Prepared for

Georgia Power Company
241 Ralph McGill Blvd NE
Atlanta, Georgia 30308

SEMI-ANNUAL REMEDY SELECTION AND DESIGN PROGRESS REPORT

PLANT BOWEN ASH POND 1 (AP-1)

Prepared by

engineers | scientists | innovators

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144

Project Number GW6581C

December 2019

SEMI-ANNUAL REMEDY SELECTION AND DESIGN PROGRESS REPORT

GEORGIA POWER COMPANY - PLANT BOWEN

ASH POND 1 (AP-1)

This *Semi-Annual Remedy Selection and Design Progress Report, Georgia Power Company - Plant Bowen, Ash Pond 1 (AP-1),* has been prepared in accordance with the United States Environmental Protection Agency coal combustion residual rule, specifically 40 Code of Federal (CFR) § 257.97(a) and the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10(6)(a).

Report Prepared by:

Whitney B. Law, P.E.
Georgia Professional Engineer No. 036641

December 12, 2019
Date

Geosyntec consultants

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

ACM	Assessment of Corrective Measures
AP	ash pond
CCR	coal combustion residuals
CFR	Code of Federal Regulations
CSM	conceptual site model
GA EPD	Georgia Environmental Protection Division
Geosyntec	Geosyntec Consultants, Inc.
GPC	Georgia Power Company
GWPS	Groundwater Protection Standard
MNA	monitored natural attenuation
PRB	permeable reactive barriers
SSI	statistically significant increase
SSL	statistically significant level
US EPA	United States Environmental Protection Agency

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] 257 Subpart D; published in 80 FR 21302-21501, April 17, 2015) (CCR Rule), Geosyntec Consultants, Inc. (Geosyntec) has prepared this *Semi-Annual Remedy Selection and Design Progress Report* (Semi-Annual Progress Report) for Georgia Power Company (GPC) Plant Bowen Ash Pond 1 (AP-1 or Site). Specifically, this Semi-Annual Progress Report has been prepared pursuant to 40 CFR § 257.97(a) and the Georgia Environmental Protection Division (GA EPD) Rules for Solid Waste Management 391-3-4-.10(6)(a). This Semi-Annual Progress Report was prepared to document activities conducted in the third and fourth quarters of 2019 in support of the previously submitted *Assessment of Corrective Measures Report – Plant Bowen Ash Pond 1 (AP-1)* (Geosyntec, 2019b) (ACM Report). As required by the rules, this Semi-Annual Progress Report describes the progress made in selecting and designing a remedy.

On June 12, 2019, Geosyntec completed, on behalf of GPC, the ACM Report to evaluate potential corrective measures to address statistically significant levels (SSLs) of cobalt and molybdenum identified in groundwater at AP-1 (Geosyntec, 2019b). GPC placed the ACM in the Site's operating record and posted to the Site's CCR Rule Compliance website. Pursuant to 40 CFR § 257.97, GPC is evaluating the potential corrective measures presented in the ACM in order to identify an appropriate remedy, or combination of remedies, as soon as feasible.

As discussed in the ACM Report, the following corrective measures are potentially feasible for use at AP-1:

1. Geochemical Manipulation (In-Situ Injection)
2. Hydraulic Containment (Pump and Treat)
3. Monitored Natural Attenuation (MNA)
4. Permeable Reactive Barrier (PRB)
5. Phytoremediation
6. Subsurface Vertical Barrier Walls

Plant Bowen is a four-unit, coal-fired, electric-generating facility that commenced operations in the 1970s. The plant is 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 has a single CCR ash pond (AP-1) that occupies an area of approximately 254 acres. In preparation for AP-1 closure, the plant is undergoing the final phases of work for the conversion to dry handling so that AP-1 no longer receives CCR. Additionally, active projects are ongoing at the plant to remove gypsum waste streams from AP-1. GPC will close AP-1 by excavation and consolidation of CCR material into an approximately 144-acre fully-lined, multi-cell storage facility situated within the current footprint of AP-1. Closure activities will be conducted in accordance with 40 CFR § 257.102 and corresponding Rule 391-3-4-.10(7)(b). The proposed closure approach provides a source control measure that reduces the potential for migration of CCR constituents to groundwater. Details of the closure approach have been summarized in the Amended Written Closure Plan and published in 2018 to GPC's CCR Rule Compliance website.

2.0 SUMMARY OF WORK COMPLETED

2.1 Nature and Extent Delineation

CCR compliance groundwater monitoring-related activities have been performed for AP-1 since June 2016 pursuant to detection monitoring and assessment monitoring programs required by 40 CFR § 257.94 and 40 CFR § 257.95, respectively. GPC initiated the assessment monitoring program in January 2018 after identifying statistically significant increases (SSIs) of Appendix III parameter groundwater concentrations over background concentrations. Pursuant to 40 CFR § 257.95, samples were collected from the compliance monitoring well network, depicted on **Figure 2**, during 2018 and analyzed for Appendix IV parameters. SSLs of cobalt and molybdenum were identified within the 2018 data for the following wells:

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

The BGWC-22 cobalt concentrations reported in 2018 exceeded the US EPA and GA EPD groundwater protection standards (GWPS), as derived pursuant to US EPA rule 40 CFR § 257.95(h) and GA EPD CCR Rule 391-3-4-.10(6)(a). The molybdenum concentrations in the above four wells exceeded the derived GA EPD GWPS, but not the US EPA GWPS. Details of these sampling events and statistical analyses are provided in the following report published to GPC's website and submitted to GA EPD in 2019: *2018 Annual Groundwater Monitoring and Corrective Action Report – Plant Bowen Ash Pond 1 (AP-1)* (Geosyntec, 2019a).

Pursuant to 40 CFR § 257.96, groundwater in the vicinity of AP-1 continues to be monitored during the remedy selection phase in accordance with the established assessment monitoring program. As part of the assessment program, eight additional groundwater monitoring wells were installed in 2018 and 2019 to provide additional data to characterize flow conditions downgradient of AP-1 and to horizontally and vertically delineate SSLs of cobalt and molybdenum from the four target wells previously listed. Wells BGWC-31 and BGWC-32 were installed for horizontal delineation and wells BGWC-34D, BGWC-35D, BGWC-36D, BGWC-37D, and BGWC-38D were installed for vertical delineation. Well BGWA-33 was installed as a characterization well to assess conditions and groundwater levels approaching the Plant Bowen property boundary to the south. At the time of the above well installation efforts, piezometer BGWA-6 was suitably located downgradient of target well BGWC-30 and was therefore selected as a

delineation well. Prior to 2018, BGWA-6 had only been used for gauging groundwater levels. The locations of these wells are shown on **Figure 2**. Supporting details and documents (e.g., boring logs, well construction table) are provided in the ACM Report.

Based on the groundwater data generated from the September 2019 second semi-annual assessment monitoring event, molybdenum concentrations reported in horizontal delineation wells BGWC-31, BGWC-32, and BGWA-6 are below the state and federal GWPS and therefore delineate the constituent to within the property boundary. The molybdenum concentration reported in well BGWC-34D is below the state and federal GWPS, and therefore vertically delineates the molybdenum SSL reported for well BGWC-20. Vertical delineation of molybdenum in wells BGWC-22, BGWC-23, and BGWC-30 is currently in progress. The September 2019 data are currently being finalized and will be published in the *2019 Annual Groundwater Monitoring and Corrective Action Report* (pending submission to GA EPD on January 31, 2020).

Efforts are on-going to delineate the cobalt SSL reported for well BGWC-22. In support of these efforts, an additional delineation well (BGWC-39) was installed downgradient of BGWC-32 in early-December. Details of the well construction and initial groundwater sampling results of BGWC-39 will be provided as an addendum to this Semi-Annual Progress Report and issued in January 2020 with the 2019 annual groundwater monitoring report.

2.2 Summary of Corrective Measures

The closure of AP-1 by excavation and consolidation of the CCR material into a fully-lined, multi-cell storage facility is a source control measure that reduces the potential for migration of CCR constituents to groundwater. The corrective measures proposed in the ACM are being evaluated to address SSLs in groundwater at and downgradient of the compliance boundary. Each individual corrective measure is evaluated relative to criteria specified in 40 CFR § 257.96(c) and 40 CFR § 257.97(b). A comparative screening of the corrective measures is provided in **Table 1**; the following provides a brief description of each corrective measure being screened.

- **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 cobalt and molybdenum.*

- **Hydraulic Containment (Pump and Treat):** T*he use of groundwater extraction system(s) to induce a hydraulic gradient for hydraulic capture or control the migration of impacted groundwater. Extracted water may require subsequent above-ground treatment before permitted discharge or reuse.*

- **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.*

- **Permeable Reactive Barrier (PRB):** *PRB technology typically involves the installation of a permeable subsurface wall constructed with reactive media for the removal of constituents as groundwater passes through.*

- **Phytoremediation:** *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.*

- **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. Groundwater extraction from upgradient of the barrier is required to avoid groundwater mounding behind the barrier.*

2.3 Field Investigation and Data Collection

Additional data, data analysis, and site-specific evaluation are necessary to refine the conceptual site model (CSM) and to further evaluate the feasibility of each proposed corrective measure. This investigation may occur in different phases as the understanding of site conditions expands. When feasible, data needed to refine the CSM will be collected concurrent with the routine assessment monitoring events. However, supplementary field investigations may be required to complete the data gathering efforts during the remedy selection phase.

Table 2 presents a summary of data collection activities completed during the second 2019 semi-annual reporting period in support of remedy selection. The applicability and rationale for specific actions and/or analysis of specific parameters are also provided on **Table 2**.

