419 (1.06)	pCi/L	04/22/19 11:21	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

Sample: EQBL040319 **Lab ID: 2617077009** Collected: 04/03/19 12:50 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.344 ± 0.240 (0.347) C:95% T:NA	pCi/L	04/17/19 08:07	13982-63-3	
Radium-228	EPA 9320	0.451 ± 0.371 (0.731) C:76% T:71%	pCi/L	04/18/19 11:48	15262-20-1	
Total Radium	Total Radium Calculation	0.795 ± 0.611 (1.08)	pCi/L	04/22/19 11:21	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

QC Batch: 337919

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617077002, 2617077004, 2617077005, 2617077007, 2617077008, 2617077009

METHOD BLANK: 1644532

Matrix: Water

Associated Lab Samples: 2617077002, 2617077004, 2617077005, 2617077007, 2617077008, 2617077009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.211 ± 0.257 (0.538) C:93% T:NA	pCi/L	04/17/19 07:57	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

QC Batch: 337917

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617077001, 2617077003, 2617077006

METHOD BLANK: 1644525

Matrix: Water

Associated Lab Samples: 2617077001, 2617077003, 2617077006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.221 ± 0.211 (0.378) C:90% T:NA	pCi/L	04/17/19 08:36	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

QC Batch:	337911	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2617077001, 2617077003, 2617077006		

METHOD BLANK:	1644521	Matrix:	Water
Associated Lab Samples:	2617077001, 2617077003, 2617077006		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.526 ± 0.315 (0.569) C:87% T:76%	pCi/L	04/18/19 12:31	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

QC Batch:	337912	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2617077002, 2617077004, 2617077005, 2617077007, 2617077008, 2617077009		

METHOD BLANK:	1644522	Matrix:	Water
Associated Lab Samples:	2617077002, 2617077004, 2617077005, 2617077007, 2617077008, 2617077009		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.129 ± 0.341 (0.763) C:81% T:73%	pCi/L	04/18/19 11:47	

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

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617077

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2617077

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617077001	BGWA-33	EPA 9315	337917		
2617077002	BGWC-19	EPA 9315	337919		
2617077003	BGWC-20	EPA 9315	337917		
2617077004	BGWC-21	EPA 9315	337919		
2617077005	BGWC-22	EPA 9315	337919		
2617077006	BGWC-23	EPA 9315	337917		
2617077007	BGWC-24	EPA 9315	337919		
2617077008	FBL040319	EPA 9315	337919		
2617077009	EQBL040319	EPA 9315	337919		
2617077001	BGWA-33	EPA 9320	337911		
2617077002	BGWC-19	EPA 9320	337912		
2617077003	BGWC-20	EPA 9320	337911		
2617077004	BGWC-21	EPA 9320	337912		
2617077005	BGWC-22	EPA 9320	337912		
2617077006	BGWC-23	EPA 9320	337911		
2617077007	BGWC-24	EPA 9320	337912		
2617077008	FBL040319	EPA 9320	337912		
2617077009	EQBL040319	EPA 9320	337912		
2617077001	BGWA-33	Total Radium Calculation	339290		
2617077002	BGWC-19	Total Radium Calculation	339291		
2617077003	BGWC-20	Total Radium Calculation	339290		
2617077004	BGWC-21	Total Radium Calculation	339291		
2617077005	BGWC-22	Total Radium Calculation	339291		
2617077006	BGWC-23	Total Radium Calculation	339290		
2617077007	BGWC-24	Total Radium Calculation	339291		
2617077008	FBL040319	Total Radium Calculation	339291		
2617077009	EQBL040319	Total Radium Calculation	339291		

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CHAIN-OF-CUSTODY / Analytical Request Document

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

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

Section B
Required Project Information:
 Report To: Jiju Abraham
 Copy To: Geosynetics
 Whitney Law
 Purchase Order #: SCS10348606
 Project Name: Plant Bowen Ash Pond
 Project #:

Section C
Invoice Information:
 Attention:
 Company Name:
 Address:
 Pace Project Manager: betsy.mcdaniel@pacelabs.com
 State / Location: GA
 Regulatory Agency:
 Pace Profile #: 315

ITEM #	MATRIX CODE (see field codes to left)	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Y/N	Analyses Test				Requested Analyte Filtered (Y/N)
		Date	Time				H2SO4	HNO3	HCl	H2O2	H2SO3	Methanol	Other	TD, Cl, F, SO4	Metals 6020 App. III	Metals 6020/470 App. IV (Ultr)		Radium 226, 228	Residual Chrome (Y/N)			
1	B6WA-33	4/3/19	1028	WTG	4	1											X	X	X	X		
2	B6WC-19	4/3/19	1155	WTG	4	1											X	X	X	X		
3	B6WC-20	4/3/19	1030	WTG	4	1											X	X	X	X		
4	B6WC-21	4/3/19	1405	WTG	4	1											X	X	X	X		
5	B6WC-22	4/3/19	1118	WTG	4	1											X	X	X	X		
6	B6WC-23	4/3/19	0938	WTG	4	1											X	X	X	X		
7	B6WC-24	4/3/19	1636	WTG	4	1											X	X	X	X		
8	F8L040319	4/3/19	1246	WTG	4	1											X	X	X	X		
9	E8L040319	4/3/19	1250	WTG	4	1											X	X	X	X		
10																						
11																						
12																						

WO#: 2617077

2617077

ADDITIONAL COMMENTS	RELINQUISHED BY LABELATION		ACCEPTED BY AFFILIATION		SAMPLE CONDITIONS	
	DATE	TIME	DATE	TIME	TEMP IN C	Received on
App. IV Parameters: As, Ba, Be, Cd, Co, Cr, Hg, Li, Mo, Pb, Se, Tl, Zn only	4-5-19	10:20	4-5-19	10:20		
	4-5-19	10:20	4-5-19	10:20		
	4/5/19	11:20:03	4/5/19	11:20:03		

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Veronica Foy; Kevin Stephenson Audrey Crutten
 SIGNATURE of SAMPLER: *Veronica Foy*
 DATE Signed: 4/3/19



Sample Condition Upon Receipt

Client Name: GCA Power

Project # _____

WO#: **2617077**

PM: **BM**

Due Date: **05/03/19**

CLIENT: **GAPower-CCR**

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

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 83 Type of Ice: Wet Blue None

Cooler Temperature 0.3 Biological Tissue is Frozen: Yes No Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/5/19 MK

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: _____

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Field Data Required? Y / N

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)

May 03, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2617079

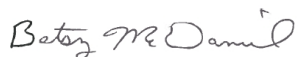
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/15/2019. The report has been revised to correct metals units and target list per consultant request. No other changes have been made to this report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617079001	BGWC-14	Water	04/04/19 09:03	04/05/19 11:20
2617079002	BGWC-25	Water	04/04/19 10:28	04/05/19 11:20
2617079003	BGWC-31	Water	04/04/19 11:10	04/05/19 11:20
2617079004	BGWC-34D	Water	04/04/19 15:50	04/05/19 11:20
2617079005	BGWC-35D	Water	04/04/19 12:40	04/05/19 11:20
2617079006	Dup-3	Water	04/04/19 00:00	04/05/19 11:20
2617079007	FBL040419	Water	04/04/19 12:44	04/05/19 11:20
2617079008	EQBL040419	Water	04/04/19 12:58	04/05/19 11:20

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617079001	BGWC-14	EPA 6020B	JMW1, SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617079002	BGWC-25	EPA 6020B	JMW1, SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617079003	BGWC-31	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617079004	BGWC-34D	EPA 6020B	JMW1, SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617079005	BGWC-35D	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617079006	Dup-3	EPA 6020B	JMW1, SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617079007	FBL040419	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617079008	EQBL040419	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617079

Sample: BGWC-14		Lab ID: 2617079001		Collected: 04/04/19 09:03		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00041J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 21:32	7440-38-2	B	
Barium	0.049	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 21:32	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 21:32	7440-41-7		
Boron	0.79J	mg/L	1.0	0.026	10	04/09/19 20:29	04/11/19 17:17	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 21:32	7440-43-9		
Calcium	98.0	mg/L	10.0	0.41	20	04/09/19 20:29	04/12/19 02:12	7440-70-2		
Chromium	0.00057J	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 21:32	7440-47-3		
Cobalt	0.00015J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 21:32	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 21:32	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 21:32	7439-93-2		
Molybdenum	0.0088J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 21:32	7439-98-7		
Selenium	0.00014J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 21:32	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 21:32	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 21:54	04/12/19 10:29	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	617	mg/L	25.0	10.0	1		04/11/19 19:35			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	33.7	mg/L	0.25	0.024	1		04/09/19 22:05	16887-00-6	M1	
Fluoride	0.44	mg/L	0.30	0.029	1		04/09/19 22:05	16984-48-8		
Sulfate	255	mg/L	10.0	0.17	10		04/09/19 22:27	14808-79-8	M1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

Sample: BGWC-25		Lab ID: 2617079002		Collected: 04/04/19 10:28		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.0016J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/11/19 17:20	7440-38-2		
Barium	0.016	mg/L	0.010	0.000060	1	04/09/19 20:29	04/11/19 17:20	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/11/19 17:20	7440-41-7		
Boron	0.020J	mg/L	0.10	0.0026	1	04/09/19 20:29	04/11/19 17:20	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/11/19 17:20	7440-43-9		
Calcium	54.8	mg/L	10.0	0.41	20	04/09/19 20:29	04/12/19 02:15	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/11/19 17:20	7440-47-3		
Cobalt	0.00022J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/11/19 17:20	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/11/19 17:20	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/11/19 17:20	7439-93-2		
Molybdenum	0.00096J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/11/19 17:20	7439-98-7		
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 20:29	04/11/19 17:20	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/11/19 17:20	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 21:54	04/12/19 10:41	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	196	mg/L	25.0	10.0	1		04/11/19 19:35			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	3.8	mg/L	0.25	0.024	1		04/09/19 23:31	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 23:31	16984-48-8		
Sulfate	11.4	mg/L	1.0	0.017	1		04/09/19 23:31	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

Sample: BGWC-31		Lab ID: 2617079003		Collected: 04/04/19 11:10		Received: 04/05/19 11:20		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.0036J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 21:39	7440-38-2	
Barium	0.032	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 21:39	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 21:39	7440-41-7	
Boron	0.59J	mg/L	1.0	0.026	10	04/09/19 20:29	04/11/19 17:27	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 21:39	7440-43-9	
Calcium	69.3	mg/L	5.0	0.21	10	04/09/19 20:29	04/11/19 17:27	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 21:39	7440-47-3	
Cobalt	0.00051J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 21:39	7440-48-4	
Lead	0.00065J	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 21:39	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 21:39	7439-93-2	
Molybdenum	0.00033J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 21:39	7439-98-7	
Selenium	0.000080J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 21:39	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 21:39	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 21:54	04/12/19 10:43	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	350	mg/L	25.0	10.0	1		04/11/19 19:35		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	32.7	mg/L	0.25	0.024	1		04/09/19 23:52	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 23:52	16984-48-8	
Sulfate	105	mg/L	10.0	0.17	10		04/10/19 00:13	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

Sample: BGWC-34D		Lab ID: 2617079004		Collected: 04/04/19 15:50	Received: 04/05/19 11:20	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.015	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/11/19 17:38	7440-38-2	
Barium	0.031	mg/L	0.010	0.000060	1	04/09/19 20:29	04/11/19 17:38	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/11/19 17:38	7440-41-7	
Boron	0.15	mg/L	0.10	0.0026	1	04/09/19 20:29	04/11/19 17:38	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/11/19 17:38	7440-43-9	
Calcium	104	mg/L	10.0	0.41	20	04/09/19 20:29	04/12/19 02:19	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/11/19 17:38	7440-47-3	
Cobalt	0.00042J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/11/19 17:38	7440-48-4	
Lead	0.000054J	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/11/19 17:38	7439-92-1	
Lithium	0.00068J	mg/L	0.050	0.00042	1	04/09/19 20:29	04/11/19 17:38	7439-93-2	
Molybdenum	0.0011J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/11/19 17:38	7439-98-7	
Selenium	0.00010J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/11/19 17:38	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/11/19 17:38	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 21:54	04/12/19 10:46	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	419	mg/L	25.0	10.0	1		04/11/19 19:35		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	28.4	mg/L	0.25	0.024	1		04/10/19 00:35	16887-00-6	
Fluoride	0.035J	mg/L	0.30	0.029	1		04/10/19 00:35	16984-48-8	
Sulfate	88.0	mg/L	5.0	0.085	5		04/10/19 00:56	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

Sample: BGWC-35D		Lab ID: 2617079005		Collected: 04/04/19 12:40	Received: 04/05/19 11:20	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.0018J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 22:14	7440-38-2	
Barium	0.071	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 22:14	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 22:14	7440-41-7	
Boron	8.3	mg/L	5.0	0.13	50	04/09/19 20:29	04/11/19 17:45	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 22:14	7440-43-9	
Calcium	442	mg/L	25.0	1.0	50	04/09/19 20:29	04/11/19 17:45	7440-70-2	
Chromium	0.0011J	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 22:14	7440-47-3	
Cobalt	0.0011J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 22:14	7440-48-4	
Lead	0.00023J	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 22:14	7439-92-1	
Lithium	0.0096J	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 22:14	7439-93-2	
Molybdenum	0.030	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 22:14	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 22:14	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 22:14	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 21:54	04/12/19 10:48	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	1930	mg/L	25.0	10.0	1		04/11/19 19:35		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	605	mg/L	12.5	1.2	50		04/10/19 03:04	16887-00-6	
Fluoride	0.26J	mg/L	0.30	0.029	1		04/10/19 01:17	16984-48-8	
Sulfate	643	mg/L	50.0	0.85	50		04/10/19 03:04	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

Sample: Dup-3		Lab ID: 2617079006		Collected: 04/04/19 00:00	Received: 04/05/19 11:20	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.0016J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 22:18	7440-38-2	
Barium	0.015	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 22:18	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 22:18	7440-41-7	
Boron	0.076J	mg/L	0.50	0.013	5	04/09/19 20:29	04/11/19 17:48	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 22:18	7440-43-9	
Calcium	48.4	mg/L	10.0	0.41	20	04/09/19 20:29	04/12/19 02:22	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 22:18	7440-47-3	
Cobalt	0.00020J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 22:18	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 22:18	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 22:18	7439-93-2	
Molybdenum	0.00096J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 22:18	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 22:18	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 22:18	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 21:54	04/12/19 10:50	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	207	mg/L	25.0	10.0	1		04/11/19 20:52		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	4.0	mg/L	0.25	0.024	1		04/10/19 03:25	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 03:25	16984-48-8	
Sulfate	11.3	mg/L	1.0	0.017	1		04/10/19 03:25	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