Field efforts completed at AP-1 during the reporting period included collecting supplementary groundwater samples to evaluate:

- Attenuation mechanisms and rates and aquifer capacity for attenuation;
- Amount and distribution of select metal hydroxides or electron donors that may affect geochemical mechanisms; and
- Groundwater parameters specific to the existing National Pollutant Discharge Elimination System (NPDES) permitted discharge limits and capabilities of on-site low volume wastewater treatment plant.

The groundwater samples discussed above were collected during the second semi-annual assessment monitoring event conducted in September 2019. During the event, a site-wide round of groundwater level data were recorded from the AP-1 well network depicted on **Figure 2**. The groundwater level data were used to generate the potentiometric surface map provided on **Figure 3**.

The ACM-related analytical results from the September 2019 event are summarized in **Tables 3a, 3b,** and **3c**. The tables present parameters needed to evaluate in-situ conditions that may affect the performance and feasibility of the corrective measures. As previously mentioned, the Appendix III and IV groundwater data collected during the September 2019 event are not presented herein, but instead will be provided in the *2019 Annual Groundwater Monitoring and Corrective Action Report* (pending submission January 31, 2020).

The laboratory reports associated with the data presented on Tables 3a, 3b, and 3c are included in **Appendix A**.

3.0 PLANNED ACTIVITIES & ANTICIPATED SCHEDULE

During the pond closure, temporary changes in site conditions may occur that must be considered as part of remedy selection. GPC proactively initiated adaptive site management as outlined in the ACM Report (Geosyntec, 2019b) to support the remedial strategy and address potential changes in site conditions as appropriate. The adaptive site management approach may be adjusted over the site's life cycle as new site information and technologies become available. To this end, GPC will continue its data collection efforts as necessary in support of efforts to refine the CSM and to further evaluate the feasibility of each corrective measure proposed in the ACM Report. At this time, all corrective measures outlined in **Table 1** are being retained. 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 for AP-1 in accordance with 40 CFR § 257.98.

Supplementary data collection and evaluation activities proposed to be completed during the next semi-annual reporting period are presented on **Table 4**. GPC will continue to prepare semi-annual progress reports to document AP-1 groundwater conditions, results associated with additional data gathering, and the progress in selecting and designing the remedy in accordance with 40 CFR § 257.97(a). GPC will include future semi-annual remedy selection progress reports in routine groundwater monitoring and corrective action reports. To this, the remedy selection evaluation data collected between submission of this December 2019 report and the submission of the 2019 annual groundwater monitoring report in January 2020 (e.g., well construction and sampling data for BGWC-39) will be presented as an addendum to this current Semi-Annual Remedy Selection Report. The addendum will be included with the 2019 annual report. Record keeping, notifications, and publicly accessible internet site requirements for the semi-annual remedy selection progress reports will be provided in accordance with 40 CFR § 257.105(h)(12), 257.106(h)(9), and 257.107(h)(9), respectively.

4.0 REFERENCES

Geosyntec Consultants. 2019a. *2018 Annual Groundwater Monitoring and Corrective Action Report - Plant Bowen Ash Pond 1 (AP-1).* January 2019.

Geosyntec Consultants, 2019b. *Assessment of Corrective Measures Report – Plant Bowen Ash Pond 1 (AP-1)*. June 2019.

U.S. Environmental Protection Agency. 2015a. Federal Register. Volume 80. No. 74. Friday April 17, 2015. Part II. Environmental Protection Agency. 40 CFR Parts 257 and 261. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. [EPA-HQ-RCRA–2009–0640; FRL–9919–44–OSWER]. RIN–2050–AE81, April 2015.

TABLES

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

	Regulatory Citation for Criteria:	40 CFR 257.96(C)(1)	
Corrective Measure	**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 1
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 1
Evaluation of Remedial Technologies
Plant Bowen AP-1, Bartow County, Georgia

	40 CFR 257.96(C)(3)		
Corrective Measure	**Institutional Requirements**	**Other Env or Public Health Requirements**	**Relative Costs**
Geochemical Approaches (In-Situ Injection)	Deed restrictions may be necessary until in-situ treatment has achieved GWPS. 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 anerobic 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)

Table 2
Summary of Activity
Plant Bowen AP-1, Bartow County, Georgia

Corrective Measure (CM)	Data Collected/Actions Completed	Applicable Locations Sampled	Applicability & Rationale	Comments/Planned Actions
Geochemical Approaches (In-Situ Injection)	Collected supplementary groundwater samples to evaluate: (i) attenuation mechanisms and rates and aquifer capacity for attenuation; and (ii) amount and distribution of select geochemical parameters (including Fe, Mn, DOC and other ligands) that may affect geochemical mechanisms.	BGWA-6, BGWC-20, BGWC-21, BGWC-22, BGWC-23, BGWC-30, BGWC-31, BGWC-32	Understand geochemical baseline conditions to evaluate the need for and type of geochemical amendments required to attenuate constituents of interest.	(i) Collect and submit aquifer solid samples for sequential extraction procedure (SEP) for analysis of cobalt (Co)[(1)] and molybdenum (Mo) in the aquifer solid matrix; x-ray diffraction (XRD) analysis for mineralogy; total Co[(1)], Mo, aluminum, iron, manganese, silica concentrations; cation/anion exchange capacity. (ii) Conduct pneumatic slug tests to evaluate aquifer transmissivity, storage coefficient, hydraulic conductivity in support of conducting injections.
Hydraulic Containment	Collected supplementary groundwater samples to evaluate groundwater parameters specific to the existing NPDES permitted discharge limits and capabilities of on-site low volume wastewater treatment plant (LVWTP)	BGWC-22, BGWC-23, BGWC-30	Evaluate groundwater concentrations relative to permitted discharge limits for the plant in support of processing/discharging extracted groundwater. Determine if a permit update is required to address potentially new groundwater-specific parameters.	Conduct pneumatic slug tests to evaluate aquifer transmissivity, storage coefficient, hydraulic conductivity in support of designing a groundwater extraction system.
Monitored Natural Attenuation (MNA)	Collected supplementary groundwater samples both upgradient and downgradient of unit to evaluate in situ attenuation mechanisms and rates and aquifer capacity for attenuation	BGWA-2, BGWA-6, BGWA-29, BGWC-19, BGWC-20, BGWC-21, BGWC-22, BGWC-23, BGWC-24, BGWC-25, BGWC-30, BGWC-31, BGWC-32	Evaluate attenuation mechanisms and rates and aquifer capacity for attenuation. Multiple sampling events required to build adequate data set for determining attenuation mechanism trends.	(i) Continue to conduct supplementary groundwater sampling events during pre-closure and closure phase activities to assess plume stability and attenuation mechanisms. (ii) Collect and submit aquifer solid samples for SEP for analysis of Co[(1)] and Mo in the aquifer solid matrix; XRD analysis for mineralogy; total Co[(1)], Mo, aluminum, iron, manganese, silica concentrations; cation/anion exchange capacity.
Permeable Reactive Barrier (PRB)	Collected supplementary groundwater samples to evaluate attenuation mechanisms and rates and aquifer capacity for attenuation applicable to evaluating reactive media options	BGWA-6, BGWC-20, BGWC-21, BGWC-22, BGWC-23, BGWC-30, BGWC-31, BGWC-32	Evaluate in situ geochemical conditions and attenuation mechanisms that need to be considered when evaluating reactive media and initial design of a bench-scale treatability study.	(i) Initial identification of possible PRB reactive media based on current dataset, with refinement pending review of subsequent geochemical and aquifer attenuation data. (ii) Conduct pneumatic slug tests to evaluate aquifer transmissivity, storage coefficient, hydraulic conductivity in support of designing a groundwater extraction system.
Phytoremediation (*TreeWells* ®)	Collected supplementary groundwater samples to evaluate in situ geochemical conditions and plant nutrient levels needed to establish phytoremediation measures (TreeWells®) downgradient of unit	BGWC-22, BGWC-23, BGWC-30	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.	(i) Conduct pneumatic slug tests to evaluate aquifer transmissivity, storage coefficient, hydraulic conductivity in support of developing a groundwater flow model to assess placement of *TreeWell* ® units. (ii) Continue to conduct supplementary groundwater sampling events to evaluate seasonal fluctuations in groundwater chemistry and plant nutrient levels.
Subsurface Vertical Barrier Walls	Collected supplementary groundwater samples to evaluate groundwater parameters specific to the existing NPDES permitted discharge limits, since limited pumping (and discharge) of groundwater will be required to maintain an inward hydraulic gradient inside/upgradient of the vertical barrier.	BGWC-22, BGWC-23, BGWC-30	Evaluate groundwater concentrations relative to permitted discharge limits for the plant in support of processing/discharging extracted groundwater. Determine if a permit update is required to address potentially new groundwater-specific parameters.	(i) Conduct pneumatic slug tests to evaluate aquifer transmissivity, storage coefficient, hydraulic conductivity in support of developing a groundwater flow model to assess placement of barrier walls, most likely in conjunction with PRBs, and placement of possible groundwater extraction system to maintain designed hydraulic gradients. (ii) Evaluate resources needed to conduct a bench compatibility test of barrier wall material.

Note:
(1) Alternate Source Demonstration prepared to address the statistically significant levels (SSLs) of Co identified within groundwater. Pending GA EPD approval, it may not be necessary to analyze for Co for the proposed action.

Table 3a

Summary of Groundwater Analytical Data - Geochemical Parameter Evaluation

Plant Bowen AP-1, Bartow County, Georgia

Well ID:	BGWA-2	BGWA-29	BGWC-7	BGWC-8	BGWC-9	BGWC-10	BGWC-12	BGWC-14	BGWC-16
Sample Date:	9/23/2019	9/23/2019	9/24/2019	9/24/2019	9/24/2019	9/25/2019	9/25/2019	9/25/2019	9/26/2019
Parameter									
Alkalinity, Bicarbonate ($CaCO_3$)	177	107	276	143	215	162	144	209	147
Alkalinity, Total as $CaCO_3$	177	107	276	143	215	162	144	209	147
Dissolved Organic Carbon	ND (0.51 J)	ND (0.57 J)	ND	ND (0.55 J)	1.3	ND (0.78 J)	ND	ND (0.66 J)	ND (0.54 J)
Iron	ND (0.035 J)	ND	1.1	ND (0.028 J)	0.60	0.54	0.082	ND (0.032 J)	0.13
Magnesium	20.6	11.8	42.2	14.7	24.0	27.3	48.7	43.4	28.5
Manganese	0.11	ND	0.033	ND	0.12	0.065	ND (0.0024 J)	0.016	3.3
Orthophosphate as P	ND	ND	--	--	--	--	ND	ND	ND
Phosphorous	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium	1.8	ND (0.69 J)	ND (2.4 J)	2.5	2.7	2.0	2.5	2.8	4.0
Sodium	4.3	6.8	17.8	4.5	24.0	20.1	24.7	22.7	21.6
Sulfide	ND	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

(1) Well is designated a delineation monitoring well.

(2) Well BGWA-33 serves as a characterization well unassociated with the delineation monitoring well network.

(3) Parameters are reported in units of milligrams per liter (mg/L).

Table 3a

Summary of Groundwater Analytical Data - Geochemical Parameter Evaluation

Plant Bowen AP-1, Bartow County, Georgia

Well ID:	BGWC-17	BGWC-18	BGWC-19	BGWC-20	BGWC-21	BGWC-22	BGWC-23	BGWC-24	BGWC-25
Sample Date:	9/26/2019	9/26/2019	9/26/2019	9/26/2019	9/30/2019	9/27/2019	9/27/2019	9/30/2019	9/30/2019
Parameter									
Alkalinity, Bicarbonate ($CaCO_3$)	118	160	164	92.0	162	72.0	96	155	218
Alkalinity, Total as $CaCO_3$	118	160	164	92.0	162	72.0	96	155	218
Dissolved Organic Carbon	ND	ND (0.67 J)	ND (0.76 J)	ND	ND	ND	ND	ND (0.96 J)	ND
Iron	ND (0.0097 J)	ND (0.0094 J)	ND	0.19	0.080	0.46	0.32	ND (0.010 J)	0.36
Magnesium	30.6	27.0	30.4	41.7	27.4	95.5	120	186	24.4
Manganese	0.16	0.048	0.23	0.40	0.052	6.8	0.52	5.5	0.29
Orthophosphate as P	ND	ND	ND	ND	ND	ND	ND	0.81	ND
Phosphorous	ND	ND	ND	ND	ND	ND	ND	0.43	ND
Potassium	3.3	2.0	2.8	5.7	1.5	14.9	10.1	11.4	ND (0.84 J)
Sodium	17.0	7.6	5.9	26.0	2.4	47.2	41.2	31.7	ND (1.5 J)
Sulfide	ND	ND	ND	ND	ND	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

(1) Well is designated a delineation monitoring well.

(2) Well BGWA-33 serves as a characterization well unassociated with the delineation monitoring well network.

(3) Parameters are reported in units of milligrams per liter (mg/L).

Table 3a

Summary of Groundwater Analytical Data - Geochemical Parameter Evaluation

Plant Bowen AP-1, Bartow County, Georgia

Well ID:	BGWC-30	BGWA-6 (1)	BGWA-33(2)	BGWC-31(1)	BGWC-32(1)	BGWC-34D(1)	BGWC-35D(1)	BGWC-36D(1)
Sample Date:	9/27/2019	9/23/2019	9/27/2019	9/24/2019	9/26/2019	9/24/2019	9/26/2019	9/27/2019
Parameter								
Alkalinity, Bicarbonate ($CaCO_3$)	171	258	230	184	172	253	112	153
Alkalinity, Total as $CaCO_3$	171	258	230	184	172	253	112	153
Dissolved Organic Carbon	ND	ND	--	1.3	ND (0.62 J)	2.1	ND	ND (0.56 J)
Iron	0.11	ND (0.031 J)	ND (0.033 J)	2.0	0.065	0.70	0.97	0.19
Magnesium	34.1	35.5	31.6	36.7	61.1	31.9	92.2	59.8
Manganese	0.0076	0.017	0.014	0.17	0.26	0.024	0.12	0.14
Orthophosphate as P	ND	ND	--	ND	ND	--	ND	ND
Phosphorous	ND	ND	ND	0.053	ND	ND	ND	ND
Potassium	3.0	ND (0.51 J)	1.8	1.2	5.2	1.8	8.3	4.7
Sodium	8.2	2.2	2.1	8.8	20.9	5.7	51.1	26.2
Sulfide	ND	ND	--	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

(1) Well is designated a delineation monitoring well.

(2) Well BGWA-33 serves as a characterization well unassociated with the delineation monitoring well network.

(3) Parameters are reported in units of milligrams per liter (mg/L).

Table 3b

Summary of Groundwater Analytical Data - Agronomic Parameter Evaluation
Plant Bowen AP-1, Bartow County, Georgia

Well ID:	BGWC-22	BGWC-23	BGWC-30
Sample Date:	9/27/2019	9/27/2019	9/27/2019
Parameter			
Nitrogen, Ammonia	1.4	0.63	ND
Copper	ND	ND	ND
Nitrate as N	ND	0.076	1.0
Nitrite as N	ND	ND	ND
Total Dissolved Solids	3260	2540	629
Total Hardness as $CaCO_3$ (SM 2340B)	2240	2060000	430000
Zinc	ND (0.0040 J)	ND (0.0023 J)	ND (0.0020 J)

Notes:
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
(1) Parameters are reported in units of milligrams per liter (mg/L).

Table 3c

Summary of Groundwater Analytical Data - NPDES Compliance Evaluation

Plant Bowen AP-1, Bartow County, Georgia

Well ID:	BGWC-22	BGWC-30
Sample Date:	9/27/2019	9/27/2019
Parameter		
Nitrogen, Ammonia	1.4	ND
BOD, 5 day	ND	ND
Lead	ND (0.000054 J)	ND (0.00018 J)
Mercury	ND	ND
Oil and Grease	ND	ND
Total Kjeldahl Nitrogen	1.2	ND
Total Organic Nitrogen	ND	ND
Total Suspended Solids	13.0	8.0

Notes:

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

NPDES = National Pollutant Discharge Elimination System

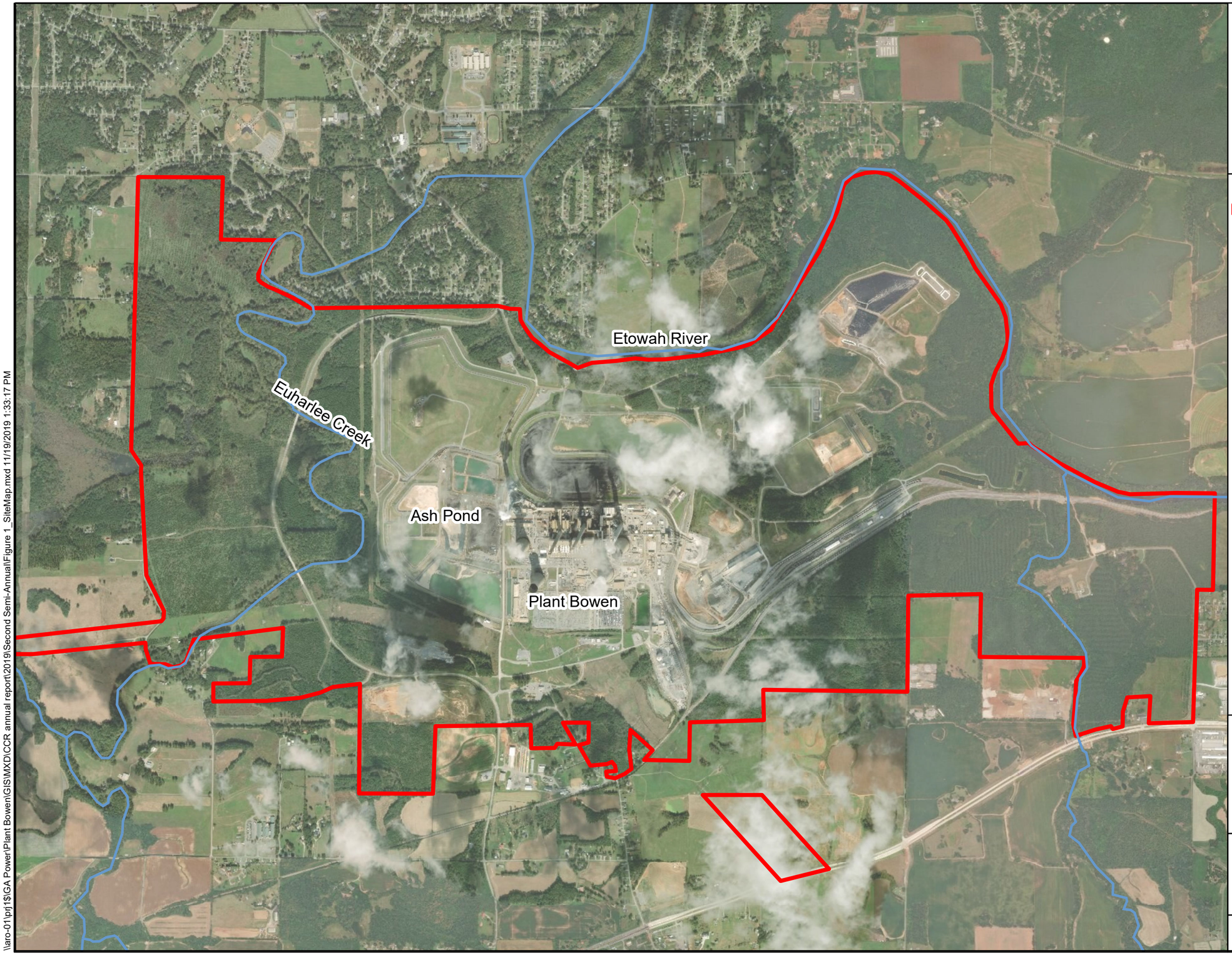
(1) Parameters are reported in units of milligrams per liter (mg/L).