Sample: FBL040419		Lab ID: 2617079007		Collected: 04/04/19 12:44	Received: 04/05/19 11:20	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	ND	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/11/19 17:52	7440-38-2	
Barium	0.000071J	mg/L	0.010	0.000060	1	04/09/19 20:29	04/11/19 17:52	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/11/19 17:52	7440-41-7	
Boron	0.0043J	mg/L	0.10	0.0026	1	04/09/19 20:29	04/11/19 17:52	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/11/19 17:52	7440-43-9	
Calcium	ND	mg/L	0.50	0.021	1	04/09/19 20:29	04/11/19 17:52	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/11/19 17:52	7440-47-3	
Cobalt	ND	mg/L	0.010	0.000050	1	04/09/19 20:29	04/11/19 17:52	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/11/19 17:52	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/11/19 17:52	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 20:29	04/11/19 17:52	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 20:29	04/11/19 17:52	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/11/19 17:52	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 21:54	04/12/19 10:53	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	15.0J	mg/L	25.0	10.0	1		04/11/19 20:53		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	0.073J	mg/L	0.25	0.024	1		04/10/19 04:08	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 04:08	16984-48-8	
Sulfate	0.028J	mg/L	1.0	0.017	1		04/10/19 04:08	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

Sample: EQBL040419		Lab ID: 2617079008		Collected: 04/04/19 12:58		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	ND	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/11/19 17:56	7440-38-2		
Barium	ND	mg/L	0.010	0.000060	1	04/09/19 20:29	04/11/19 17:56	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/11/19 17:56	7440-41-7		
Boron	ND	mg/L	0.10	0.0026	1	04/09/19 20:29	04/11/19 17:56	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/11/19 17:56	7440-43-9		
Calcium	ND	mg/L	0.50	0.021	1	04/09/19 20:29	04/11/19 17:56	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/11/19 17:56	7440-47-3		
Cobalt	ND	mg/L	0.010	0.000050	1	04/09/19 20:29	04/11/19 17:56	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/11/19 17:56	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/11/19 17:56	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 20:29	04/11/19 17:56	7439-98-7		
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 20:29	04/11/19 17:56	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/11/19 17:56	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 21:54	04/12/19 10:55	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	25.0	10.0	1		04/11/19 20:53			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	0.077J	mg/L	0.25	0.024	1		04/10/19 04:29	16887-00-6	B	
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 04:29	16984-48-8		
Sulfate	0.028J	mg/L	1.0	0.017	1		04/10/19 04:29	14808-79-8		

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

QC Batch: 468642

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2617079001, 2617079002, 2617079003, 2617079004, 2617079005, 2617079006, 2617079007, 2617079008

METHOD BLANK: 2545437

Matrix: Water

Associated Lab Samples: 2617079001, 2617079002, 2617079003, 2617079004, 2617079005, 2617079006, 2617079007, 2617079008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00020	0.00010	04/12/19 10:24	

LABORATORY CONTROL SAMPLE: 2545438

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0023	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2545439 2545440

Parameter	Units	2617079001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0023	0.0023	93	93	75-125	0	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 DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617079

QC Batch: 468329 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET
Associated Lab Samples: 2617079001, 2617079002, 2617079003, 2617079004, 2617079005, 2617079006, 2617079007, 2617079008

METHOD BLANK: 2544088 Matrix: Water
Associated Lab Samples: 2617079001, 2617079002, 2617079003, 2617079004, 2617079005, 2617079006, 2617079007, 2617079008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	0.000062J	0.0050	0.000060	04/10/19 19:29	
Barium	mg/L	ND	0.010	0.000060	04/10/19 19:29	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 19:29	
Boron	mg/L	ND	0.10	0.0026	04/10/19 19:29	
Cadmium	mg/L	ND	0.0010	0.000070	04/10/19 19:29	
Calcium	mg/L	ND	0.50	0.021	04/10/19 19:29	
Chromium	mg/L	ND	0.010	0.00042	04/10/19 19:29	
Cobalt	mg/L	ND	0.010	0.000050	04/10/19 19:29	
Lead	mg/L	ND	0.0050	0.000050	04/10/19 19:29	BC
Lithium	mg/L	ND	0.050	0.00042	04/10/19 19:29	
Molybdenum	mg/L	ND	0.010	0.00010	04/10/19 19:29	
Selenium	mg/L	ND	0.010	0.000080	04/10/19 19:29	
Thallium	mg/L	ND	0.0010	0.000060	04/10/19 19:29	

LABORATORY CONTROL SAMPLE: 2544089

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.010	103	80-120	
Barium	mg/L	0.05	0.050	99	80-120	
Beryllium	mg/L	0.01	0.0095	95	80-120	
Boron	mg/L	0.05	0.049J	98	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.050	101	80-120	
Cobalt	mg/L	0.01	0.010	101	80-120	
Lead	mg/L	0.05	0.051	101	80-120	BC
Lithium	mg/L	0.05	0.052	104	80-120	
Molybdenum	mg/L	0.05	0.052	103	80-120	
Selenium	mg/L	0.05	0.051	102	80-120	
Thallium	mg/L	0.01	0.010	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2544090 2544091

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2617082009 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Arsenic	mg/L	0.00012J	0.01	0.01	0.0092	0.0091	91	90	75-125	1	20	
Barium	mg/L	0.025	0.05	0.05	0.068	0.067	87	85	75-125	2	20	
Beryllium	mg/L	ND	0.01	0.01	0.0081	0.0080	80	79	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

Parameter	Units	2544090		2544091		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Boron	mg/L	0.49J	0.05	0.05	0.56	0.58	137	180	75-125	4	20	M1	
Cadmium	mg/L	ND	0.01	0.01	0.0091	0.0091	91	90	75-125	0	20		
Calcium	mg/L	55.8	0.62	0.62	54.5	53.7	-203	-330	75-125	1	20	M6	
Chromium	mg/L	ND	0.05	0.05	0.045	0.044	89	88	75-125	1	20		
Cobalt	mg/L	0.00010J	0.01	0.01	0.0089J	0.0088J	88	87	75-125	1	20		
Lead	mg/L	ND	0.05	0.05	0.044	0.045	88	90	75-125	2	20		
Lithium	mg/L	ND	0.05	0.05	0.044J	0.044J	89	87	75-125	2	20		
Molybdenum	mg/L	ND	0.05	0.05	0.046	0.046	92	93	75-125	1	20		
Selenium	mg/L	0.00091J	0.05	0.05	0.046	0.045	90	88	75-125	2	20		
Thallium	mg/L	ND	0.01	0.01	0.0088	0.0090	88	90	75-125	2	20		

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

QC Batch: 26251 Analysis Method: SM 2540C
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
 Associated Lab Samples: 2617079001, 2617079002, 2617079003, 2617079004, 2617079005

LABORATORY CONTROL SAMPLE: 118507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	404	101	84-108	

SAMPLE DUPLICATE: 118508

Parameter	Units	2617035009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	85.0	50.0	52	10	D6

SAMPLE DUPLICATE: 118509

Parameter	Units	2617069003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	340	341	0	10	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

QC Batch: 26252 Analysis Method: SM 2540C

QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2617079006, 2617079007, 2617079008

LABORATORY CONTROL SAMPLE: 118510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

SAMPLE DUPLICATE: 118512

Parameter	Units	2617150003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2310	2380	3	10	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617079

QC Batch: 26063 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2617079001, 2617079002, 2617079003, 2617079004, 2617079005, 2617079006, 2617079007, 2617079008

METHOD BLANK: 117675 Matrix: Water
Associated Lab Samples: 2617079001, 2617079002, 2617079003, 2617079004, 2617079005, 2617079006, 2617079007, 2617079008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.053J	0.25	0.024	04/09/19 21:23	
Fluoride	mg/L	ND	0.30	0.029	04/09/19 21:23	
Sulfate	mg/L	ND	1.0	0.017	04/09/19 21:23	

LABORATORY CONTROL SAMPLE: 117676

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	10.1	101	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117677 117678

Parameter	Units	2617079001		2617079002		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Chloride	mg/L	33.7	10	10	40.3	40.3	65	65	90-110	0	15	M1	
Fluoride	mg/L	0.44	10	10	10.2	10.1	97	97	90-110	0	15		
Sulfate	mg/L	255	10	10	178	178	-769	-769	90-110	0	15	E, M1	

MATRIX SPIKE SAMPLE: 117679

Parameter	Units	2617079002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	3.8	10	13.4	96	90-110	
Fluoride	mg/L	ND	10	9.9	99	90-110	
Sulfate	mg/L	11.4	10	20.5	91	90-110	

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617079

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

BC The same analyte was detected in an associated blank at a concentration above 1/2 the reporting limit but below the laboratory reporting limit.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

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

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2617079

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617079001	BGWC-14	EPA 3010A	468329	EPA 6020B	468391
2617079002	BGWC-25	EPA 3010A	468329	EPA 6020B	468391
2617079003	BGWC-31	EPA 3010A	468329	EPA 6020B	468391
2617079004	BGWC-34D	EPA 3010A	468329	EPA 6020B	468391
2617079005	BGWC-35D	EPA 3010A	468329	EPA 6020B	468391
2617079006	Dup-3	EPA 3010A	468329	EPA 6020B	468391
2617079007	FBL040419	EPA 3010A	468329	EPA 6020B	468391
2617079008	EQBL040419	EPA 3010A	468329	EPA 6020B	468391
2617079001	BGWC-14	EPA 7470A	468642	EPA 7470A	468914
2617079002	BGWC-25	EPA 7470A	468642	EPA 7470A	468914
2617079003	BGWC-31	EPA 7470A	468642	EPA 7470A	468914
2617079004	BGWC-34D	EPA 7470A	468642	EPA 7470A	468914
2617079005	BGWC-35D	EPA 7470A	468642	EPA 7470A	468914
2617079006	Dup-3	EPA 7470A	468642	EPA 7470A	468914
2617079007	FBL040419	EPA 7470A	468642	EPA 7470A	468914
2617079008	EQBL040419	EPA 7470A	468642	EPA 7470A	468914
2617079001	BGWC-14	SM 2540C	26251		
2617079002	BGWC-25	SM 2540C	26251		
2617079003	BGWC-31	SM 2540C	26251		
2617079004	BGWC-34D	SM 2540C	26251		
2617079005	BGWC-35D	SM 2540C	26251		
2617079006	Dup-3	SM 2540C	26252		
2617079007	FBL040419	SM 2540C	26252		
2617079008	EQBL040419	SM 2540C	26252		
2617079001	BGWC-14	EPA 300.0	26063		
2617079002	BGWC-25	EPA 300.0	26063		
2617079003	BGWC-31	EPA 300.0	26063		
2617079004	BGWC-34D	EPA 300.0	26063		
2617079005	BGWC-35D	EPA 300.0	26063		
2617079006	Dup-3	EPA 300.0	26063		
2617079007	FBL040419	EPA 300.0	26063		
2617079008	EQBL040419	EPA 300.0	26063		

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Sample Condition Upon Receipt

Client Name: GCA Power

Project # _____

WO#: 2617079

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

PM: **BM** Due Date: **04/12/19**
CLIENT: **GAPower-CCR**

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 83 Type of Ice: Wet Blue None

Samples on ice, cooling process has begun

Cooler Temperature 0.3 Biological Tissue is Frozen: Yes No
Temp should be above freezing to 6°C

Date and initials of person examining contents: 4/5/19 MK

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: _____

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Field Data Required? Y / N

Project Manager Review: _____ Date: _____

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

April 29, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2617080

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617080

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617080001	BGWC-14	Water	04/04/19 09:03	04/05/19 11:20
2617080002	BGWC-25	Water	04/04/19 10:28	04/05/19 11:20
2617080003	BGWC-31	Water	04/04/19 11:10	04/05/19 11:20
2617080004	BGWC-34D	Water	04/04/19 15:50	04/05/19 11:20
2617080005	BGWC-35D	Water	04/04/19 12:40	04/05/19 11:20
2617080006	Dup-3	Water	04/04/19 00:00	04/05/19 11:20
2617080007	FBL040419	Water	04/04/19 12:44	04/05/19 11:20
2617080008	EQBL040419	Water	04/04/19 12:58	04/05/19 11:20

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617080001	BGWC-14	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617080002	BGWC-25	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617080003	BGWC-31	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617080004	BGWC-34D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617080005	BGWC-35D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617080006	Dup-3	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617080007	FBL040419	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617080008	EQBL040419	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

Sample: BGWC-14 **Lab ID: 2617080001** Collected: 04/04/19 09:03 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	5.46 ± 1.20 (0.677) C:90% T:NA	pCi/L	04/17/19 07:50	13982-63-3	
Radium-228	EPA 9320	3.02 ± 0.751 (0.693) C:85% T:78%	pCi/L	04/18/19 12:30	15262-20-1	
Total Radium	Total Radium Calculation	8.48 ± 1.95 (1.37)	pCi/L	04/22/19 11:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

Sample: BGWC-25 **Lab ID: 2617080002** Collected: 04/04/19 10:28 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.186 ± 0.242 (0.504) C:86% T:NA	pCi/L	04/17/19 07:51	13982-63-3	
Radium-228	EPA 9320	0.160 ± 0.372 (0.824) C:84% T:79%	pCi/L	04/18/19 12:30	15262-20-1	
Total Radium	Total Radium Calculation	0.346 ± 0.614 (1.33)	pCi/L	04/22/19 11:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

Sample: BGWC-31 **Lab ID: 2617080003** Collected: 04/04/19 11:10 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.808 ± 0.423 (0.604) C:80% T:NA	pCi/L	04/17/19 07:51	13982-63-3	
Radium-228	EPA 9320	0.678 ± 0.386 (0.705) C:82% T:80%	pCi/L	04/18/19 12:30	15262-20-1	
Total Radium	Total Radium Calculation	1.49 ± 0.809 (1.31)	pCi/L	04/22/19 11:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

Sample: BGWC-34D **Lab ID: 2617080004** Collected: 04/04/19 15:50 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.000 ± 0.448 (0.555) C:80% T:NA	pCi/L	04/17/19 07:54	13982-63-3	
Radium-228	EPA 9320	0.891 ± 0.558 (1.07) C:82% T:62%	pCi/L	04/18/19 12:27	15262-20-1	
Total Radium	Total Radium Calculation	1.89 ± 1.01 (1.63)	pCi/L	04/22/19 11:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