Table 4
Proposed ACM Supplementary Data Collection Tasks for First Semi-Annual Period 2020
Plant Bowen AP-1, Bartow County, Georgia

Data Collection Event	Applicable CMs [1]	Applicability/Rationale	Field Component	Parameters of Interest (POI)	Analytical Lab Performing Analysis
Groundwater sampling	3, 4, 5	Evaluation of: (i) attenuation mechanisms and rates and aquifer capacity for attenuation (ii) in situ conditions to establish phytoremediation measures downgradient of unit	Collect groundwater samples from existing well network currently sampled under the assessment monitoring program.	In addition to routine App III/IV parameters: orthophosphate, phosphorous, sulfide, iron, manganese, magnesium, sodium, potassium, total alkalinity, bicarbonate, dissolved organic carbon (DOC), nitrate/nitrite, total hardness, zinc, total dissolved solids, copper, ammonia nitrogen.	Pace-ATL
Aquifer solids sampling (Collect/Submit archived rock cores)	1, 3, 4	Evaluation of within aquifer matrix: (i) attenuation mechanisms and rates and aquifer capacity for attenuation (ii) mineralogy characterization	Collect samples from extracted rock cores archived at the SCS Civil Field Services (CFS) Logan Martin, AL, facility.	Sequential extraction procedure (SEP) for analysis of cobalt (Co) and molybdenum (Mo) to characterize Co and Mo in the aquifer solid matrix; x-ray diffraction (XRD) analysis for mineralogy; total Co, Mo, aluminum, iron, manganese, silica concentrations; cation/anion exchange capacity	TestAmerica-Canton; TestAmerica-Knoxville (SEP); DCM Science Lab (XRD)
Aquifer solids sampling	1, 3, 4	Evaluation of within aquifer matrix: (i) attenuation mechanisms and rates and aquifer capacity for attenuation (ii) mineralogy characterization	Collect unconsolidated aquifer solid material from the alluvium, residuum, and/or highly weathered rock zones using a DPT rig (3-4 locations downgradient and 1-2 background locations).	SEP for analysis of Co and Mo to characterize Co and Mo in the aquifer solid matrix; XRD analysis for mineralogy; total Co, Mo, aluminum, iron, manganese, silica concentrations; cation/anion exchange capacity	TestAmerica-Canton; TestAmerica-Knoxville (SEP); DCM Science Lab (XRD)
Pneumatic slug tests	1, 2, 4, 5, 6	Refine our understanding of hydrogeologic conditions within the anticipated treatment area. Slug data will be used in conjunction with groundwater data to prepare a groundwater flow model that evaluates conceptual CM designs.	Conduct pneumatic slug tests in select wells either not previously tested or in those wells for which historical data may be in question.	Transmissivity, storage coefficient, hydraulic conductivity	n/a

Note:
(1) Corrective Measure (CM) Codes:
1 - Geochemical Approaches (In-Situ Injection)
2 - Hydraulic Containment
3 - Monitored Natural Attenuation (MNA)
4 - Permeable Reactive Barrier (PRB)
5 - Phytoremediation (TreeWells®)
6 - Subsurface Vertical Barrier Walls

FIGURES



N

LEGEND

- Approximate Site Boundary
- River or Stream

Notes:
1. Aerial photograph source: USDA FSA, 2015.

0 900 1,800 3,600 Feet

SITE LOCATION MAP

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

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | DECEMBER 2019

FIGURE 1

\\aro-01\prj1$\GA Power\Plant Bowen\GIS\MXD\CCR annual report\2019\Second Semi-Annual\Figure 1_SiteMap.mxd 11/19/2019 1:33:17 PM

N

LEGEND

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

Notes:
1. All wells and piezometers presented are screeened within the weathered fractured bedrock.
2. Aerial photograph source: Google Earth Pro, February 2018.

0 400 800 1,600
Feet

MONITORING WELL NETWORK MAP

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

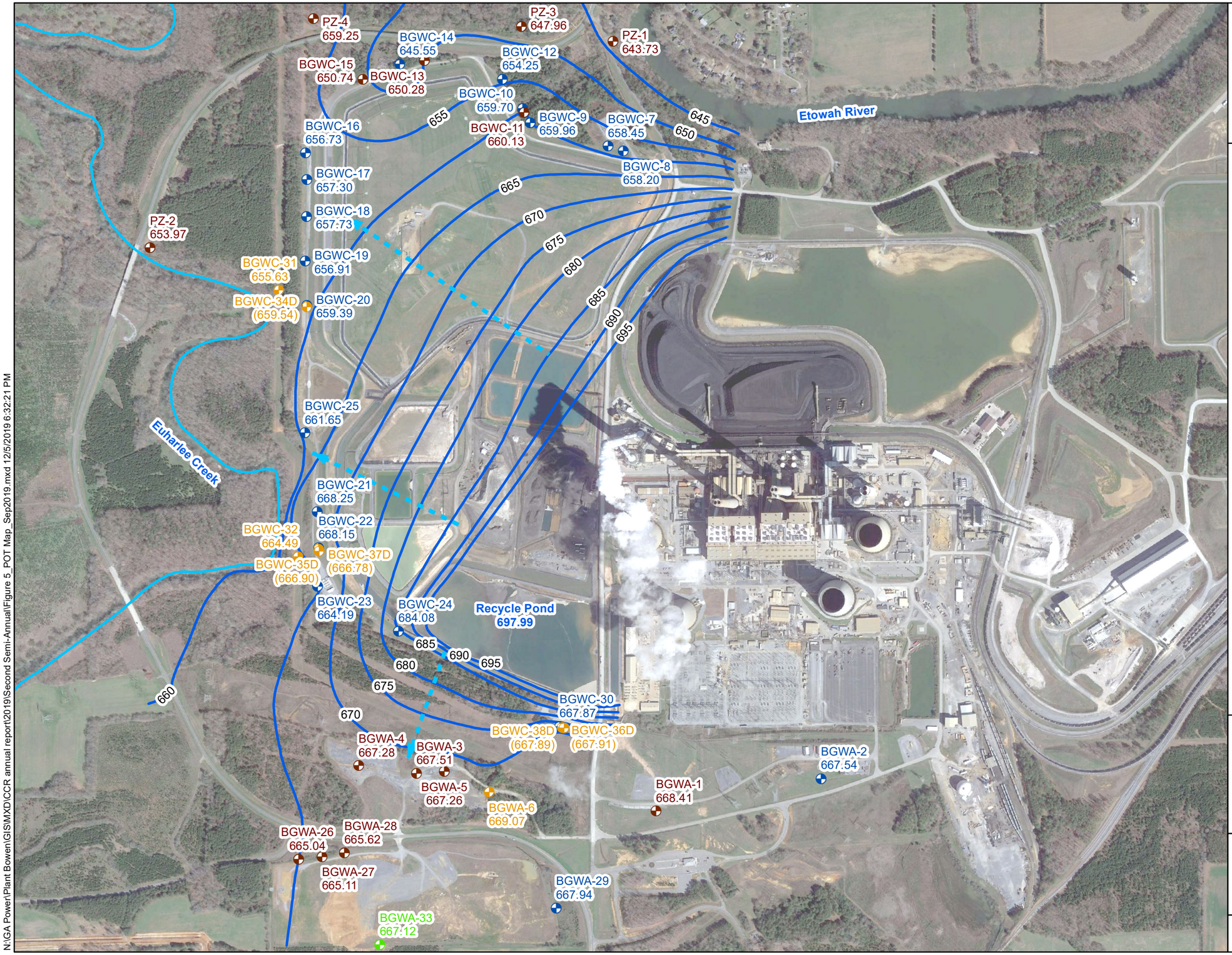
Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | DECEMBER 2020

FIGURE 2

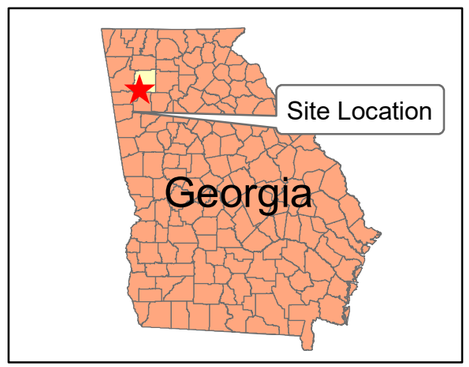
N:\GA Power\Plant Bowen\GIS\MXD\CCR annual report\2019\Second Semi-Annual\Figure 2_WellMap.mxd 11/21/2019 9:31:01 AM



N

LEGEND

- Compliance Monitoring Well
- Delineation Monitoring Well
- Characterization Monitoring Well
- Groundwater Level Monitoring Piezometer
- Approximate Groundwater Flow Direction



Notes:
1. Water level elevations recorded on September 19, 2019. Elevation provided in feet above mean sea level (ft AMSL) in North American Vertical Datum (NAVD) 88. RecyclePond elevation recorded in October 2019
2. Water elevation in parentheses is not used in development of groundwater contours due to well being screened at a different elevation in the formation/aquifer.
3. Aerial photograph source: Google Earth Pro, 2017.