Sample: BGWC-35D **Lab ID: 2617080005** Collected: 04/04/19 12:40 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.08 ± 0.459 (0.597) C:97% T:NA	pCi/L	04/17/19 07:51	13982-63-3	
Radium-228	EPA 9320	1.29 ± 0.448 (0.635) C:86% T:82%	pCi/L	04/18/19 12:30	15262-20-1	
Total Radium	Total Radium Calculation	2.37 ± 0.907 (1.23)	pCi/L	04/22/19 11:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

Sample: Dup-3 **Lab ID: 2617080006** Collected: 04/04/19 00:00 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.330 ± 0.253 (0.397) C:89% T:NA	pCi/L	04/17/19 07:50	13982-63-3	
Radium-228	EPA 9320	0.224 ± 0.313 (0.672) C:85% T:80%	pCi/L	04/18/19 12:30	15262-20-1	
Total Radium	Total Radium Calculation	0.554 ± 0.566 (1.07)	pCi/L	04/22/19 11:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

Sample: FBL040419 **Lab ID: 2617080007** Collected: 04/04/19 12:44 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.121 ± 0.220 (0.501) C:90% T:NA	pCi/L	04/17/19 07:51	13982-63-3	
Radium-228	EPA 9320	0.679 ± 0.367 (0.653) C:82% T:79%	pCi/L	04/18/19 12:30	15262-20-1	
Total Radium	Total Radium Calculation	0.800 ± 0.587 (1.15)	pCi/L	04/22/19 11:17	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

Sample: EQBL040419 **Lab ID: 2617080008** Collected: 04/04/19 12:58 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.0490 ± 0.173 (0.440) C:89% T:NA	pCi/L	04/17/19 07:52	13982-63-3	
Radium-228	EPA 9320	0.446 ± 0.427 (0.887) C:83% T:82%	pCi/L	04/18/19 12:27	15262-20-1	
Total Radium	Total Radium Calculation	0.495 ± 0.600 (1.33)	pCi/L	04/22/19 11:17	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

QC Batch: 337911

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617080001, 2617080002, 2617080003, 2617080004, 2617080005, 2617080006, 2617080007, 2617080008

METHOD BLANK: 1644521

Matrix: Water

Associated Lab Samples: 2617080001, 2617080002, 2617080003, 2617080004, 2617080005, 2617080006, 2617080007, 2617080008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.526 ± 0.315 (0.569) C:87% T:76%	pCi/L	04/18/19 12:31	

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

QC Batch: 337917

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617080001, 2617080002, 2617080003, 2617080004, 2617080005, 2617080006, 2617080007, 2617080008

METHOD BLANK: 1644525

Matrix: Water

Associated Lab Samples: 2617080001, 2617080002, 2617080003, 2617080004, 2617080005, 2617080006, 2617080007, 2617080008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.221 ± 0.211 (0.378) C:90% T:NA	pCi/L	04/17/19 08:36	

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: Plant Bowen Ash Pond
Pace Project No.: 2617080

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

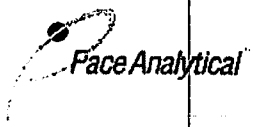
Project: Plant Bowen Ash Pond

Pace Project No.: 2617080

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617080001	BGWC-14	EPA 9315	337917		
2617080002	BGWC-25	EPA 9315	337917		
2617080003	BGWC-31	EPA 9315	337917		
2617080004	BGWC-34D	EPA 9315	337917		
2617080005	BGWC-35D	EPA 9315	337917		
2617080006	Dup-3	EPA 9315	337917		
2617080007	FBL040419	EPA 9315	337917		
2617080008	EQBL040419	EPA 9315	337917		
2617080001	BGWC-14	EPA 9320	337911		
2617080002	BGWC-25	EPA 9320	337911		
2617080003	BGWC-31	EPA 9320	337911		
2617080004	BGWC-34D	EPA 9320	337911		
2617080005	BGWC-35D	EPA 9320	337911		
2617080006	Dup-3	EPA 9320	337911		
2617080007	FBL040419	EPA 9320	337911		
2617080008	EQBL040419	EPA 9320	337911		
2617080001	BGWC-14	Total Radium Calculation	339290		
2617080002	BGWC-25	Total Radium Calculation	339290		
2617080003	BGWC-31	Total Radium Calculation	339290		
2617080004	BGWC-34D	Total Radium Calculation	339290		
2617080005	BGWC-35D	Total Radium Calculation	339290		
2617080006	Dup-3	Total Radium Calculation	339290		
2617080007	FBL040419	Total Radium Calculation	339290		
2617080008	EQBL040419	Total Radium Calculation	339290		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: GCA Power

Project # _____

WO#: **2617080**

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

PM: **BM** Due Date: **05/03/19**
CLIENT: **GAPower-CCR**

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 83 Type of Ice: Wet Blue None

Cooler Temperature 0.3 Biological Tissue is Frozen: Yes No
Temp should be above freezing to 6°C

Samples on ice, cooling process has begun
Date and Initials of person examining contents: 4/5/19 MK

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: _____

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Field Data Required? Y / N

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)

May 24, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2617082

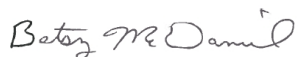
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/18/2019. The report has been revised to correct mercury units per consultant request. No other changes have been made to this report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617082001	BGWC-10	Water	04/02/19 16:15	04/05/19 11:20
2617082002	BGWC-30	Water	04/02/19 10:24	04/05/19 11:20
2617082003	BGWC-36D	Water	04/02/19 12:10	04/05/19 11:20
2617082004	BGWC-17	Water	04/02/19 14:43	04/05/19 11:20
2617082005	BGWC-18	Water	04/02/19 16:28	04/05/19 11:20
2617082006	BGWC-7	Water	04/02/19 09:58	04/05/19 11:20
2617082007	BGWA-6	Water	04/02/19 11:33	04/05/19 11:20
2617082008	BGWC-16	Water	04/02/19 13:22	04/05/19 11:20
2617082009	Dup-2	Water	04/02/19 00:00	04/05/19 11:20
2617082010	FBL040219	Water	04/02/19 16:14	04/05/19 11:20
2617082011	EQBL040219	Water	04/02/19 16:20	04/05/19 11:20

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond
Pace Project No.: 2617082

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617082001	BGWC-10	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617082002	BGWC-30	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617082003	BGWC-36D	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617082004	BGWC-17	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617082005	BGWC-18	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617082006	BGWC-7	EPA 6020B	JMW1, SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617082007	BGWA-6	EPA 6020B	JMW1, SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617082008	BGWC-16	EPA 6020B	JMW1, SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617082009	Dup-2	EPA 6020B	JMW1, SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617082010	FBL040219	EPA 6020B	SER	13	PASI-A

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617082011	EQBL040219	EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
		EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Sample: BGWC-10		Lab ID: 2617082001		Collected: 04/02/19 16:15		Received: 04/05/19 11:20		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.0057	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 17:31	7440-38-2	
Barium	0.045	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 17:31	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 17:31	7440-41-7	
Boron	0.51J	mg/L	1.0	0.026	10	04/09/19 20:29	04/11/19 18:03	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 17:31	7440-43-9	
Calcium	57.8	mg/L	5.0	0.21	10	04/09/19 20:29	04/11/19 18:03	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 17:31	7440-47-3	
Cobalt	0.00027J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 17:31	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 17:31	7439-92-1	
Lithium	0.0012J	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 17:31	7439-93-2	
Molybdenum	0.0032J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 17:31	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 17:31	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 17:31	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:44	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	355	mg/L	25.0	10.0	1		04/09/19 18:50		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	24.1	mg/L	0.25	0.024	1		04/10/19 04:51	16887-00-6	
Fluoride	0.044J	mg/L	0.30	0.029	1		04/10/19 04:51	16984-48-8	
Sulfate	105	mg/L	10.0	0.17	10		04/10/19 10:34	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Sample: BGWC-30		Lab ID: 2617082002		Collected: 04/02/19 10:24		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00024J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 17:35	7440-38-2		
Barium	0.075	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 17:35	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 17:35	7440-41-7		
Boron	6.1J	mg/L	10.0	0.26	100	04/09/19 20:29	04/11/19 18:06	7440-42-8		
Cadmium	0.000079J	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 17:35	7440-43-9		
Calcium	181	mg/L	50.0	2.1	100	04/09/19 20:29	04/11/19 18:06	7440-70-2		
Chromium	0.00095J	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 17:35	7440-47-3		
Cobalt	0.00022J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 17:35	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 17:35	7439-92-1		
Lithium	0.0041J	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 17:35	7439-93-2		
Molybdenum	0.010	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 17:35	7439-98-7		
Selenium	0.0092J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 17:35	7782-49-2		
Thallium	0.00024J	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 17:35	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:51	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	773	mg/L	25.0	10.0	1		04/09/19 18:50			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	333	mg/L	5.0	0.48	20		04/10/19 10:56	16887-00-6		
Fluoride	0.68	mg/L	0.30	0.029	1		04/10/19 05:12	16984-48-8		
Sulfate	153	mg/L	20.0	0.34	20		04/10/19 10:56	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617082

Sample: BGWC-36D		Lab ID: 2617082003		Collected: 04/02/19 12:10		Received: 04/05/19 11:20		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.00039J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 17:38	7440-38-2	
Barium	0.074	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 17:38	7440-39-3	
Beryllium	0.000070J	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 17:38	7440-41-7	
Boron	6.7J	mg/L	10.0	0.26	100	04/09/19 20:29	04/11/19 18:10	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 17:38	7440-43-9	
Calcium	200	mg/L	50.0	2.1	100	04/09/19 20:29	04/11/19 18:10	7440-70-2	
Chromium	0.0010J	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 17:38	7440-47-3	
Cobalt	0.0011J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 17:38	7440-48-4	
Lead	0.00067J	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 17:38	7439-92-1	
Lithium	0.0021J	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 17:38	7439-93-2	
Molybdenum	0.011	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 17:38	7439-98-7	
Selenium	0.014	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 17:38	7782-49-2	
Thallium	0.00022J	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 17:38	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:53	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	976	mg/L	25.0	10.0	1		04/09/19 18:50		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	378	mg/L	2.5	0.24	10		04/10/19 11:18	16887-00-6	
Fluoride	0.44	mg/L	0.30	0.029	1		04/10/19 05:55	16984-48-8	
Sulfate	192	mg/L	10.0	0.17	10		04/10/19 11:18	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Sample: BGWC-17		Lab ID: 2617082004		Collected: 04/02/19 14:43		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00024J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 17:42	7440-38-2		
Barium	0.015	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 17:42	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 17:42	7440-41-7		
Boron	0.95J	mg/L	1.0	0.026	10	04/09/19 20:29	04/11/19 18:44	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 17:42	7440-43-9		
Calcium	63.9	mg/L	5.0	0.21	10	04/09/19 20:29	04/11/19 18:44	7440-70-2		
Chromium	0.00044J	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 17:42	7440-47-3		
Cobalt	0.00015J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 17:42	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 17:42	7439-92-1		
Lithium	0.00069J	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 17:42	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 17:42	7439-98-7		
Selenium	0.00077J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 17:42	7782-49-2		
Thallium	0.000075J	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 17:42	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	0.00040	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:55	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	321	mg/L	25.0	10.0	1		04/09/19 18:51			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	18.7	mg/L	0.25	0.024	1		04/10/19 06:16	16887-00-6		
Fluoride	0.14J	mg/L	0.30	0.029	1		04/10/19 06:16	16984-48-8		
Sulfate	86.9	mg/L	10.0	0.17	10		04/10/19 13:08	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Sample: BGWC-18		Lab ID: 2617082005		Collected: 04/02/19 16:28	Received: 04/05/19 11:20	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.00015J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 20:24	7440-38-2	
Barium	0.028	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 20:24	7440-39-3	
Beryllium	0.000052J	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 20:24	7440-41-7	
Boron	0.56J	mg/L	1.0	0.026	10	04/09/19 20:29	04/11/19 18:47	7440-42-8	
Cadmium	0.000073J	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 20:24	7440-43-9	
Calcium	53.3	mg/L	5.0	0.21	10	04/09/19 20:29	04/11/19 18:47	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 20:24	7440-47-3	
Cobalt	0.00012J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 20:24	7440-48-4	
Lead	0.000081J	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 20:24	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 20:24	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 20:24	7439-98-7	
Selenium	0.0010J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 20:24	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 20:24	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 19:58	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	258	mg/L	25.0	10.0	1		04/09/19 18:51		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	4.5	mg/L	0.25	0.024	1		04/10/19 08:02	16887-00-6	
Fluoride	0.044J	mg/L	0.30	0.029	1		04/10/19 08:02	16984-48-8	
Sulfate	70.1	mg/L	10.0	0.17	10		04/10/19 13:29	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Sample: BGWC-7		Lab ID: 2617082006		Collected: 04/02/19 09:58	Received: 04/05/19 11:20	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.0016J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 20:28	7440-38-2	
Barium	0.031	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 20:28	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 20:28	7440-41-7	
Boron	1.4	mg/L	1.0	0.026	10	04/09/19 20:29	04/11/19 18:51	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 20:28	7440-43-9	
Calcium	140	mg/L	10.0	0.41	20	04/09/19 20:29	04/12/19 01:36	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 20:28	7440-47-3	
Cobalt	0.00094J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 20:28	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 20:28	7439-92-1	
Lithium	0.0073J	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 20:28	7439-93-2	
Molybdenum	0.011	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 20:28	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 20:28	7782-49-2	
Thallium	0.000070J	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 20:28	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 20:00	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	728	mg/L	25.0	10.0	1		04/09/19 18:51		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	9.4	mg/L	0.25	0.024	1		04/10/19 08:24	16887-00-6	
Fluoride	0.22J	mg/L	0.30	0.029	1		04/10/19 08:24	16984-48-8	
Sulfate	334	mg/L	20.0	0.34	20		04/10/19 13:51	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Sample: BGWA-6		Lab ID: 2617082007		Collected: 04/02/19 11:33	Received: 04/05/19 11:20	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.00032J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 20:31	7440-38-2	
Barium	0.011	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 20:31	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 20:31	7440-41-7	
Boron	0.037J	mg/L	0.20	0.0051	2	04/09/19 20:29	04/11/19 18:54	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 20:31	7440-43-9	
Calcium	64.1	mg/L	10.0	0.41	20	04/09/19 20:29	04/12/19 01:40	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 20:31	7440-47-3	
Cobalt	0.00016J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 20:31	7440-48-4	
Lead	0.000070J	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 20:31	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 20:31	7439-93-2	
Molybdenum	0.00026J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 20:31	7439-98-7	
Selenium	0.00031J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 20:31	7782-49-2	
Thallium	0.000062J	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 20:31	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 20:03	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	295	mg/L	25.0	10.0	1		04/09/19 18:51		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	9.0	mg/L	0.25	0.024	1		04/10/19 08:45	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 08:45	16984-48-8	
Sulfate	29.8	mg/L	1.0	0.017	1		04/10/19 08:45	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617082

Sample: BGWC-16		Lab ID: 2617082008		Collected: 04/02/19 13:22		Received: 04/05/19 11:20		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.00030J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 20:35	7440-38-2	
Barium	0.025	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 20:35	7440-39-3	
Beryllium	0.000063J	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 20:35	7440-41-7	
Boron	1.1	mg/L	1.0	0.026	10	04/09/19 20:29	04/11/19 18:58	7440-42-8	
Cadmium	0.0014	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 20:35	7440-43-9	
Calcium	117	mg/L	10.0	0.41	20	04/09/19 20:29	04/12/19 01:43	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 20:35	7440-47-3	
Cobalt	0.0056J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 20:35	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 20:35	7439-92-1	
Lithium	0.00049J	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 20:35	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 20:35	7439-98-7	
Selenium	0.00060J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 20:35	7782-49-2	
Thallium	0.00020J	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 20:35	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 20:05	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	604	mg/L	25.0	10.0	1		04/09/19 18:51		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	20.3	mg/L	0.25	0.024	1		04/10/19 09:07	16887-00-6	
Fluoride	0.23J	mg/L	0.30	0.029	1		04/10/19 09:07	16984-48-8	
Sulfate	272	mg/L	20.0	0.34	20		04/10/19 14:13	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Sample: Dup-2		Lab ID: 2617082009		Collected: 04/02/19 00:00		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00012J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 20:39	7440-38-2	B	
Barium	0.025	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 20:39	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 20:39	7440-41-7		
Boron	0.49J	mg/L	0.50	0.013	5	04/09/19 20:29	04/11/19 14:51	7440-42-8	M1	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 20:39	7440-43-9		
Calcium	55.8	mg/L	10.0	0.41	20	04/09/19 20:29	04/12/19 01:47	7440-70-2	M6	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 20:39	7440-47-3		
Cobalt	0.00010J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 20:39	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 20:39	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 20:39	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 20:39	7439-98-7		
Selenium	0.00091J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 20:39	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 20:39	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 20:07	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	262	mg/L	25.0	10.0	1		04/09/19 18:51			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	4.5	mg/L	0.25	0.024	1		04/10/19 09:29	16887-00-6		
Fluoride	0.047J	mg/L	0.30	0.029	1		04/10/19 09:29	16984-48-8		
Sulfate	72.0	mg/L	20.0	0.34	20		04/10/19 14:35	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Sample: FBL040219		Lab ID: 2617082010		Collected: 04/02/19 16:14	Received: 04/05/19 11:20	Matrix: Water			
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	ND	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/11/19 16:27	7440-38-2	
Barium	0.00011J	mg/L	0.010	0.000060	1	04/09/19 20:29	04/11/19 16:27	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/11/19 16:27	7440-41-7	
Boron	0.0094J	mg/L	0.10	0.0026	1	04/09/19 20:29	04/11/19 16:27	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/11/19 16:27	7440-43-9	
Calcium	ND	mg/L	0.50	0.021	1	04/09/19 20:29	04/11/19 16:27	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/11/19 16:27	7440-47-3	
Cobalt	ND	mg/L	0.010	0.000050	1	04/09/19 20:29	04/11/19 16:27	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/11/19 16:27	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/11/19 16:27	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 20:29	04/11/19 16:27	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 20:29	04/11/19 16:27	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/11/19 16:27	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 18:30	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	13.0J	mg/L	25.0	10.0	1		04/09/19 18:52		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	0.088J	mg/L	0.25	0.024	1		04/10/19 09:51	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 09:51	16984-48-8	
Sulfate	0.051J	mg/L	1.0	0.017	1		04/10/19 09:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Sample: EQBL040219		Lab ID: 2617082011		Collected: 04/02/19 16:20		Received: 04/05/19 11:20		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	ND	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/11/19 16:31	7440-38-2	
Barium	0.000076J	mg/L	0.010	0.000060	1	04/09/19 20:29	04/11/19 16:31	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/11/19 16:31	7440-41-7	
Boron	0.0035J	mg/L	0.10	0.0026	1	04/09/19 20:29	04/11/19 16:31	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/11/19 16:31	7440-43-9	
Calcium	ND	mg/L	0.50	0.021	1	04/09/19 20:29	04/11/19 16:31	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/11/19 16:31	7440-47-3	
Cobalt	ND	mg/L	0.010	0.000050	1	04/09/19 20:29	04/11/19 16:31	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/11/19 16:31	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/11/19 16:31	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 20:29	04/11/19 16:31	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 20:29	04/11/19 16:31	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/11/19 16:31	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 18:32	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	11.0J	mg/L	25.0	10.0	1		04/09/19 18:52		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	0.19J	mg/L	0.25	0.024	1		04/10/19 10:13	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 10:13	16984-48-8	
Sulfate	0.052J	mg/L	1.0	0.017	1		04/10/19 10:13	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617082

QC Batch: 468366 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2617082001, 2617082002, 2617082003, 2617082004, 2617082005, 2617082006, 2617082007, 2617082008, 2617082009

METHOD BLANK: 2544199 Matrix: Water
Associated Lab Samples: 2617082001, 2617082002, 2617082003, 2617082004, 2617082005, 2617082006, 2617082007, 2617082008, 2617082009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00020	0.00010	04/11/19 19:03	

LABORATORY CONTROL SAMPLE: 2544200

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2544201 2544202

Parameter	Units	2617069003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Mercury	mg/L				0.0019	0.0021				10	25	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

QC Batch: 468368 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2617082010, 2617082011

METHOD BLANK: 2544203 Matrix: Water

Associated Lab Samples: 2617082010, 2617082011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00020	0.00010	04/11/19 17:59	

LABORATORY CONTROL SAMPLE: 2544204

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0023	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2544205 2544206

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92421822002	Result	Spike Conc.	Spike Conc.								
Mercury	mg/L					0.0024	0.0023				2	25	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617082

QC Batch: 468328 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET
Associated Lab Samples: 2617082001, 2617082002, 2617082003, 2617082004, 2617082005, 2617082006, 2617082007, 2617082008

METHOD BLANK: 2544084 Matrix: Water
Associated Lab Samples: 2617082001, 2617082002, 2617082003, 2617082004, 2617082005, 2617082006, 2617082007, 2617082008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.000060	04/10/19 16:27	
Barium	mg/L	ND	0.010	0.000060	04/10/19 16:27	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 16:27	
Boron	mg/L	ND	0.10	0.0026	04/10/19 16:27	
Cadmium	mg/L	ND	0.0010	0.000070	04/10/19 16:27	
Calcium	mg/L	ND	0.50	0.021	04/10/19 16:27	
Chromium	mg/L	ND	0.010	0.00042	04/10/19 16:27	
Cobalt	mg/L	ND	0.010	0.000050	04/10/19 16:27	
Lead	mg/L	ND	0.0050	0.000050	04/10/19 16:27	
Lithium	mg/L	ND	0.050	0.00042	04/10/19 16:27	
Molybdenum	mg/L	ND	0.010	0.00010	04/10/19 16:27	
Selenium	mg/L	ND	0.010	0.000080	04/10/19 16:27	
Thallium	mg/L	ND	0.0010	0.000060	04/10/19 16:27	

LABORATORY CONTROL SAMPLE: 2544085

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.010	100	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.0090	90	80-120	
Boron	mg/L	0.05	0.048J	95	80-120	
Cadmium	mg/L	0.01	0.010	100	80-120	
Calcium	mg/L	0.62	0.62	100	80-120	
Chromium	mg/L	0.05	0.050	101	80-120	
Cobalt	mg/L	0.01	0.010	101	80-120	
Lead	mg/L	0.05	0.050	100	80-120	
Lithium	mg/L	0.05	0.049J	99	80-120	
Molybdenum	mg/L	0.05	0.050	101	80-120	
Selenium	mg/L	0.05	0.050	100	80-120	
Thallium	mg/L	0.01	0.0099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2544086 2544087

Parameter	Units	MS		MSD		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		92421822002	Spike Conc.	MS Result	MSD Result						
Arsenic	mg/L			0.0099	0.0099				1	20	
Barium	mg/L			0.060	0.061				1	20	
Beryllium	mg/L			0.0090	0.0091				1	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2544086												2544087	
Parameter	Units	92421822002 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
			Spike Conc.	Spike Conc.									
Cadmium	mg/L				0.010	0.010				1	20		
Chromium	mg/L				0.049	0.050				1	20		
Cobalt	mg/L				0.0099J	0.010				1	20		
Lead	mg/L				0.049	0.050				2	20		
Lithium	mg/L				0.048J	0.047J				2	20		
Molybdenum	mg/L				0.050	0.050				1	20		
Selenium	mg/L				0.048	0.049				2	20		
Thallium	mg/L				0.0097	0.0099				2	20		

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

QC Batch: 468329 Analysis Method: EPA 6020B

QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617082009, 2617082010, 2617082011

METHOD BLANK: 2544088 Matrix: Water

Associated Lab Samples: 2617082009, 2617082010, 2617082011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	0.000062J	0.0050	0.000060	04/10/19 19:29	
Barium	mg/L	ND	0.010	0.000060	04/10/19 19:29	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 19:29	
Boron	mg/L	ND	0.10	0.0026	04/10/19 19:29	
Cadmium	mg/L	ND	0.0010	0.000070	04/10/19 19:29	
Calcium	mg/L	ND	0.50	0.021	04/10/19 19:29	
Chromium	mg/L	ND	0.010	0.00042	04/10/19 19:29	
Cobalt	mg/L	ND	0.010	0.000050	04/10/19 19:29	
Lead	mg/L	ND	0.0050	0.000050	04/10/19 19:29	BC
Lithium	mg/L	ND	0.050	0.00042	04/10/19 19:29	
Molybdenum	mg/L	ND	0.010	0.00010	04/10/19 19:29	
Selenium	mg/L	ND	0.010	0.000080	04/10/19 19:29	
Thallium	mg/L	ND	0.0010	0.000060	04/10/19 19:29	

LABORATORY CONTROL SAMPLE: 2544089

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.010	103	80-120	
Barium	mg/L	0.05	0.050	99	80-120	
Beryllium	mg/L	0.01	0.0095	95	80-120	
Boron	mg/L	0.05	0.049J	98	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.050	101	80-120	
Cobalt	mg/L	0.01	0.010	101	80-120	
Lead	mg/L	0.05	0.051	101	80-120	BC
Lithium	mg/L	0.05	0.052	104	80-120	
Molybdenum	mg/L	0.05	0.052	103	80-120	
Selenium	mg/L	0.05	0.051	102	80-120	
Thallium	mg/L	0.01	0.010	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2544090 2544091

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2617082009 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Arsenic	mg/L	0.00012J	0.01	0.01	0.0092	0.0091	91	90	75-125	1	20	
Barium	mg/L	0.025	0.05	0.05	0.068	0.067	87	85	75-125	2	20	
Beryllium	mg/L	ND	0.01	0.01	0.0081	0.0080	80	79	75-125	2	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Parameter	Units	2544090		2544091		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2617082009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Boron	mg/L	0.49J	0.05	0.05	0.56	0.58	137	180	75-125	4	20	M1	
Cadmium	mg/L	ND	0.01	0.01	0.0091	0.0091	91	90	75-125	0	20		
Calcium	mg/L	55.8	0.62	0.62	54.5	53.7	-203	-330	75-125	1	20	M6	
Chromium	mg/L	ND	0.05	0.05	0.045	0.044	89	88	75-125	1	20		
Cobalt	mg/L	0.00010J	0.01	0.01	0.0089J	0.0088J	88	87	75-125	1	20		
Lead	mg/L	ND	0.05	0.05	0.044	0.045	88	90	75-125	2	20		
Lithium	mg/L	ND	0.05	0.05	0.044J	0.044J	89	87	75-125	2	20		
Molybdenum	mg/L	ND	0.05	0.05	0.046	0.046	92	93	75-125	1	20		
Selenium	mg/L	0.00091J	0.05	0.05	0.046	0.045	90	88	75-125	2	20		
Thallium	mg/L	ND	0.01	0.01	0.0088	0.0090	88	90	75-125	2	20		

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617082

QC Batch: 26063 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2617082001, 2617082002, 2617082003, 2617082004, 2617082005, 2617082006, 2617082007, 2617082008, 2617082009, 2617082010, 2617082011

METHOD BLANK: 117675 Matrix: Water
Associated Lab Samples: 2617082001, 2617082002, 2617082003, 2617082004, 2617082005, 2617082006, 2617082007, 2617082008, 2617082009, 2617082010, 2617082011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.053J	0.25	0.024	04/09/19 21:23	
Fluoride	mg/L	ND	0.30	0.029	04/09/19 21:23	
Sulfate	mg/L	ND	1.0	0.017	04/09/19 21:23	

LABORATORY CONTROL SAMPLE: 117676

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	10.1	101	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117677 117678

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2617079001 Result	Spike Conc.	Spike Conc.	MS Result						
Chloride	mg/L	33.7	10	10	40.3	40.3	65	65	90-110	0	15 M1
Fluoride	mg/L	0.44	10	10	10.2	10.1	97	97	90-110	0	15
Sulfate	mg/L	255	10	10	178	178	-769	-769	90-110	0	15 E,M1

MATRIX SPIKE SAMPLE: 117679

Parameter	Units	2617079002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	3.8	10	13.4	96	90-110	
Fluoride	mg/L	ND	10	9.9	99	90-110	
Sulfate	mg/L	11.4	10	20.5	91	90-110	

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

BC The same analyte was detected in an associated blank at a concentration above 1/2 the reporting limit but below the laboratory reporting limit.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