0 400 800 1,600
Feet

POTENTIOMETRIC SURFACE CONTOUR MAP - SEPTEMBER 2019

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

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | DECEMBER 2019

FIGURE 3

N:\GA Power\Plant Bowen\GIS\MXD\CCR annual report\2019\Second Semi-Annual\Figure 5_POT Map_Sep2019.mxd 12/5/2019 6:32:21 PM

APPENDIX A

Laboratory Analytical Reports

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 21, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 24, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623563001	**BGWA-2**	Water	09/23/19 09:54	09/24/19 15:23
2623563002	**BGWA-29**	Water	09/23/19 10:22	09/24/19 15:23
2623563003	**BGWA-6**	Water	09/23/19 11:34	09/24/19 15:23
2623563004	**DUP-1**	Water	09/23/19 00:00	09/24/19 15:23

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623563001	**BGWA-2**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623563002	**BGWA-29**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623563003	**BGWA-6**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623563004	**DUP-1**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 5310B	SA1	1	PASI-O

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

Sample: BGWA-2 **Lab ID: 2623563001** Collected: 09/23/19 09:54 Received: 09/24/19 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.035J**	mg/L	0.040	0.0092	1	10/09/19 03:36	10/09/19 23:07	7439-89-6	
Magnesium	**20.6**	mg/L	0.50	0.084	1	10/09/19 03:36	10/09/19 23:07	7439-95-4	
Manganese	**0.11**	mg/L	0.0050	0.00042	1	10/09/19 03:36	10/09/19 23:07	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/09/19 03:36	10/09/19 23:07	7723-14-0	N2
Potassium	**1.8**	mg/L	1.0	0.15	1	10/09/19 03:36	10/09/19 23:07	7440-09-7	
Sodium	**4.3**	mg/L	2.0	0.27	1	10/09/19 03:36	10/09/19 23:07	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**177**	mg/L	20.0	20.0	1		09/30/19 14:41		
Alkalinity, Total as CaCO3	**177**	mg/L	20.0	20.0	1		09/30/19 14:41		
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.51J**	mg/L	1.0	0.50	1		09/28/19 05:18		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

Sample: BGWA-29 **Lab ID: 2623563002** Collected: 09/23/19 10:22 Received: 09/24/19 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	ND	mg/L	0.040	0.0092	1	10/09/19 03:36	10/09/19 23:26	7439-89-6	
Magnesium	**11.8**	mg/L	0.50	0.084	1	10/09/19 03:36	10/09/19 23:26	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/09/19 03:36	10/09/19 23:26	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/09/19 03:36	10/09/19 23:26	7723-14-0	N2
Potassium	**0.69J**	mg/L	1.0	0.15	1	10/09/19 03:36	10/09/19 23:26	7440-09-7	
Sodium	**6.8**	mg/L	2.0	0.27	1	10/09/19 03:36	10/09/19 23:26	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**107**	mg/L	20.0	20.0	1		09/30/19 14:56		
Alkalinity, Total as CaCO3	**107**	mg/L	20.0	20.0	1		09/30/19 14:56		
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.57J**	mg/L	1.0	0.50	1		09/28/19 05:34		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

Sample: BGWA-6 **Lab ID: 2623563003** Collected: 09/23/19 11:34 Received: 09/24/19 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.031J**	mg/L	0.040	0.0092	1	10/09/19 03:36	10/09/19 23:40	7439-89-6	
Magnesium	**35.5**	mg/L	0.50	0.084	1	10/09/19 03:36	10/09/19 23:40	7439-95-4	
Manganese	**0.017**	mg/L	0.0050	0.00042	1	10/09/19 03:36	10/09/19 23:40	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/09/19 03:36	10/09/19 23:40	7723-14-0	N2
Potassium	**0.51J**	mg/L	1.0	0.15	1	10/09/19 03:36	10/09/19 23:40	7440-09-7	
Sodium	**2.2**	mg/L	2.0	0.27	1	10/09/19 03:36	10/09/19 23:40	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**258**	mg/L	20.0	20.0	1		09/30/19 16:02		
Alkalinity, Total as CaCO3	**258**	mg/L	20.0	20.0	1		09/30/19 16:02		
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		09/28/19 05:50		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

Sample: DUP-1 **Lab ID: 2623563004** Collected: 09/23/19 00:00 Received: 09/24/19 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	ND	mg/L	0.040	0.0092	1	10/09/19 03:36	10/09/19 23:45	7439-89-6	
Magnesium	**11.9**	mg/L	0.50	0.084	1	10/09/19 03:36	10/09/19 23:45	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/09/19 03:36	10/09/19 23:45	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/09/19 03:36	10/09/19 23:45	7723-14-0	N2
Potassium	**0.68J**	mg/L	1.0	0.15	1	10/09/19 03:36	10/09/19 23:45	7440-09-7	
Sodium	**6.7**	mg/L	2.0	0.27	1	10/09/19 03:36	10/09/19 23:45	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**107**	mg/L	20.0	20.0	1		09/30/19 16:10		
Alkalinity, Total as CaCO3	**107**	mg/L	20.0	20.0	1		09/30/19 16:10		
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		09/28/19 05:05		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

QC Batch: 576752 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 2623563001, 2623563002, 2623563003, 2623563004

METHOD BLANK: 3134868 Matrix: Water
Associated Lab Samples: 2623563001, 2623563002, 2623563003, 2623563004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.0092	10/09/19 22:58	
Magnesium	mg/L	ND	0.50	0.084	10/09/19 22:58	
Manganese	mg/L	ND	0.0050	0.00042	10/09/19 22:58	
Phosphorus	mg/L	ND	0.045	0.014	10/09/19 22:58	N2
Potassium	mg/L	ND	1.0	0.15	10/09/19 22:58	
Sodium	mg/L	ND	2.0	0.27	10/09/19 22:58	

LABORATORY CONTROL SAMPLE: 3134869

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	2.5	2.6	104	80-120	
Magnesium	mg/L	12.5	12.9	103	80-120	
Manganese	mg/L	0.25	0.26	105	80-120	
Phosphorus	mg/L	0.25	0.25	99	80-120	N2
Potassium	mg/L	12.5	12.8	103	80-120	
Sodium	mg/L	12.5	13.1	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3134870 3134871

Parameter	Units	35502582002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	136 ug/L	2.5	2.5	2.7	2.7	103	104	75-125	0	20	
Magnesium	mg/L	3120 ug/L	12.5	12.5	15.7	15.6	100	100	75-125	0	20	
Manganese	mg/L	25.8 ug/L	0.25	0.25	0.29	0.29	106	106	75-125	0	20	
Phosphorus	mg/L	33.5J ug/L	0.25	0.25	0.29	0.30	104	108	75-125	3	20	N2
Potassium	mg/L	3350 ug/L	12.5	12.5	16.4	16.6	105	106	75-125	1	20	
Sodium	mg/L	12300 ug/L	12.5	12.5	25.5	25.3	106	104	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

QC Batch: 36180 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623563001, 2623563002, 2623563003, 2623563004

METHOD BLANK: 163383 Matrix: Water
Associated Lab Samples: 2623563001, 2623563002, 2623563003, 2623563004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	09/30/19 14:21	

LABORATORY CONTROL SAMPLE: 163384

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	100	100	85-115	

SAMPLE DUPLICATE: 163385

Parameter	Units	2623563001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	177	174	2	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

QC Batch: 573872 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623563001, 2623563002, 2623563003, 2623563004

METHOD BLANK: 3118689 Matrix: Water
Associated Lab Samples: 2623563001, 2623563002, 2623563003, 2623563004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	09/28/19 04:35	

LABORATORY CONTROL SAMPLE: 3118690

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	18.6	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3118694 3118695

Parameter	Units	35500243001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	9.8	20	20	30.9	31.4	105	108	80-120	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA	Pace Analytical Services - Atlanta, GA
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2623563

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623563001	**BGWA-2**	EPA 3010	576752	EPA 6010	576758
2623563002	**BGWA-29**	EPA 3010	576752	EPA 6010	576758
2623563003	**BGWA-6**	EPA 3010	576752	EPA 6010	576758
2623563004	**DUP-1**	EPA 3010	576752	EPA 6010	576758
2623563001	**BGWA-2**	SM 2320B	36180		
2623563002	**BGWA-29**	SM 2320B	36180		
2623563003	**BGWA-6**	SM 2320B	36180		
2623563004	**DUP-1**	SM 2320B	36180		
2623563001	**BGWA-2**	SM 5310B	573872		
2623563002	**BGWA-29**	SM 5310B	573872		
2623563003	**BGWA-6**	SM 5310B	573872		
2623563004	**DUP-1**	SM 5310B	573872		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	
Address:	2480 Manor Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Bowen Additional Parameters	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:		Project #:	Ash Pond	Pace Profile #:	315.5

Regulatory Agency	
State / Location	GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (6010) *	Metals (6010/6020) **	Ortho Phosphorus (filtered)	Sulfide	Alkalinity, Bicarb	DOC (filtered)	TDS, NO3, NO2	Ammonia	TKN	TSS	BOD	Oil/ Grease	Residual Chlorine (Y/N)	
	Analyses Test																	Y/N													
1	BGWA-2	WT	G	9/23/19	0954				4	1		1	2						X				X	X							1
2	BGWA-29	WT	G	9/23/19	1022				4	1		1	2						X				X	X							2
3	BGWA-6	WT	G	9/23/19	1134				4	1		1	2						X				X	X							3
4	DUP-1	WT	G	9/23/19	—				4	1		1	2						X				X	X							4
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* (5010) Fe, Mg, Mn, P, K, Na	Audrey Crafton			Charles Harbin	9/24/19	1523	2.6 X X X
** (5010) Fe, Mg, Mn, P, K, Na, Hardness (6020) Cu, Zn							

WO# : 2623563

2623563

SAMPLER NAME AND SIGNATURE		
PRINT Name of SAMPLER:	Audrey Crafton, Joe Booth	
SIGNATURE of SAMPLER:	Audrey Crafton	DATE Signed: 9/23/19

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

Pace Analytical

Sample Condition Upon Receipt

Client Name: GAPower CCR

WO#: 2623563

PM: BM Due Date: 10/01/19

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 214

Type of Ice: Wet Blue None

☐ Samples on ice, cooling process has begun

Cooler Temperature 2.8°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/24/19 CM

Temp should be above freezing to 6°C

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

November 19, 2019

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

RE: Project: Plant Bowen
Pace Project No.: 2623698

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 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.