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

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond

Pace Project No.: 2617082

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617082001	BGWC-10	EPA 3010A	468328	EPA 6020B	468390
2617082002	BGWC-30	EPA 3010A	468328	EPA 6020B	468390
2617082003	BGWC-36D	EPA 3010A	468328	EPA 6020B	468390
2617082004	BGWC-17	EPA 3010A	468328	EPA 6020B	468390
2617082005	BGWC-18	EPA 3010A	468328	EPA 6020B	468390
2617082006	BGWC-7	EPA 3010A	468328	EPA 6020B	468390
2617082007	BGWA-6	EPA 3010A	468328	EPA 6020B	468390
2617082008	BGWC-16	EPA 3010A	468328	EPA 6020B	468390
2617082009	Dup-2	EPA 3010A	468329	EPA 6020B	468391
2617082010	FBL040219	EPA 3010A	468329	EPA 6020B	468391
2617082011	EQBL040219	EPA 3010A	468329	EPA 6020B	468391
2617082001	BGWC-10	EPA 7470A	468366	EPA 7470A	468612
2617082002	BGWC-30	EPA 7470A	468366	EPA 7470A	468612
2617082003	BGWC-36D	EPA 7470A	468366	EPA 7470A	468612
2617082004	BGWC-17	EPA 7470A	468366	EPA 7470A	468612
2617082005	BGWC-18	EPA 7470A	468366	EPA 7470A	468612
2617082006	BGWC-7	EPA 7470A	468366	EPA 7470A	468612
2617082007	BGWA-6	EPA 7470A	468366	EPA 7470A	468612
2617082008	BGWC-16	EPA 7470A	468366	EPA 7470A	468612
2617082009	Dup-2	EPA 7470A	468366	EPA 7470A	468612
2617082010	FBL040219	EPA 7470A	468368	EPA 7470A	468610
2617082011	EQBL040219	EPA 7470A	468368	EPA 7470A	468610
2617082001	BGWC-10	SM 2540C	26059		
2617082002	BGWC-30	SM 2540C	26059		
2617082003	BGWC-36D	SM 2540C	26059		
2617082004	BGWC-17	SM 2540C	26059		
2617082005	BGWC-18	SM 2540C	26059		
2617082006	BGWC-7	SM 2540C	26059		
2617082007	BGWA-6	SM 2540C	26059		
2617082008	BGWC-16	SM 2540C	26059		
2617082009	Dup-2	SM 2540C	26059		
2617082010	FBL040219	SM 2540C	26059		
2617082011	EQBL040219	SM 2540C	26059		
2617082001	BGWC-10	EPA 300.0	26063		
2617082002	BGWC-30	EPA 300.0	26063		
2617082003	BGWC-36D	EPA 300.0	26063		
2617082004	BGWC-17	EPA 300.0	26063		
2617082005	BGWC-18	EPA 300.0	26063		
2617082006	BGWC-7	EPA 300.0	26063		
2617082007	BGWA-6	EPA 300.0	26063		
2617082008	BGWC-16	EPA 300.0	26063		
2617082009	Dup-2	EPA 300.0	26063		
2617082010	FBL040219	EPA 300.0	26063		
2617082011	EQBL040219	EPA 300.0	26063		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: GCA Power

Project # _____

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

WO#: **2617082**

PM: **BM** Due Date: **04/12/19**
CLIENT: **GAPower-CCR**

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 83 Type of Ice: Wet Blue None

Samples on ice, cooling process has begun

Cooler Temperature 0.3 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/5/19 MK

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 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)

April 29, 2019

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

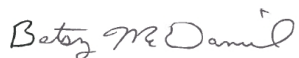
RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2617084

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617084

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617084001	BGWC-10	Water	04/02/19 16:15	04/05/19 11:20
2617084002	BGWC-30	Water	04/02/19 10:24	04/05/19 11:20
2617084003	BGWC-36D	Water	04/02/19 12:10	04/05/19 11:20
2617084004	BGWC-17	Water	04/02/19 14:43	04/05/19 11:20
2617084005	BGWC-18	Water	04/02/19 16:28	04/05/19 11:20
2617084006	BGWC-7	Water	04/02/19 09:58	04/05/19 11:20
2617084007	BGWA-6	Water	04/02/19 11:33	04/05/19 11:20
2617084008	BGWC-16	Water	04/02/19 13:22	04/05/19 11:20
2617084009	Dup-2	Water	04/02/19 00:00	04/05/19 11:20
2617084010	FBL040219	Water	04/02/19 16:14	04/05/19 11:20
2617084011	EQBL040219	Water	04/02/19 16:20	04/05/19 11:20

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617084001	BGWC-10	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617084002	BGWC-30	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617084003	BGWC-36D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617084004	BGWC-17	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617084005	BGWC-18	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617084006	BGWC-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617084007	BGWA-6	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617084008	BGWC-16	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617084009	Dup-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617084010	FBL040219	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617084011	EQBL040219	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Sample: BGWC-10 **Lab ID: 2617084001** Collected: 04/02/19 16:15 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.459 ± 0.299 (0.464) C:89% T:NA	pCi/L	04/18/19 08:04	13982-63-3	
Radium-228	EPA 9320	0.755 ± 0.454 (0.843) C:82% T:71%	pCi/L	04/18/19 15:37	15262-20-1	
Total Radium	Total Radium Calculation	1.21 ± 0.753 (1.31)	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Sample: BGWC-30 **Lab ID: 2617084002** Collected: 04/02/19 10:24 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.18 ± 0.462 (0.481) C:90% T:NA	pCi/L	04/18/19 08:03	13982-63-3	
Radium-228	EPA 9320	1.11 ± 0.472 (0.770) C:80% T:82%	pCi/L	04/18/19 15:37	15262-20-1	
Total Radium	Total Radium Calculation	2.29 ± 0.934 (1.25)	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Sample: BGWC-36D **Lab ID: 2617084003** Collected: 04/02/19 12:10 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.39 ± 0.524 (0.616) C:91% T:NA	pCi/L	04/18/19 08:03	13982-63-3	
Radium-228	EPA 9320	1.42 ± 0.489 (0.648) C:83% T:75%	pCi/L	04/18/19 15:37	15262-20-1	
Total Radium	Total Radium Calculation	2.81 ± 1.01 (1.26)	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Sample: BGWC-17 **Lab ID: 2617084004** Collected: 04/02/19 14:43 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.133 ± 0.265 (0.614) C:90% T:NA	pCi/L	04/18/19 08:03	13982-63-3	
Radium-228	EPA 9320	0.577 ± 0.383 (0.727) C:83% T:77%	pCi/L	04/18/19 15:38	15262-20-1	
Total Radium	Total Radium Calculation	0.710 ± 0.648 (1.34)	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Sample: BGWC-18 **Lab ID: 2617084005** Collected: 04/02/19 16:28 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.393 ± 0.280 (0.437) C:87% T:NA	pCi/L	04/18/19 08:04	13982-63-3	
Radium-228	EPA 9320	0.421 ± 0.322 (0.631) C:85% T:87%	pCi/L	04/18/19 15:37	15262-20-1	
Total Radium	Total Radium Calculation	0.814 ± 0.602 (1.07)	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Sample: BGWC-7 **Lab ID: 2617084006** Collected: 04/02/19 09:58 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.675 ± 0.403 (0.663) C:91% T:NA	pCi/L	04/18/19 08:03	13982-63-3	
Radium-228	EPA 9320	0.897 ± 0.389 (0.623) C:84% T:86%	pCi/L	04/18/19 15:37	15262-20-1	
Total Radium	Total Radium Calculation	1.57 ± 0.792 (1.29)	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Sample: BGWA-6 **Lab ID: 2617084007** Collected: 04/02/19 11:33 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.0561 ± 0.221 (0.557) C:86% T:NA	pCi/L	04/18/19 08:03	13982-63-3	
Radium-228	EPA 9320	0.584 ± 0.363 (0.672) C:81% T:81%	pCi/L	04/18/19 15:37	15262-20-1	
Total Radium	Total Radium Calculation	0.640 ± 0.584 (1.23)	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Sample: BGWC-16 **Lab ID: 2617084008** Collected: 04/02/19 13:22 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.512 ± 0.329 (0.513) C:87% T:NA	pCi/L	04/18/19 08:03	13982-63-3	
Radium-228	EPA 9320	1.22 ± 0.510 (0.807) C:80% T:74%	pCi/L	04/18/19 15:38	15262-20-1	
Total Radium	Total Radium Calculation	1.73 ± 0.839 (1.32)	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Sample: Dup-2 **Lab ID: 2617084009** Collected: 04/02/19 00:00 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.642 ± 0.325 (0.376) C:91% T:NA	pCi/L	04/18/19 08:03	13982-63-3	
Radium-228	EPA 9320	0.861 ± 0.454 (0.802) C:79% T:70%	pCi/L	04/18/19 15:37	15262-20-1	
Total Radium	Total Radium Calculation	1.50 ± 0.779 (1.18)	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Sample: FBL040219 **Lab ID: 2617084010** Collected: 04/02/19 16:14 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	-0.157 ± 0.127 (0.517) C:89% T:NA	pCi/L	04/18/19 08:03	13982-63-3	
Radium-228	EPA 9320	0.583 ± 0.545 (1.11) C:87% T:84%	pCi/L	04/18/19 19:59	15262-20-1	
Total Radium	Total Radium Calculation	0.583 ± 0.672 (1.63)	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.0972 ± 0.242 (0.579) C:93% T:NA	pCi/L	04/18/19 08:04	13982-63-3	
Radium-228	EPA 9320	0.634 ± 0.570 (1.16) C:81% T:85%	pCi/L	04/18/19 19:59	15262-20-1	
Total Radium	Total Radium Calculation	0.731 ± 0.812 (1.74)	pCi/L	04/22/19 11:25	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617084

QC Batch:	337921	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2617084001, 2617084002, 2617084003, 2617084004, 2617084005, 2617084006, 2617084007, 2617084008, 2617084009, 2617084010, 2617084011		

METHOD BLANK:	1644534	Matrix:	Water
Associated Lab Samples:	2617084001, 2617084002, 2617084003, 2617084004, 2617084005, 2617084006, 2617084007, 2617084008, 2617084009, 2617084010, 2617084011		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.156 ± 0.184 (0.361) C:97% T:NA	pCi/L	04/18/19 09:01	

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: Plant Bowen Ash Pond

Pace Project No.: 2617084

QC Batch:	337913	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2617084001, 2617084002, 2617084003, 2617084004, 2617084005, 2617084006, 2617084007, 2617084008, 2617084009, 2617084010, 2617084011		

METHOD BLANK:	1644523	Matrix:	Water
Associated Lab Samples:	2617084001, 2617084002, 2617084003, 2617084004, 2617084005, 2617084006, 2617084007, 2617084008, 2617084009, 2617084010, 2617084011		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.226 ± 0.293 (0.621) C:88% T:75%	pCi/L	04/18/19 15:38	

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

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QUALIFIERS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617084

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2617084

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617084001	BGWC-10	EPA 9315	337921		
2617084002	BGWC-30	EPA 9315	337921		
2617084003	BGWC-36D	EPA 9315	337921		
2617084004	BGWC-17	EPA 9315	337921		
2617084005	BGWC-18	EPA 9315	337921		
2617084006	BGWC-7	EPA 9315	337921		
2617084007	BGWA-6	EPA 9315	337921		
2617084008	BGWC-16	EPA 9315	337921		
2617084009	Dup-2	EPA 9315	337921		
2617084010	FBL040219	EPA 9315	337921		
2617084011	EQBL040219	EPA 9315	337921		
2617084001	BGWC-10	EPA 9320	337913		
2617084002	BGWC-30	EPA 9320	337913		
2617084003	BGWC-36D	EPA 9320	337913		
2617084004	BGWC-17	EPA 9320	337913		
2617084005	BGWC-18	EPA 9320	337913		
2617084006	BGWC-7	EPA 9320	337913		
2617084007	BGWA-6	EPA 9320	337913		
2617084008	BGWC-16	EPA 9320	337913		
2617084009	Dup-2	EPA 9320	337913		
2617084010	FBL040219	EPA 9320	337913		
2617084011	EQBL040219	EPA 9320	337913		
2617084001	BGWC-10	Total Radium Calculation	339292		
2617084002	BGWC-30	Total Radium Calculation	339292		
2617084003	BGWC-36D	Total Radium Calculation	339292		
2617084004	BGWC-17	Total Radium Calculation	339292		
2617084005	BGWC-18	Total Radium Calculation	339292		
2617084006	BGWC-7	Total Radium Calculation	339292		
2617084007	BGWA-6	Total Radium Calculation	339292		
2617084008	BGWC-16	Total Radium Calculation	339292		
2617084009	Dup-2	Total Radium Calculation	339292		
2617084010	FBL040219	Total Radium Calculation	339292		
2617084011	EQBL040219	Total Radium Calculation	339292		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: GCA Power

Project # _____

WO#: 2617084

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

PM: **BM** Due Date: **05/03/19**
CLIENT: **GAPower-CCR**

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used: 83 Type of Ice: Wet Blue None

Samples on ice, cooling process has begun

Cooler Temperature: 0.3
Temp should be above freezing to 6°C

Biological Tissue is Frozen: Yes No

Date and initials of person examining contents: 4/5/19 MK

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: _____ Date/Time: _____ Field Data Required? Y / N

Person Contacted: _____

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)

May 03, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2617086

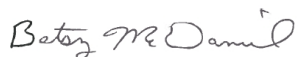
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/15/2019. The report has been revised to correct metals units and target list per consultant request. No other changes have been made to this report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617086

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617086

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617086001	BGWA-2	Water	04/01/19 10:39	04/05/19 11:20
2617086002	BGWA-29	Water	04/01/19 10:55	04/05/19 11:20
2617086003	BGWC-8	Water	04/01/19 12:36	04/05/19 11:20
2617086004	BGWC-9	Water	04/01/19 14:02	04/05/19 11:20
2617086005	BGWC-12	Water	04/01/19 15:12	04/05/19 11:20
2617086006	Dup-1	Water	04/01/19 00:00	04/05/19 11:20

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2617086

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617086001	BGWA-2	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617086002	BGWA-29	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617086003	BGWC-8	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617086004	BGWC-9	EPA 6020B	JMW1, SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617086005	BGWC-12	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617086006	Dup-1	EPA 6020B	SER	13	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617086

Sample: BGWA-2		Lab ID: 2617086001		Collected: 04/01/19 10:39		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00049J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/11/19 16:34	7440-38-2	B	
Barium	0.16	mg/L	0.010	0.000060	1	04/09/19 20:29	04/11/19 16:34	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/11/19 16:34	7440-41-7		
Boron	0.0076J	mg/L	0.10	0.0026	1	04/09/19 20:29	04/11/19 16:34	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/11/19 16:34	7440-43-9		
Calcium	48.2	mg/L	2.5	0.10	5	04/09/19 20:29	04/11/19 16:38	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/11/19 16:34	7440-47-3		
Cobalt	0.00014J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/11/19 16:34	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/11/19 16:34	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/11/19 16:34	7439-93-2		
Molybdenum	0.0014J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/11/19 16:34	7439-98-7		
Selenium	0.00011J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/11/19 16:34	7782-49-2		
Thallium	0.00011J	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/11/19 16:34	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 18:35	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	226	mg/L	25.0	10.0	1		04/08/19 15:23		D6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	4.2	mg/L	0.25	0.024	1		04/10/19 02:13	16887-00-6		
Fluoride	0.047J	mg/L	0.30	0.029	1		04/10/19 02:13	16984-48-8		
Sulfate	10.8	mg/L	1.0	0.017	1		04/10/19 02:13	14808-79-8	M1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617086

Sample: BGWA-29 Lab ID: 2617086002 Collected: 04/01/19 10:55 Received: 04/05/19 11:20 Matrix: Water									
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Arsenic	0.00019J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/11/19 16:41	7440-38-2	B
Barium	0.014	mg/L	0.010	0.000060	1	04/09/19 20:29	04/11/19 16:41	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/11/19 16:41	7440-41-7	
Boron	0.0048J	mg/L	0.10	0.0026	1	04/09/19 20:29	04/11/19 16:41	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/11/19 16:41	7440-43-9	
Calcium	24.6	mg/L	2.5	0.10	5	04/09/19 20:29	04/11/19 16:45	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/11/19 16:41	7440-47-3	
Cobalt	ND	mg/L	0.010	0.000050	1	04/09/19 20:29	04/11/19 16:41	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/11/19 16:41	7439-92-1	
Lithium	0.00059J	mg/L	0.050	0.00042	1	04/09/19 20:29	04/11/19 16:41	7439-93-2	
Molybdenum	0.00053J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/11/19 16:41	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 20:29	04/11/19 16:41	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/11/19 16:41	7440-28-0	
7470 Mercury Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 18:37	7439-97-6	
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	114	mg/L	25.0	10.0	1		04/08/19 15:25		
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	1.6	mg/L	0.25	0.024	1		04/10/19 03:23	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 03:23	16984-48-8	
Sulfate	5.2	mg/L	1.0	0.017	1		04/10/19 03:23	14808-79-8	M1

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617086

Sample: BGWC-8		Lab ID: 2617086003		Collected: 04/01/19 12:36		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00041J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/11/19 16:55	7440-38-2	B	
Barium	0.025	mg/L	0.010	0.000060	1	04/09/19 20:29	04/11/19 16:55	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/11/19 16:55	7440-41-7		
Boron	0.046J	mg/L	0.10	0.0026	1	04/09/19 20:29	04/11/19 16:55	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/11/19 16:55	7440-43-9		
Calcium	47.2	mg/L	2.5	0.10	5	04/09/19 20:29	04/11/19 16:59	7440-70-2		
Chromium	0.00091J	mg/L	0.010	0.00042	1	04/09/19 20:29	04/11/19 16:55	7440-47-3		
Cobalt	0.000056J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/11/19 16:55	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/11/19 16:55	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/11/19 16:55	7439-93-2		
Molybdenum	0.00054J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/11/19 16:55	7439-98-7		
Selenium	0.00015J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/11/19 16:55	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/11/19 16:55	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 18:39	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	191	mg/L	25.0	10.0	1		04/08/19 15:25			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	1.8	mg/L	0.25	0.024	1		04/10/19 03:46	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 03:46	16984-48-8		
Sulfate	30.5	mg/L	1.0	0.017	1		04/10/19 03:46	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617086

Sample: BGWC-9		Lab ID: 2617086004		Collected: 04/01/19 14:02		Received: 04/05/19 11:20		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.0026J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 21:21	7440-38-2	
Barium	0.027	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 21:21	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 21:21	7440-41-7	
Boron	0.50	mg/L	0.50	0.013	5	04/09/19 20:29	04/11/19 17:03	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 21:21	7440-43-9	
Calcium	59.3	mg/L	10.0	0.41	20	04/09/19 20:29	04/12/19 02:26	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 21:21	7440-47-3	
Cobalt	0.00024J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 21:21	7440-48-4	
Lead	0.000092J	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 21:21	7439-92-1	
Lithium	0.0012J	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 21:21	7439-93-2	
Molybdenum	0.0027J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 21:21	7439-98-7	
Selenium	0.00040J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 21:21	7782-49-2	
Thallium	0.000065J	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 21:21	7440-28-0	
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 18:42	7439-97-6	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	326	mg/L	25.0	10.0	1		04/08/19 15:26		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	13.4	mg/L	0.25	0.024	1		04/10/19 04:09	16887-00-6	
Fluoride	0.33	mg/L	0.30	0.029	1		04/10/19 04:09	16984-48-8	
Sulfate	81.4	mg/L	10.0	0.17	10		04/10/19 09:57	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617086

Sample: BGWC-12		Lab ID: 2617086005		Collected: 04/01/19 15:12		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00028J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/10/19 21:25	7440-38-2	B	
Barium	0.023	mg/L	0.010	0.000060	1	04/09/19 20:29	04/10/19 21:25	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/10/19 21:25	7440-41-7		
Boron	0.86J	mg/L	1.0	0.026	10	04/09/19 20:29	04/11/19 17:06	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/10/19 21:25	7440-43-9		
Calcium	94.8	mg/L	5.0	0.21	10	04/09/19 20:29	04/11/19 17:06	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/10/19 21:25	7440-47-3		
Cobalt	0.00034J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/10/19 21:25	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/10/19 21:25	7439-92-1		
Lithium	0.00078J	mg/L	0.050	0.00042	1	04/09/19 20:29	04/10/19 21:25	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 20:29	04/10/19 21:25	7439-98-7		
Selenium	0.00040J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/10/19 21:25	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/10/19 21:25	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 18:44	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	191	mg/L	25.0	10.0	1		04/08/19 15:27			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	24.1	mg/L	0.25	0.024	1		04/10/19 04:32	16887-00-6		
Fluoride	0.065J	mg/L	0.30	0.029	1		04/10/19 04:32	16984-48-8		
Sulfate	239	mg/L	20.0	0.34	20		04/10/19 10:20	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617086

Sample: Dup-1		Lab ID: 2617086006		Collected: 04/01/19 00:00		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00048J	mg/L	0.0050	0.000060	1	04/09/19 20:29	04/11/19 17:10	7440-38-2	B	
Barium	0.16	mg/L	0.010	0.000060	1	04/09/19 20:29	04/11/19 17:10	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 20:29	04/11/19 17:10	7440-41-7		
Boron	0.013J	mg/L	0.10	0.0026	1	04/09/19 20:29	04/11/19 17:10	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 20:29	04/11/19 17:10	7440-43-9		
Calcium	46.7	mg/L	2.5	0.10	5	04/09/19 20:29	04/11/19 17:13	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 20:29	04/11/19 17:10	7440-47-3		
Cobalt	0.00014J	mg/L	0.010	0.000050	1	04/09/19 20:29	04/11/19 17:10	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 20:29	04/11/19 17:10	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/09/19 20:29	04/11/19 17:10	7439-93-2		
Molybdenum	0.0014J	mg/L	0.010	0.00010	1	04/09/19 20:29	04/11/19 17:10	7439-98-7		
Selenium	0.00011J	mg/L	0.010	0.000080	1	04/09/19 20:29	04/11/19 17:10	7782-49-2		
Thallium	0.00011J	mg/L	0.0010	0.000060	1	04/09/19 20:29	04/11/19 17:10	7440-28-0		
7470 Mercury		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/10/19 12:38	04/11/19 18:47	7439-97-6		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	178	mg/L	25.0	10.0	1		04/08/19 15:28			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	4.2	mg/L	0.25	0.024	1		04/10/19 04:55	16887-00-6		
Fluoride	0.21J	mg/L	0.30	0.029	1		04/10/19 04:55	16984-48-8		
Sulfate	10.9	mg/L	1.0	0.017	1		04/10/19 04:55	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617086

QC Batch: 468368

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2617086001, 2617086002, 2617086003, 2617086004, 2617086005, 2617086006

METHOD BLANK: 2544203

Matrix: Water

Associated Lab Samples: 2617086001, 2617086002, 2617086003, 2617086004, 2617086005, 2617086006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00020	0.00010	04/11/19 17:59	

LABORATORY CONTROL SAMPLE: 2544204

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0023	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2544205 2544206

Parameter	Units	2544205		2544206		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92421822002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	mg/L				0.0024	0.0023			2	25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617086

QC Batch: 468329 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET
Associated Lab Samples: 2617086001, 2617086002, 2617086003, 2617086004, 2617086005, 2617086006

METHOD BLANK: 2544088 Matrix: Water
Associated Lab Samples: 2617086001, 2617086002, 2617086003, 2617086004, 2617086005, 2617086006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	0.000062J	0.0050	0.000060	04/10/19 19:29	
Barium	mg/L	ND	0.010	0.000060	04/10/19 19:29	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 19:29	
Boron	mg/L	ND	0.10	0.0026	04/10/19 19:29	
Cadmium	mg/L	ND	0.0010	0.000070	04/10/19 19:29	
Calcium	mg/L	ND	0.50	0.021	04/10/19 19:29	
Chromium	mg/L	ND	0.010	0.00042	04/10/19 19:29	
Cobalt	mg/L	ND	0.010	0.000050	04/10/19 19:29	
Lead	mg/L	ND	0.0050	0.000050	04/10/19 19:29	BC
Lithium	mg/L	ND	0.050	0.00042	04/10/19 19:29	
Molybdenum	mg/L	ND	0.010	0.00010	04/10/19 19:29	
Selenium	mg/L	ND	0.010	0.000080	04/10/19 19:29	
Thallium	mg/L	ND	0.0010	0.000060	04/10/19 19:29	

LABORATORY CONTROL SAMPLE: 2544089

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.010	103	80-120	
Barium	mg/L	0.05	0.050	99	80-120	
Beryllium	mg/L	0.01	0.0095	95	80-120	
Boron	mg/L	0.05	0.049J	98	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.050	101	80-120	
Cobalt	mg/L	0.01	0.010	101	80-120	
Lead	mg/L	0.05	0.051	101	80-120	BC
Lithium	mg/L	0.05	0.052	104	80-120	
Molybdenum	mg/L	0.05	0.052	103	80-120	
Selenium	mg/L	0.05	0.051	102	80-120	
Thallium	mg/L	0.01	0.010	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2544090 2544091

Parameter	Units	2617082009 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Arsenic	mg/L	0.00012J	0.01	0.01	0.0092	0.0091	91	90	75-125	1	20	
Barium	mg/L	0.025	0.05	0.05	0.068	0.067	87	85	75-125	2	20	
Beryllium	mg/L	ND	0.01	0.01	0.0081	0.0080	80	79	75-125	2	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2617086

Parameter	Units	2544090		2544091		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Boron	mg/L	0.49J	0.05	0.05	0.56	0.58	137	180	75-125	4	20	M1	
Cadmium	mg/L	ND	0.01	0.01	0.0091	0.0091	91	90	75-125	0	20		
Calcium	mg/L	55.8	0.62	0.62	54.5	53.7	-203	-330	75-125	1	20	M6	
Chromium	mg/L	ND	0.05	0.05	0.045	0.044	89	88	75-125	1	20		
Cobalt	mg/L	0.00010J	0.01	0.01	0.0089J	0.0088J	88	87	75-125	1	20		
Lead	mg/L	ND	0.05	0.05	0.044	0.045	88	90	75-125	2	20		
Lithium	mg/L	ND	0.05	0.05	0.044J	0.044J	89	87	75-125	2	20		
Molybdenum	mg/L	ND	0.05	0.05	0.046	0.046	92	93	75-125	1	20		
Selenium	mg/L	0.00091J	0.05	0.05	0.046	0.045	90	88	75-125	2	20		
Thallium	mg/L	ND	0.01	0.01	0.0088	0.0090	88	90	75-125	2	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617086

QC Batch: 25999 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617086001, 2617086002, 2617086003, 2617086004, 2617086005, 2617086006

LABORATORY CONTROL SAMPLE: 117377

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	411	103	84-108	

SAMPLE DUPLICATE: 117378

Parameter	Units	2617086001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	226	203	11	10	D6

SAMPLE DUPLICATE: 117379

Parameter	Units	2616901015 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	13.0J		10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2617086

QC Batch: 26064 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2617086001, 2617086002, 2617086003, 2617086004, 2617086005, 2617086006

METHOD BLANK: 117680 Matrix: Water
Associated Lab Samples: 2617086001, 2617086002, 2617086003, 2617086004, 2617086005, 2617086006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	0.25	0.024	04/10/19 01:27	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 01:27	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 01:27	

LABORATORY CONTROL SAMPLE: 117681

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	10.2	102	90-110	
Sulfate	mg/L	10	10.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117682 117683

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		2617086001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Chloride	mg/L	4.2	10	10	14.3	14.3	101	101	90-110	0	15		
Fluoride	mg/L	0.047J	10	10	10.4	10.4	103	103	90-110	0	15		
Sulfate	mg/L	10.8	10	10	19.6	19.6	89	88	90-110	0	15	M1	

MATRIX SPIKE SAMPLE: 117684

Parameter	Units	2617086002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1.6	10	10.7	91	90-110	
Fluoride	mg/L	ND	10	9.2	92	90-110	
Sulfate	mg/L	5.2	10	13.7	85	90-110	M1

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2617086

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

BC The same analyte was detected in an associated blank at a concentration above 1/2 the reporting limit but below the laboratory reporting limit.