This report was revised 10/22/19 to remove compounds not requested on the COC.

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

Sincerely,

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

Enclosures

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Bowen
Pace Project No.: 2623698

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812
North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

Pace Analytical Services Ormond Beach

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Bowen
Pace Project No.: 2623698

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623698001	**BGWC-22**	Water	09/27/19 10:06	09/27/19 16:00
2623698002	**BGWC-23**	Water	09/27/19 11:45	09/27/19 16:00
2623698003	**BGWC-30**	Water	09/27/19 09:45	09/27/19 16:00
2623698004	**BGWC-36D**	Water	09/27/19 12:02	09/27/19 16:00
2623698005	**BGWA-33**	Water	09/27/19 13:08	09/27/19 16:00

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Bowen
Pace Project No.: 2623698

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623698001	**BGWC-22**	EPA 6010	LEC	7	PASI-O
		EPA 6020B	CSW	3	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623698002	**BGWC-23**	EPA 6010	LEC	7	PASI-O
		EPA 6020B	CSW	2	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623698003	**BGWC-30**	EPA 6010	LEC	7	PASI-O
		EPA 6020B	CSW	3	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Bowen
Pace Project No.: 2623698

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623698004	**BGWC-36D**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623698005	**BGWA-33**	EPA 6010	KPP	6	PASI-O
		SM 2320B	S1A	2	PASI-GA

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen
Pace Project No.: 2623698

Sample: BGWC-22 **Lab ID: 2623698001** Collected: 09/27/19 10:06 Received: 09/27/19 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.46**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 18:38	7439-89-6	
Magnesium	**95.5**	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 18:38	7439-95-4	
Manganese	**6.8**	mg/L	0.10	0.0084	20	10/08/19 14:00	10/09/19 18:43	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 18:38	7723-14-0	N2
Potassium	**14.9**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 18:38	7440-09-7	
Sodium	**47.2**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 18:38	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	**2240**	mg/L	64.2	10.1	20	10/08/19 14:00	10/09/19 18:43		
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Copper	ND	mg/L	0.025	0.00019	1	09/30/19 13:30	10/03/19 17:05	7440-50-8	
Lead	**0.000054J**	mg/L	0.0050	0.000046	1	09/30/19 13:30	10/03/19 17:05	7439-92-1	
Zinc	**0.0040J**	mg/L	0.010	0.0015	1	09/30/19 13:30	10/03/19 17:05	7440-66-6	B
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/03/19 17:10	10/04/19 10:51	7439-97-6	
HEM, Oil and Grease	Analytical Method: EPA 1664B								
Oil and Grease	ND	mg/L	4.9	4.9	1		10/02/19 08:00		
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**72.0**	mg/L	20.0	20.0	1		10/01/19 18:37		
Alkalinity, Total as CaCO3	**72.0**	mg/L	20.0	20.0	1		10/01/19 18:37		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**3260**	mg/L	10.0	10.0	1		10/03/19 20:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**13.0**	mg/L	5.0	5.0	1		09/30/19 12:16		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 13:55		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/03/19 13:43	18496-25-8	M1
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/27/19 21:37	10/02/19 14:47		1A
Total Organic Nitrogen Calc.	Analytical Method: TKN-NH3 Calculation								
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/07/19 23:42		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.050	0.0050	1		09/28/19 09:55	14797-55-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen
Pace Project No.: 2623698

Sample: BGWC-22 **Lab ID: 2623698001** Collected: 09/27/19 10:06 Received: 09/27/19 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrite as N	ND	mg/L	0.050	0.011	1		09/28/19 09:55	14797-65-0	
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	**1.4**	mg/L	0.10	0.10	1		09/30/19 11:26	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total	**1.2**	mg/L	0.40	0.40	1	10/01/19 09:05	10/01/19 13:12	7727-37-9	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 21:58		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen
Pace Project No.: 2623698

Sample: BGWC-23 **Lab ID: 2623698002** Collected: 09/27/19 11:45 Received: 09/27/19 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.32**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 18:57	7439-89-6	
Magnesium	**120**	mg/L	10.0	1.7	20	10/08/19 14:00	10/09/19 19:02	7439-95-4	
Manganese	**0.52**	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 18:57	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 18:57	7723-14-0	N2
Potassium	**10.1**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 18:57	7440-09-7	
Sodium	**41.2**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 18:57	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	**2060000**	ug/L	64200	10100	20	10/08/19 14:00	10/09/19 19:02		
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Copper	ND	mg/L	0.025	0.00019	1	09/30/19 13:30	10/03/19 18:03	7440-50-8	
Zinc	**0.0023J**	mg/L	0.010	0.0015	1	09/30/19 13:30	10/03/19 18:03	7440-66-6	B
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**96.0**	mg/L	20.0	20.0	1		10/01/19 18:39		
Alkalinity, Total as CaCO3	**96.0**	mg/L	20.0	20.0	1		10/01/19 18:39		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**2540**	mg/L	10.0	10.0	1		10/03/19 20:30		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 13:55		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/03/19 13:47	18496-25-8	
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	**0.076**	mg/L	0.050	0.0050	1		09/28/19 10:15	14797-55-8	
Nitrite as N	ND	mg/L	0.050	0.011	1		09/28/19 10:15	14797-65-0	
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	**0.63**	mg/L	0.10	0.10	1		09/30/19 11:27	7664-41-7	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 22:13		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen
Pace Project No.: 2623698

Sample: BGWC-30 **Lab ID: 2623698003** Collected: 09/27/19 09:45 Received: 09/27/19 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.11**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 19:07	7439-89-6	
Magnesium	**34.1**	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 19:07	7439-95-4	
Manganese	**0.0076**	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 19:07	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 19:07	7723-14-0	N2
Potassium	**3.0**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 19:07	7440-09-7	
Sodium	**8.2**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 19:07	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	**430000**	ug/L	64200	10100	20	10/08/19 14:00	10/09/19 19:11		
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Copper	ND	mg/L	0.025	0.00019	1	09/30/19 13:30	10/03/19 18:14	7440-50-8	
Lead	**0.00018J**	mg/L	0.0050	0.000046	1	09/30/19 13:30	10/03/19 18:14	7439-92-1	
Zinc	**0.0020J**	mg/L	0.010	0.0015	1	09/30/19 13:30	10/03/19 18:14	7440-66-6	B
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/03/19 17:10	10/04/19 11:03	7439-97-6	
HEM, Oil and Grease	Analytical Method: EPA 1664B								
Oil and Grease	ND	mg/L	4.9	4.9	1		10/02/19 08:00		
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**171**	mg/L	20.0	20.0	1		10/01/19 18:45		
Alkalinity, Total as CaCO3	**171**	mg/L	20.0	20.0	1		10/01/19 18:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**629**	mg/L	11.1	11.1	1		10/03/19 20:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**8.0**	mg/L	5.0	5.0	1		10/02/19 18:43		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 13:56		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/03/19 13:47	18496-25-8	
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/27/19 21:37	10/02/19 14:48		1A
Total Organic Nitrogen Calc.	Analytical Method: TKN-NH3 Calculation								
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/07/19 23:42		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	**1.0**	mg/L	0.050	0.0050	1		09/28/19 10:36	14797-55-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen
Pace Project No.: 2623698

Sample: BGWC-30 **Lab ID: 2623698003** Collected: 09/27/19 09:45 Received: 09/27/19 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrite as N	ND	mg/L	0.050	0.011	1		09/28/19 10:36	14797-65-0	
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	ND	mg/L	0.10	0.10	1		09/30/19 11:29	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total	ND	mg/L	0.40	0.40	1	10/01/19 09:05	10/01/19 13:13	7727-37-9	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 21:46		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen
Pace Project No.: 2623698

Sample: BGWC-36D **Lab ID: 2623698004** Collected: 09/27/19 12:02 Received: 09/27/19 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.19**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 19:16	7439-89-6	
Magnesium	**59.8**	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 19:16	7439-95-4	
Manganese	**0.14**	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 19:16	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 19:16	7723-14-0	N2
Potassium	**4.7**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 19:16	7440-09-7	
Sodium	**26.2**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 19:16	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**153**	mg/L	20.0	20.0	1		10/04/19 12:31		
Alkalinity, Total as CaCO3	**153**	mg/L	20.0	20.0	1		10/04/19 12:31		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 13:56		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/03/19 13:48	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.56J**	mg/L	1.0	0.50	1		10/02/19 22:29		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen
Pace Project No.: 2623698

Sample: BGWA-33 **Lab ID: 2623698005** Collected: 09/27/19 13:08 Received: 09/27/19 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.033J**	mg/L	0.040	0.0092	1	10/09/19 08:23	10/11/19 06:22	7439-89-6	
Magnesium	**31.6**	mg/L	0.50	0.084	1	10/09/19 08:23	10/11/19 06:22	7439-95-4	
Manganese	**0.014**	mg/L	0.0050	0.00042	1	10/09/19 08:23	10/11/19 06:22	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/09/19 08:23	10/11/19 06:22	7723-14-0	N2
Potassium	**1.8**	mg/L	1.0	0.15	1	10/09/19 08:23	10/11/19 06:22	7440-09-7	
Sodium	**2.1**	mg/L	2.0	0.27	1	10/09/19 08:23	10/11/19 06:22	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**230**	mg/L	20.0	20.0	1		10/01/19 18:54		
Alkalinity, Total as CaCO3	**230**	mg/L	20.0	20.0	1		10/01/19 18:54		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36428 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2623698001, 2623698003