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: Plant Bowen Ash Pond

Pace Project No.: 2617086

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617086001	BGWA-2	EPA 3010A	468329	EPA 6020B	468391
2617086002	BGWA-29	EPA 3010A	468329	EPA 6020B	468391
2617086003	BGWC-8	EPA 3010A	468329	EPA 6020B	468391
2617086004	BGWC-9	EPA 3010A	468329	EPA 6020B	468391
2617086005	BGWC-12	EPA 3010A	468329	EPA 6020B	468391
2617086006	Dup-1	EPA 3010A	468329	EPA 6020B	468391
2617086001	BGWA-2	EPA 7470A	468368	EPA 7470A	468610
2617086002	BGWA-29	EPA 7470A	468368	EPA 7470A	468610
2617086003	BGWC-8	EPA 7470A	468368	EPA 7470A	468610
2617086004	BGWC-9	EPA 7470A	468368	EPA 7470A	468610
2617086005	BGWC-12	EPA 7470A	468368	EPA 7470A	468610
2617086006	Dup-1	EPA 7470A	468368	EPA 7470A	468610
2617086001	BGWA-2	SM 2540C	25999		
2617086002	BGWA-29	SM 2540C	25999		
2617086003	BGWC-8	SM 2540C	25999		
2617086004	BGWC-9	SM 2540C	25999		
2617086005	BGWC-12	SM 2540C	25999		
2617086006	Dup-1	SM 2540C	25999		
2617086001	BGWA-2	EPA 300.0	26064		
2617086002	BGWA-29	EPA 300.0	26064		
2617086003	BGWC-8	EPA 300.0	26064		
2617086004	BGWC-9	EPA 300.0	26064		
2617086005	BGWC-12	EPA 300.0	26064		
2617086006	Dup-1	EPA 300.0	26064		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: GCA Power

Project # _____

Courier: Fed Ex UPS USPS Client Commercial Pace Other

WO#: 2617086

Tracking #: _____

PM: **BM** Due Date: **04/12/19**

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

CLIENT: GCPower-CCR

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 83 Type of Ice: Wet Blue None

Samples on ice, cooling process has begun
Date and Initials of person examining contents: 4/5/19 MK

Cooler Temperature 0.3 Biological Tissue is Frozen: Yes No
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 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: _____

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Field Data Required? Y / N

Project Manager Review: _____ Date: _____

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

April 29, 2019

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


RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2617087

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617087

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617087

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617087001	BGWA-2	Water	04/01/19 10:39	04/05/19 11:20
2617087002	BGWA-29	Water	04/01/19 10:55	04/05/19 11:20
2617087003	BGWC-8	Water	04/01/19 12:36	04/05/19 11:20
2617087004	BGWC-9	Water	04/01/19 14:02	04/05/19 11:20
2617087005	BGWC-12	Water	04/01/19 15:12	04/05/19 11:20
2617087006	Dup-1	Water	04/01/19 00:00	04/05/19 11:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2617087

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617087001	BGWA-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617087002	BGWA-29	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617087003	BGWC-8	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617087004	BGWC-9	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617087005	BGWC-12	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617087006	Dup-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617087

Sample: BGWA-2 **Lab ID: 2617087001** Collected: 04/01/19 10:39 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.616 ± 0.315 (0.349) C:88% T:NA	pCi/L	04/18/19 09:01	13982-63-3	
Radium-228	EPA 9320	0.820 ± 0.620 (1.22) C:80% T:76%	pCi/L	04/18/19 18:08	15262-20-1	
Total Radium	Total Radium Calculation	1.44 ± 0.935 (1.57)	pCi/L	04/22/19 11:25	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617087

Sample: BGWA-29 **Lab ID: 2617087002** Collected: 04/01/19 10:55 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.0932 ± 0.225 (0.535) C:89% T:NA	pCi/L	04/18/19 09:01	13982-63-3	
Radium-228	EPA 9320	0.567 ± 0.500 (1.01) C:86% T:79%	pCi/L	04/18/19 18:11	15262-20-1	
Total Radium	Total Radium Calculation	0.660 ± 0.725 (1.55)	pCi/L	04/22/19 11:25	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617087

Sample: BGWC-8 **Lab ID: 2617087003** Collected: 04/01/19 12:36 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.326 ± 0.265 (0.451) C:82% T:NA	pCi/L	04/18/19 09:01	13982-63-3	
Radium-228	EPA 9320	0.148 ± 0.449 (1.01) C:84% T:82%	pCi/L	04/18/19 18:20	15262-20-1	
Total Radium	Total Radium Calculation	0.474 ± 0.714 (1.46)	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617087

Sample: BGWC-9 **Lab ID: 2617087004** Collected: 04/01/19 14:02 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.225 ± 0.210 (0.369) C:94% T:NA	pCi/L	04/18/19 09:01	13982-63-3	
Radium-228	EPA 9320	-0.216 ± 0.398 (0.985) C:83% T:80%	pCi/L	04/18/19 18:19	15262-20-1	
Total Radium	Total Radium Calculation	0.225 ± 0.608 (1.35)	pCi/L	04/22/19 11:25	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617087

Sample: BGWC-12 **Lab ID: 2617087005** Collected: 04/01/19 15:12 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.328 ± 0.252 (0.422) C:95% T:NA	pCi/L	04/18/19 09:01	13982-63-3	
Radium-228	EPA 9320	-0.347 ± 0.447 (1.12) C:84% T:76%	pCi/L	04/18/19 18:19	15262-20-1	
Total Radium	Total Radium Calculation	0.328 ± 0.699 (1.54)	pCi/L	04/22/19 11:25	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617087

Sample: Dup-1 **Lab ID: 2617087006** Collected: 04/01/19 00:00 Received: 04/05/19 11:20 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.668 ± 0.322 (0.346) C:92% T:NA	pCi/L	04/18/19 09:01	13982-63-3	
Radium-228	EPA 9320	0.831 ± 0.398 (0.684) C:80% T:92%	pCi/L	04/18/19 15:36	15262-20-1	
Total Radium	Total Radium Calculation	1.50 ± 0.720 (1.03)	pCi/L	04/22/19 11:25	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Bowen Ash Pond

Pace Project No.: 2617087

QC Batch: 337921 Analysis Method: EPA 9315

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

Associated Lab Samples: 2617087001, 2617087002, 2617087003, 2617087004, 2617087005, 2617087006

METHOD BLANK: 1644534 Matrix: Water

Associated Lab Samples: 2617087001, 2617087002, 2617087003, 2617087004, 2617087005, 2617087006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.156 ± 0.184 (0.361) C:97% T:NA	pCi/L	04/18/19 09:01	

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: Plant Bowen Ash Pond

Pace Project No.: 2617087

QC Batch: 337913

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617087001, 2617087002, 2617087003, 2617087004, 2617087005, 2617087006

METHOD BLANK: 1644523

Matrix: Water

Associated Lab Samples: 2617087001, 2617087002, 2617087003, 2617087004, 2617087005, 2617087006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.226 ± 0.293 (0.621) C:88% T:75%	pCi/L	04/18/19 15:38	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Bowen Ash Pond
Pace Project No.: 2617087

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2617087

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617087001	BGWA-2	EPA 9315	337921		
2617087002	BGWA-29	EPA 9315	337921		
2617087003	BGWC-8	EPA 9315	337921		
2617087004	BGWC-9	EPA 9315	337921		
2617087005	BGWC-12	EPA 9315	337921		
2617087006	Dup-1	EPA 9315	337921		
2617087001	BGWA-2	EPA 9320	337913		
2617087002	BGWA-29	EPA 9320	337913		
2617087003	BGWC-8	EPA 9320	337913		
2617087004	BGWC-9	EPA 9320	337913		
2617087005	BGWC-12	EPA 9320	337913		
2617087006	Dup-1	EPA 9320	337913		
2617087001	BGWA-2	Total Radium Calculation	339292		
2617087002	BGWA-29	Total Radium Calculation	339292		
2617087003	BGWC-8	Total Radium Calculation	339292		
2617087004	BGWC-9	Total Radium Calculation	339292		
2617087005	BGWC-12	Total Radium Calculation	339292		
2617087006	Dup-1	Total Radium Calculation	339292		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: GCA Power

Project # _____

WO#: **2617087**

PM: **BM**

Due Date: **05/03/19**

CLIENT: **GAPower-CCR**

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

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

Packing Material: Bubble Wrap Bubble Bags None Other _____

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

Cooler Temperature 0.3 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/5/19 MK

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)

Supplementary Sampling
Event
May 2019

May 23, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2618160

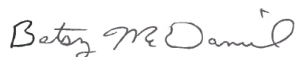
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on May 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the report issued on 5/13/2019. The report has been revised to provide confirmation molybdenum data on BGWC-38D. No other changes have been made to this report.

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

Sincerely,



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

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Rebecca Thornton, Pace Analytical Atlanta



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2618160001	BGWC-22	Water	05/02/19 11:12	05/03/19 13:25
2618160002	BGWA-2	Water	05/02/19 14:15	05/03/19 13:25
2618160003	BGWC-38D	Water	05/02/19 16:10	05/03/19 13:25
2618160004	BGWC-37D	Water	05/03/19 10:38	05/03/19 13:25
2618160005	BGWC-32	Water	05/03/19 10:44	05/03/19 13:25
2618160006	Dup-01	Water	05/02/19 00:00	05/03/19 13:25
2618160007	FBL-050319	Water	05/03/19 11:21	05/03/19 13:25
2618160008	EQBL-050319	Water	05/03/19 11:24	05/03/19 13:25

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2618160001	BGWC-22	EPA 6010D	AAP	1
		EPA 6020B	CSW	14
		SM 2320B	JAD	3
		EPA 300.0	RLC	3
2618160002	BGWA-2	EPA 6010D	AAP	1
		EPA 6020B	CSW	7
		SM 2320B	JAD	3
		EPA 300.0	RLC	3
2618160003	BGWC-38D	EPA 6020B	CSW	1
2618160004	BGWC-37D	EPA 6020B	CSW	1
2618160005	BGWC-32	EPA 6010D	AAP	1
		EPA 6020B	CSW	7
		SM 2320B	JAD	3
		EPA 300.0	RLC	3
2618160006	Dup-01	EPA 6020B	CSW	1
2618160007	FBL-050319	EPA 6010D	AAP	1
		EPA 6020B	CSW	7
		SM 2320B	JAD	3
		EPA 300.0	MWB	3
2618160008	EQBL-050319	EPA 6010D	AAP	1
		EPA 6020B	CSW	7
		SM 2320B	JAD	3
		EPA 300.0	RLC	3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2618160

Sample: BGWC-22		Lab ID: 2618160001		Collected: 05/02/19 11:12		Received: 05/03/19 13:25		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Silicon	5.0	mg/L	0.040	0.0040	1	05/07/19 12:26	05/10/19 02:32	7440-21-3	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Arsenic	ND	mg/L	0.025	0.0028	5	05/07/19 14:25	05/11/19 12:37	7440-38-2	
Boron	10.1	mg/L	0.040	0.0039	1	05/07/19 14:25	05/09/19 21:21	7440-42-8	M1
Calcium	647	mg/L	25.0	0.69	50	05/07/19 14:25	05/09/19 21:27	7440-70-2	M6
Chromium	ND	mg/L	0.050	0.0078	5	05/07/19 14:25	05/11/19 12:37	7440-47-3	
Cobalt	0.023J	mg/L	0.050	0.0026	5	05/07/19 14:25	05/11/19 12:37	7440-48-4	
Copper	ND	mg/L	0.025	0.0064	5	05/07/19 14:25	05/11/19 12:37	7440-50-8	
Magnesium	84.0	mg/L	2.5	0.31	50	05/07/19 14:25	05/11/19 11:45	7439-95-4	M6
Molybdenum	0.043	mg/L	0.010	0.0019	1	05/07/19 14:25	05/09/19 21:21	7439-98-7	
Nickel	0.010J	mg/L	0.025	0.0048	5	05/07/19 14:25	05/11/19 12:37	7440-02-0	
Potassium	13.6	mg/L	0.10	0.035	1	05/07/19 14:25	05/09/19 21:21	7440-09-7	M1
Selenium	ND	mg/L	0.050	0.0068	5	05/07/19 14:25	05/11/19 12:37	7782-49-2	
Sodium	39.0	mg/L	0.10	0.015	1	05/07/19 14:25	05/09/19 21:21	7440-23-5	M1
Vanadium	ND	mg/L	0.050	0.0097	5	05/07/19 14:25	05/11/19 12:37	7440-62-2	
Zinc	ND	mg/L	0.050	0.010	5	05/07/19 14:25	05/11/19 12:37	7440-66-6	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	79.0	mg/L	20.0	20.0	1		05/03/19 17:30		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	20.0	20.0	1		05/03/19 17:30		
Alkalinity, Total as CaCO3	79.0	mg/L	20.0	20.0	1		05/03/19 17:30		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	999	mg/L	12.5	1.2	50		05/10/19 10:37	16887-00-6	
Fluoride	1.4	mg/L	0.30	0.029	1		05/09/19 02:48	16984-48-8	
Sulfate	827	mg/L	50.0	0.85	50		05/10/19 10:37	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2618160

Sample: BGWA-2		Lab ID: 2618160002		Collected: 05/02/19 14:15		Received: 05/03/19 13:25		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Silicon	4.6	mg/L	0.040	0.0040	1	05/07/19 12:26	05/10/19 03:15	7440-21-3	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Boron	0.015J	mg/L	0.040	0.0039	1	05/07/19 14:25	05/09/19 22:12	7440-42-8	
Calcium	44.8	mg/L	25.0	0.69	50	05/07/19 14:25	05/09/19 22:18	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	05/07/19 14:25	05/09/19 22:12	7440-48-4	
Magnesium	25.5	mg/L	2.5	0.31	50	05/07/19 14:25	05/09/19 22:18	7439-95-4	
Molybdenum	ND	mg/L	0.010	0.0019	1	05/07/19 14:25	05/09/19 22:12	7439-98-7	
Potassium	1.9	mg/L	0.10	0.035	1	05/07/19 14:25	05/09/19 22:12	7440-09-7	
Sodium	2.7	mg/L	0.10	0.015	1	05/07/19 14:25	05/09/19 22:12	7440-23-5	
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Bicarbonate (CaCO ₃)	196	mg/L	20.0	20.0	1		05/03/19 17:34		
Alkalinity, Carbonate (CaCO ₃)	ND	mg/L	20.0	20.0	1		05/03/19 17:34		
Alkalinity, Total as CaCO ₃	196	mg/L	20.0	20.0	1		05/03/19 17:34		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	4.3	mg/L	0.25	0.024	1		05/09/19 04:31	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		05/09/19 04:31	16984-48-8	
Sulfate	11.2	mg/L	1.0	0.017	1		05/09/19 04:31	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: BGWC-38D									
Lab ID: 2618160003									
Collected: 05/02/19 16:10 Received: 05/03/19 13:25 Matrix: Water									
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Molybdenum	0.11	mg/L	0.010	0.0019	1	05/07/19 14:25	05/09/19 22:24	7439-98-7	
Molybdenum	0.10	mg/L	0.010	0.00095	1	05/21/19 18:25	05/22/19 17:00	7439-98-7	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: BGWC-37D									
Lab ID: 2618160004									
Collected: 05/03/19 10:38 Received: 05/03/19 13:25 Matrix: Water									
6020B MET ICPMS									
Analytical Method: EPA 6020B Preparation Method: EPA 3005A									
Molybdenum	0.040	mg/L	0.010	0.0019	1	05/07/19 14:25	05/09/19 22:30	7439-98-7	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

Sample: BGWC-32		Lab ID: 2618160005		Collected: 05/03/19 10:44		Received: 05/03/19 13:25		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Silicon	4.6	mg/L	0.040	0.0040	1	05/07/19 12:26	05/10/19 03:20	7440-21-3	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Boron	3.4	mg/L	0.040	0.0039	1	05/07/19 14:25	05/09/19 22:35	7440-42-8	
Calcium	203	mg/L	25.0	0.69	50	05/07/19 14:25	05/09/19 22:41	7440-70-2	
Cobalt	0.0078J	mg/L	0.010	0.00052	1	05/07/19 14:25	05/09/19 22:35	7440-48-4	
Magnesium	61.4	mg/L	2.5	0.31	50	05/07/19 14:25	05/09/19 22:41	7439-95-4	
Molybdenum	0.0048J	mg/L	0.010	0.0019	1	05/07/19 14:25	05/09/19 22:35	7439-98-7	
Potassium	4.9	mg/L	0.10	0.035	1	05/07/19 14:25	05/09/19 22:35	7440-09-7	
Sodium	19.2	mg/L	5.0	0.75	50	05/07/19 14:25	05/09/19 22:41	7440-23-5	B
2320B Alkalinity		Analytical Method: SM 2320B							
Alkalinity, Bicarbonate (CaCO ₃)	184	mg/L	20.0	20.0	1		05/03/19 17:39		
Alkalinity, Carbonate (CaCO ₃)	ND	mg/L	20.0	20.0	1		05/03/19 17:39		
Alkalinity, Total as CaCO ₃	184	mg/L	20.0	20.0	1		05/03/19 17:39		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	257	mg/L	5.0	0.48	20		05/10/19 10:59	16887-00-6	
Fluoride	1.3	mg/L	0.30	0.029	1		05/09/19 04:52	16984-48-8	
Sulfate	304	mg/L	20.0	0.34	20		05/10/19 10:59	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

Sample: Dup-01		Lab ID: 2618160006		Collected: 05/02/19 00:00	Received: 05/03/19 13:25	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Molybdenum	0.11	mg/L	0.010	0.0019	1	05/07/19 14:25	05/09/19 22:47	7439-98-7		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2618160

Sample: FBL-050319		Lab ID: 2618160007		Collected: 05/03/19 11:21	Received: 05/03/19 13:25	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Silicon	ND	mg/L	0.040	0.0040	1	05/07/19 12:26	05/10/19 03:30	7440-21-3		
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Boron	0.031J	mg/L	0.040	0.0039	1	05/07/19 14:25	05/09/19 22:52	7440-42-8		
Calcium	0.051J	mg/L	0.50	0.014	1	05/07/19 14:25	05/09/19 22:52	7440-70-2		
Cobalt	ND	mg/L	0.010	0.00052	1	05/07/19 14:25	05/09/19 22:52	7440-48-4		
Magnesium	0.015J	mg/L	0.050	0.0062	1	05/07/19 14:25	05/09/19 22:52	7439-95-4	B	
Molybdenum	ND	mg/L	0.010	0.0019	1	05/07/19 14:25	05/09/19 22:52	7439-98-7		
Potassium	ND	mg/L	0.10	0.035	1	05/07/19 14:25	05/09/19 22:52	7440-09-7		
Sodium	ND	mg/L	0.10	0.015	1	05/07/19 14:25	05/09/19 22:52	7440-23-5		
2320B Alkalinity Low Level		Analytical Method: SM 2320B								
Alkalinity, Bicarbonate (CaCO ₃)	ND	mg/L	1.0	1.0	1		05/06/19 17:44			
Alkalinity, Carbonate (CaCO ₃)	ND	mg/L	1.0	1.0	1		05/06/19 17:44			
Alkalinity, Total as CaCO ₃	ND	mg/L	1.0	1.0	1		05/06/19 17:44			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	0.062J	mg/L	0.25	0.024	1		05/10/19 18:56	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		05/10/19 18:56	16984-48-8		
Sulfate	0.040J	mg/L	1.0	0.017	1		05/10/19 18:56	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

Sample: EQBL-050319		Lab ID: 2618160008		Collected: 05/03/19 11:24		Received: 05/03/19 13:25		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Analytical Method: EPA 6010D Preparation Method: EPA 3010A							
Silicon	ND	mg/L	0.040	0.0040	1	05/07/19 12:26	05/10/19 03:36	7440-21-3	
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Boron	0.012J	mg/L	0.040	0.0039	1	05/07/19 14:25	05/09/19 22:58	7440-42-8	
Calcium	0.088J	mg/L	0.50	0.014	1	05/07/19 14:25	05/09/19 22:58	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	05/07/19 14:25	05/09/19 22:58	7440-48-4	
Magnesium	0.0084J	mg/L	0.050	0.0062	1	05/07/19 14:25	05/09/19 22:58	7439-95-4	B
Molybdenum	ND	mg/L	0.010	0.0019	1	05/07/19 14:25	05/09/19 22:58	7439-98-7	
Potassium	ND	mg/L	0.10	0.035	1	05/07/19 14:25	05/09/19 22:58	7440-09-7	
Sodium	0.095J	mg/L	0.10	0.015	1	05/07/19 14:25	05/09/19 22:58	7440-23-5	B
2320B Alkalinity Low Level		Analytical Method: SM 2320B							
Alkalinity, Bicarbonate (CaCO ₃)	ND	mg/L	1.0	1.0	1		05/06/19 17:47		
Alkalinity, Carbonate (CaCO ₃)	ND	mg/L	1.0	1.0	1		05/06/19 17:47		
Alkalinity, Total as CaCO ₃	ND	mg/L	1.0	1.0	1		05/06/19 17:47		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	0.29	mg/L	0.25	0.024	1		05/09/19 05:34	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		05/09/19 05:34	16984-48-8	
Sulfate	0.36J	mg/L	1.0	0.017	1		05/09/19 05:34	14808-79-8	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2618160

QC Batch: 27891 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET
Associated Lab Samples: 2618160001, 2618160002, 2618160005, 2618160007, 2618160008

METHOD BLANK: 125502 Matrix: Water
Associated Lab Samples: 2618160001, 2618160002, 2618160005, 2618160007, 2618160008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Silicon	mg/L	ND	0.040	0.0040	05/10/19 02:21	

LABORATORY CONTROL SAMPLE: 125503

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Silicon	mg/L	1	0.97	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 125504 125505

Parameter	Units	2618160001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Silicon	mg/L	5.0	1	1	5.8	6.1	81	105	75-125	4	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2618160

QC Batch: 27900 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2618160001, 2618160002, 2618160003, 2618160004, 2618160005, 2618160006, 2618160007, 2618160008

METHOD BLANK: 125551 Matrix: Water
Associated Lab Samples: 2618160001, 2618160002, 2618160003, 2618160004, 2618160005, 2618160006, 2618160007, 2618160008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00057	05/09/19 21:09	
Boron	mg/L	ND	0.040	0.0039	05/09/19 21:09	
Calcium	mg/L	ND	0.50	0.014	05/09/19 21:09	
Chromium	mg/L	ND	0.010	0.0016	05/09/19 21:09	
Cobalt	mg/L	ND	0.010	0.00052	05/09/19 21:09	
Copper	mg/L	ND	0.0050	0.0013	05/09/19 21:09	
Magnesium	mg/L	0.012J	0.050	0.0062	05/09/19 21:09	
Molybdenum	mg/L	ND	0.010	0.0019	05/09/19 21:09	
Nickel	mg/L	ND	0.0050	0.00095	05/09/19 21:09	
Potassium	mg/L	ND	0.10	0.035	05/09/19 21:09	
Selenium	mg/L	ND	0.010	0.0014	05/09/19 21:09	
Sodium	mg/L	0.16	0.10	0.015	05/09/19 21:09	
Vanadium	mg/L	ND	0.010	0.0019	05/09/19 21:09	
Zinc	mg/L	ND	0.010	0.0021	05/09/19 21:09	

LABORATORY CONTROL SAMPLE: 125552

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.097	97	80-120	
Boron	mg/L	1	1.0	104	80-120	
Calcium	mg/L	1	1.0	103	80-120	
Chromium	mg/L	0.1	0.11	110	80-120	
Cobalt	mg/L	0.1	0.11	106	80-120	
Copper	mg/L	0.1	0.10	102	80-120	
Magnesium	mg/L	1	1.1	110	80-120	
Molybdenum	mg/L	0.1	0.11	107	80-120	
Nickel	mg/L	0.1	0.11	108	80-120	
Potassium	mg/L	1	1.1	113	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Sodium	mg/L	1	1.2	119	80-120	
Vanadium	mg/L	0.1	0.11	115	80-120	
Zinc	mg/L	0.1	0.097	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 125553 125554

Parameter	Units	2618160001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result							
Arsenic	mg/L	ND	0.1	0.1	0.1	0.10	106	102	75-125	4	20	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 125553												125554	
Parameter	Units	2618160001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual		
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD			
Boron	mg/L	10.1	1	1	10.7	12.7	59	258	75-125	17	20	M1	
Calcium	mg/L	647	1	1	547	564	-9990	-8280	75-125	3	20	M6	
Chromium	mg/L	ND	0.1	0.1	0.11	0.10	106	103	75-125	3	20		
Cobalt	mg/L	0.023J	0.1	0.1	0.13	0.13	106	103	75-125	2	20		
Copper	mg/L	ND	0.1	0.1	0.11	0.10	105	102	75-125	3	20		
Magnesium	mg/L	84.0	1	1	81.0	85.3	-294	135	75-125	5	20	M6	
Molybdenum	mg/L	0.043	0.1	0.1	0.14	0.14	101	101	75-125	1	20		
Nickel	mg/L	0.010J	0.1	0.1	0.11	0.11	104	103	75-125	1	20		
Potassium	mg/L	13.6	1	1	14.8	13.2	121	-34	75-125	11	20	M1	
Selenium	mg/L	ND	0.1	0.1	0.097	0.11	97	107	75-125	10	20		
Sodium	mg/L	39.0	1	1	39.2	40.1	19	113	75-125	2	20	M1	
Vanadium	mg/L	ND	0.1	0.1	0.11	0.10	107	101	75-125	5	20		
Zinc	mg/L	ND	0.1	0.1	0.10	0.097	97	94	75-125	2	20		

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

QC Batch:	28827	Analysis Method:	EPA 6020B
QC Batch Method:	EPA 3005A	Analysis Description:	6020B MET
Associated Lab Samples:	2618160003		

METHOD BLANK: 129953 Matrix: Water

Associated Lab Samples: 2618160003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Molybdenum	mg/L	ND	0.010	0.00095	05/22/19 16:49	

LABORATORY CONTROL SAMPLE: 129954

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Molybdenum	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 129955 129956

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		2618160003 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Molybdenum	mg/L	0.10	0.1	0.1	0.21	0.21	104	104	75-125	0	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

QC Batch: 27817

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity, Low Level

Associated Lab Samples: 2618160007, 2618160008

METHOD BLANK: 125304

Matrix: Water

Associated Lab Samples: 2618160007, 2618160008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	ND	1.0	1.0	05/06/19 17:35	

LABORATORY CONTROL SAMPLE: 125305

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	50	49.5	99	85-115	

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QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2618160

QC Batch: 27947 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2618160001, 2618160002, 2618160005, 2618160007, 2618160008

METHOD BLANK: 125764 Matrix: Water
Associated Lab Samples: 2618160001, 2618160002, 2618160005, 2618160007, 2618160008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.10J	0.25	0.024	05/08/19 22:59	
Fluoride	mg/L	ND	0.30	0.029	05/08/19 22:59	
Sulfate	mg/L	0.022J	1.0	0.017	05/08/19 22:59	

LABORATORY CONTROL SAMPLE: 125765

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.2	102	90-110	
Fluoride	mg/L	10	10.3	103	90-110	
Sulfate	mg/L	10	10	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 125766 125767

Parameter	Units	2618153001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	61.2	10	10	71.9	71.7	107	105	90-110	0	15	E
Fluoride	mg/L	0.75	10	10	10.2	10.2	94	94	90-110	0	15	
Sulfate	mg/L	ND	10	10	722	722	-13700	-13700	90-110	0	15	E,M1

MATRIX SPIKE SAMPLE: 125768

Parameter	Units	2618153002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	72.2	10	78.9	68	90-110	E,M1
Fluoride	mg/L	2.9	10	12.1	93	90-110	
Sulfate	mg/L	1300	10	538	-7590	90-110	E,M1

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QUALIFIERS

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

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

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

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond

Pace Project No.: 2618160

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2618160001	BGWC-22	EPA 3010A	27891	EPA 6010D	27950
2618160002	BGWA-2	EPA 3010A	27891	EPA 6010D	27950
2618160005	BGWC-32	EPA 3010A	27891	EPA 6010D	27950
2618160007	FBL-050319	EPA 3010A	27891	EPA 6010D	27950
2618160008	EQBL-050319	EPA 3010A	27891	EPA 6010D	27950
2618160001	BGWC-22	EPA 3005A	27900	EPA 6020B	28014
2618160002	BGWA-2	EPA 3005A	27900	EPA 6020B	28014
2618160003	BGWC-38D	EPA 3005A	27900	EPA 6020B	28014
2618160003	BGWC-38D	EPA 3005A	28827	EPA 6020B	28884
2618160004	BGWC-37D	EPA 3005A	27900	EPA 6020B	28014
2618160005	BGWC-32	EPA 3005A	27900	EPA 6020B	28014
2618160006	Dup-01	EPA 3005A	27900	EPA 6020B	28014
2618160007	FBL-050319	EPA 3005A	27900	EPA 6020B	28014
2618160008	EQBL-050319	EPA 3005A	27900	EPA 6020B	28014
2618160001	BGWC-22	SM 2320B	27709		
2618160002	BGWA-2	SM 2320B	27709		
2618160005	BGWC-32	SM 2320B	27709		
2618160007	FBL-050319	SM 2320B	27817		
2618160008	EQBL-050319	SM 2320B	27817		
2618160001	BGWC-22	EPA 300.0	27947		
2618160002	BGWA-2	EPA 300.0	27947		
2618160005	BGWC-32	EPA 300.0	27947		
2618160007	FBL-050319	EPA 300.0	27947		
2618160008	EQBL-050319	EPA 300.0	27947		

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Sample Condition Upon Receipt

WO#: 2618160

Client Name: GAPower CCR

PM: BM Due Date: 05/10/19
CLIENT: GAPower-CCR

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 082 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 5.5C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6C

Date and Initials of person examining contents: 5/3/19 CCR

Table with 16 rows and 3 columns. Columns: Question, Yes/No/N/A checkboxes, and Initial when completed/Lot # of added preservative. Rows include Chain of Custody Present, Chain of Custody Filled Out, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Short Hold Time Analysis (<72hr), Rush Turn Around Time Requested, Sufficient Volume, Correct Containers Used, Containers Intact, Filtered volume received for Dissolved tests, Sample Labels match COC, All containers needing preservation have been checked, All containers needing preservation are found to be in compliance with EPA recommendation, exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Samples checked for dechlorination, Headspace in VOA Vials (>6mm), Trip Blank Present, Trip Blank Custody Seals Present, Pace Trip Blank Lot # (if purchased).

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

Project Manager Review: _____ Date: _____