METHOD BLANK: 164509 Matrix: Water
Associated Lab Samples: 2623698001, 2623698003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/04/19 10:46	

LABORATORY CONTROL SAMPLE: 164510

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: 164511 164512

Parameter	Units	2623696001 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	0.0022	0.0022	88	88	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 576597 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 2623698001, 2623698002, 2623698003, 2623698004

METHOD BLANK: 3133444 Matrix: Water
Associated Lab Samples: 2623698001, 2623698002, 2623698003, 2623698004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.0092	10/09/19 08:23	
Magnesium	mg/L	ND	0.50	0.084	10/09/19 08:23	
Manganese	mg/L	ND	0.0050	0.00042	10/09/19 08:23	
Phosphorus	mg/L	ND	0.045	0.014	10/09/19 08:23	N2
Potassium	mg/L	ND	1.0	0.15	10/09/19 08:23	
Sodium	mg/L	ND	2.0	0.27	10/09/19 08:23	
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3210	506	10/09/19 08:23	

LABORATORY CONTROL SAMPLE: 3133445

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	2.5	2.5	101	80-120	
Magnesium	mg/L	12.5	12.4	100	80-120	
Manganese	mg/L	0.25	0.25	101	80-120	
Phosphorus	mg/L	0.25	0.24	95	80-120	N2
Potassium	mg/L	12.5	12.2	98	80-120	
Sodium	mg/L	12.5	12.4	100	80-120	
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	82600	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3133609 3133610

Parameter	Units	2623708004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	0.049	2.5	2.5	2.7	2.7	104	104	75-125	0	20	
Magnesium	mg/L	49.1	12.5	12.5	61.6	62.2	100	105	75-125	1	20	
Manganese	mg/L	ND	0.25	0.25	0.27	0.26	107	104	75-125	3	20	
Phosphorus	mg/L	ND	0.25	0.25	0.27	0.26	106	103	75-125	3	20	N2
Potassium	mg/L	2.4	12.5	12.5	15.5	15.6	105	105	75-125	1	20	
Sodium	mg/L	24.4	12.5	12.5	37.3	37.8	104	107	75-125	1	20	
Tot Hardness asCaCO3 (SM 2340B	ug/L	526000	82700	82700	600000	603000	90	93	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 576808
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Associated Lab Samples: 2623698005

METHOD BLANK: 3135137 Matrix: Water
Associated Lab Samples: 2623698005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.0092	10/11/19 06:29	
Magnesium	mg/L	ND	0.50	0.084	10/11/19 06:29	
Manganese	mg/L	ND	0.0050	0.00042	10/11/19 06:29	
Phosphorus	mg/L	ND	0.045	0.014	10/11/19 06:29	N2
Potassium	mg/L	ND	1.0	0.15	10/11/19 06:29	
Sodium	mg/L	ND	2.0	0.27	10/11/19 06:29	

LABORATORY CONTROL SAMPLE: 3135138

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	2.5	2.5	102	80-120	
Magnesium	mg/L	12.5	12.8	103	80-120	
Manganese	mg/L	0.25	0.26	104	80-120	
Phosphorus	mg/L	0.25	0.24	98	80-120	N2
Potassium	mg/L	12.5	12.6	101	80-120	
Sodium	mg/L	12.5	12.9	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3135139 3135140

Parameter	Units	35502685001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	1940000 ug/L	125	125	2000	1990	50	43	75-125	0	20	M1
Magnesium	mg/L	4200U ug/L	625	625	647	652	103	104	75-125	1	20	
Manganese	mg/L	3610 ug/L	12.5	12.5	16.3	16.8	102	105	75-125	3	20	
Phosphorus	mg/L	700U ug/L	12.5	12.5	12.8	12.8	101	101	75-125	0	20	N2
Potassium	mg/L	906000 ug/L	625	625	1580	1570	107	106	75-125	0	20	
Sodium	mg/L	444000 ug/L	625	625	1120	1120	108	109	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36173 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2623698001, 2623698002, 2623698003

METHOD BLANK: 163347 Matrix: Water
Associated Lab Samples: 2623698001, 2623698002, 2623698003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Copper	mg/L	ND	0.025	0.00019	10/03/19 16:32	
Lead	mg/L	ND	0.0050	0.000046	10/03/19 16:32	
Zinc	mg/L	0.0016J	0.010	0.0015	10/03/19 16:32	

LABORATORY CONTROL SAMPLE: 163348

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	mg/L	0.1	0.099	99	80-120	
Lead	mg/L	0.1	0.098	98	80-120	
Zinc	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163349 163350

Parameter	Units	2623696001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	mg/L	ND	0.1	0.1	0.088	0.090	88	90	75-125	3	20	
Lead	mg/L	0.000054J	0.1	0.1	0.089	0.094	89	94	75-125	5	20	
Zinc	mg/L	0.0040J	0.1	0.1	0.091	0.096	87	91	75-125	5	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36282 Analysis Method: EPA 1664B
QC Batch Method: EPA 1664B Analysis Description: 1664 HEM, Oil and Grease
Associated Lab Samples: 2623698001, 2623698003

METHOD BLANK: 163839 Matrix: Water
Associated Lab Samples: 2623698001, 2623698003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	5.0	10/02/19 08:00	

LABORATORY CONTROL SAMPLE: 163840

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	39.8	100	78-114	

MATRIX SPIKE SAMPLE: 163842

Parameter	Units	2623558001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	23.1	40	80.3	143	78-114	M3

SAMPLE DUPLICATE: 163841

Parameter	Units	2623698001 Result	Dup Result	RPD	Max RPD	Qualifiers
Oil and Grease	mg/L	ND	ND		75	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36284 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623698001, 2623698002, 2623698003, 2623698005

METHOD BLANK: 163853 Matrix: Water
Associated Lab Samples: 2623698001, 2623698002, 2623698003, 2623698005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	10/01/19 17:35	

LABORATORY CONTROL SAMPLE: 163854

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	98.0	98	85-115	

SAMPLE DUPLICATE: 163855

Parameter	Units	2623635002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	165	164	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36486 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623698004

METHOD BLANK: 164845 Matrix: Water
Associated Lab Samples: 2623698004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	10/04/19 12:28	

LABORATORY CONTROL SAMPLE: 164846

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	102	102	85-115	

SAMPLE DUPLICATE: 164847

Parameter	Units	2623698004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	153	152	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36464 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623698001, 2623698002, 2623698003

LABORATORY CONTROL SAMPLE: 164734

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

SAMPLE DUPLICATE: 164735

Parameter	Units	2623714002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	13.0	ND		10	

SAMPLE DUPLICATE: 164763

Parameter	Units	2623696005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	275	262	5	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36165 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 2623698001

METHOD BLANK: 163320 Matrix: Water
Associated Lab Samples: 2623698001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	5.0	09/30/19 12:16	

LABORATORY CONTROL SAMPLE: 163321

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	99.5	100	90-110	

SAMPLE DUPLICATE: 163322

Parameter	Units	2623465001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	10.0	ND		10	

SAMPLE DUPLICATE: 163323

Parameter	Units	2623682001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	6.5	ND		10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36383 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 2623698003

METHOD BLANK: 164324 Matrix: Water
Associated Lab Samples: 2623698003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	5.0	10/02/19 18:43	

LABORATORY CONTROL SAMPLE: 164325

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	99.0	99	90-110	

SAMPLE DUPLICATE: 164326

Parameter	Units	2623856001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

SAMPLE DUPLICATE: 164327

Parameter	Units	2623677002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36125 Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623698001, 2623698002, 2623698003, 2623698004

METHOD BLANK: 163138 Matrix: Water
Associated Lab Samples: 2623698001, 2623698002, 2623698003, 2623698004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	09/28/19 13:30	

LABORATORY CONTROL SAMPLE: 163139

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.51	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163140 163141

Parameter	Units	2623698004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.50	0.50	100	101	80-120	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36416 Analysis Method: SM 4500-S2 D
QC Batch Method: SM 4500-S2 D Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623698001, 2623698002, 2623698003, 2623698004

METHOD BLANK: 164448 Matrix: Water
Associated Lab Samples: 2623698001, 2623698002, 2623698003, 2623698004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	10/03/19 13:40	

LABORATORY CONTROL SAMPLE: 164449

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.43	87	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164450 164451

Parameter	Units	2623698001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	ND	ND	17	15	30-129		10	M1

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36102 Analysis Method: SM 5210B
QC Batch Method: SM 5210B Analysis Description: 5210B BOD, 5 day
Associated Lab Samples: 2623698001, 2623698003

METHOD BLANK: 162918 Matrix: Water
Associated Lab Samples: 2623698001, 2623698003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
BOD, 5 day	mg/L	ND	2.0	2.0	10/02/19 14:17	1A

LABORATORY CONTROL SAMPLE: 162920

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	mg/L	198	205	104	85-115	1A

SAMPLE DUPLICATE: 163019

Parameter	Units	2623686001 Result	Dup Result	RPD	Max RPD	Qualifiers
BOD, 5 day	mg/L	831	690	19	20	1A

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36067 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623698001, 2623698002, 2623698003

METHOD BLANK: 162737 Matrix: Water
Associated Lab Samples: 2623698001, 2623698002, 2623698003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.050	0.0050	09/27/19 18:48	
Nitrite as N	mg/L	ND	0.050	0.011	09/27/19 18:48	

LABORATORY CONTROL SAMPLE: 162738

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	10	10.5	105	90-110	
Nitrite as N	mg/L	10	10.7	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162739 162740

Parameter	Units	2623562005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	0.74			11.2	11.2				0	15	H1
Nitrite as N	mg/L	0.030J			10.7	10.5				2	15	H1

MATRIX SPIKE SAMPLE: 163021

Parameter	Units	2623704001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	ND	10	10.5	105	90-110	
Nitrite as N	mg/L	0.017J	10	10.8	108	90-110	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36150 Analysis Method: EPA 350.1
QC Batch Method: EPA 350.1 Analysis Description: 350.1 Ammonia
Associated Lab Samples: 2623698001, 2623698002, 2623698003

METHOD BLANK: 163273 Matrix: Water
Associated Lab Samples: 2623698001, 2623698002, 2623698003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	0.10	09/30/19 11:18	

LABORATORY CONTROL SAMPLE: 163274

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

MATRIX SPIKE SAMPLE: 163275

Parameter	Units	2623698001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1.4	10	12.0	106	90-110	

MATRIX SPIKE SAMPLE: 163276

Parameter	Units	2623682001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	0.96	10	11.5	105	90-110	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 36222 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN
Associated Lab Samples: 2623698001, 2623698003

METHOD BLANK: 163614 Matrix: Water
Associated Lab Samples: 2623698001, 2623698003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.40	0.40	10/01/19 13:03	

LABORATORY CONTROL SAMPLE: 163615

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	10.7	107	90-110	

MATRIX SPIKE SAMPLE: 163616

Parameter	Units	2623680001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	2.3	10	10.5	82	90-110	M1

MATRIX SPIKE SAMPLE: 163621

Parameter	Units	2623680003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	3.5	10	12.3	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen
Pace Project No.: 2623698

QC Batch: 575017 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623698001, 2623698002, 2623698003, 2623698004

METHOD BLANK: 3124986 Matrix: Water
Associated Lab Samples: 2623698001, 2623698002, 2623698003, 2623698004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/02/19 15:06	

LABORATORY CONTROL SAMPLE: 3124987

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	19.0	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124988 3124989

Parameter	Units	2623704001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	0.65J	20	20	19.6	19.8	95	96	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124990 3124991

Parameter	Units	2623708004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.4	96	96	80-120	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Bowen
Pace Project No.: 2623698

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA	Pace Analytical Services - Atlanta, GA
PASI-O	Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: 36345

[1]	The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria

ANALYTE QUALIFIERS

1A	The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria
B	Analyte was detected in the associated method blank.
H1	Analysis conducted outside the EPA method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen
Pace Project No.: 2623698

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623698001	**BGWC-22**	EPA 3010	576597	EPA 6010	576709
2623698002	**BGWC-23**	EPA 3010	576597	EPA 6010	576709
2623698003	**BGWC-30**	EPA 3010	576597	EPA 6010	576709
2623698004	**BGWC-36D**	EPA 3010	576597	EPA 6010	576709
2623698005	**BGWA-33**	EPA 3010	576808	EPA 6010	576923
2623698001	**BGWC-22**	EPA 3005A	36173	EPA 6020B	36203
2623698002	**BGWC-23**	EPA 3005A	36173	EPA 6020B	36203
2623698003	**BGWC-30**	EPA 3005A	36173	EPA 6020B	36203
2623698001	**BGWC-22**	EPA 7470A	36428	EPA 7470A	36481
2623698003	**BGWC-30**	EPA 7470A	36428	EPA 7470A	36481
2623698001	**BGWC-22**	EPA 1664B	36282		
2623698003	**BGWC-30**	EPA 1664B	36282		
2623698001	**BGWC-22**	SM 2320B	36284		
2623698002	**BGWC-23**	SM 2320B	36284		
2623698003	**BGWC-30**	SM 2320B	36284		
2623698004	**BGWC-36D**	SM 2320B	36486		
2623698005	**BGWA-33**	SM 2320B	36284		
2623698001	**BGWC-22**	SM 2540C	36464		
2623698002	**BGWC-23**	SM 2540C	36464		
2623698003	**BGWC-30**	SM 2540C	36464		
2623698001	**BGWC-22**	SM 2540D	36165		
2623698003	**BGWC-30**	SM 2540D	36383		
2623698001	**BGWC-22**	SM 4500-P	36125		
2623698002	**BGWC-23**	SM 4500-P	36125		
2623698003	**BGWC-30**	SM 4500-P	36125		
2623698004	**BGWC-36D**	SM 4500-P	36125		
2623698001	**BGWC-22**	SM 4500-S2 D	36416		
2623698002	**BGWC-23**	SM 4500-S2 D	36416		
2623698003	**BGWC-30**	SM 4500-S2 D	36416		
2623698004	**BGWC-36D**	SM 4500-S2 D	36416		
2623698001	**BGWC-22**	SM 5210B	36102	SM 5210B	36345
2623698003	**BGWC-30**	SM 5210B	36102	SM 5210B	36345
2623698001	**BGWC-22**	TKN-NH3 Calculation	36593		
2623698003	**BGWC-30**	TKN-NH3 Calculation	36593		
2623698001	**BGWC-22**	EPA 300.0	36067		
2623698002	**BGWC-23**	EPA 300.0	36067		
2623698003	**BGWC-30**	EPA 300.0	36067		
2623698001	**BGWC-22**	EPA 350.1	36150		
2623698002	**BGWC-23**	EPA 350.1	36150		
2623698003	**BGWC-30**	EPA 350.1	36150		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen
Pace Project No.: 2623698

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623698001	**BGWC-22**	EPA 351.2	36222	EPA 351.2	36226
2623698003	**BGWC-30**	EPA 351.2	36222	EPA 351.2	36226
2623698001	**BGWC-22**	SM 5310B	575017		
2623698002	**BGWC-23**	SM 5310B	575017		
2623698003	**BGWC-30**	SM 5310B	575017		
2623698004	**BGWC-36D**	SM 5310B	575017		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : Of

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Bowen Additional Parameters	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:		Project #:	Ash Pond	Pace Profile #:	315.5

Regulatory Agency

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zinc Acetate	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (6010) *	Metals (6010/6020) **	Ortho Phosphorus (filtered)	Sulfide	Alkalinity, Bicarb	DOC (filtered)	TDS, NO3, NO2	Ammonia	TKN	TSS	BOD	Oil/ Grease	Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	Y			Y									
1	BGWC-22	WT	G	9/27/19	1004				10	3	1	1	4	1					X	X	X	X	X	X	X	X	X	X		
2	BGWC-23	WT	G	9/27/19	1145				7	2	1	1	2	1					X	X	X	X	X	X	X					
3	BGWC-30	WT	G	9/27/19	0945				10	3	1	1	4	1					X	X	X	X	X	X	X	X	X	X		
4	BGWC-36D	WT	G	9/27/19	1202				6	2		1	2	1				X		X	X	X	X							
5	BGWA-33	WT	G	9/27/19	1308				2	1		1						X				X								
6																														
7																														
8																														
9																														
10																														
11																														
12																														

WO# : 2623698

2623698

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
* (6010) Fe, Mg, Mn, P, K, Na	Audrey Crafton	9/27/19	1600	Chanle Hent	9/27/19	1600				
** (6010) Fe, Mg, Mn, P, K, Na, Hardness (6020) Ca, Zn										
							2.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Audrey Crafton, Joe Booth

SIGNATURE of SAMPLER: Audrey Crafton DATE Signed: 9/27/19

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

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO# : 2623698

PM: BM Due Date: 10/04/19

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 2.5

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/27/19 NR

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 10, 2019

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

RE: Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623707001	**BGWC-35D**	Water	09/26/19 09:52	09/27/19 13:15
2623707002	**BGWC-16**	Water	09/26/19 09:56	09/27/19 13:15
2623707003	**BGWC-17**	Water	09/26/19 11:34	09/27/19 13:15
2623707004	**BGWC-18**	Water	09/26/19 12:57	09/27/19 13:15
2623707005	**BGWC-32**	Water	09/26/19 13:48	09/27/19 13:15
2623707006	**BGWC-19**	Water	09/26/19 14:05	09/27/19 13:15
2623707007	**BGWC-20**	Water	09/26/19 16:15	09/27/19 13:15

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623707001	**BGWC-35D**	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623707002	**BGWC-16**	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623707003	**BGWC-17**	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623707004	**BGWC-18**	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623707005	**BGWC-32**	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623707006	**BGWC-19**	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623707007	**BGWC-20**	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

Sample: BGWC-35D **Lab ID: 2623707001** Collected: 09/26/19 09:52 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.97**	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 13:58	7439-89-6	
Magnesium	**92.2**	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 13:58	7439-95-4	
Manganese	**0.12**	mg/L	0.0050	0.00042	1	10/08/19 16:13	10/09/19 13:58	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 13:58	7723-14-0	N2
Potassium	**8.3**	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 13:58	7440-09-7	
Sodium	**51.1**	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 13:58	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**112**	mg/L	20.0	20.0	1		10/03/19 12:17		
Alkalinity, Total as CaCO3	**112**	mg/L	20.0	20.0	1		10/03/19 12:17		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 20:39		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 18:03	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/03/19 02:19		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

Sample: BGWC-16 **Lab ID: 2623707002** Collected: 09/26/19 09:56 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.13**	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 14:02	7439-89-6	
Magnesium	**28.5**	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 14:02	7439-95-4	
Manganese	**3.3**	mg/L	0.10	0.0084	20	10/08/19 16:13	10/10/19 15:19	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 14:02	7723-14-0	N2
Potassium	**4.0**	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 14:02	7440-09-7	
Sodium	**21.6**	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 14:02	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**147**	mg/L	20.0	20.0	1		10/03/19 12:23		
Alkalinity, Total as CaCO3	**147**	mg/L	20.0	20.0	1		10/03/19 12:23		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 20:40		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 18:04	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.54J**	mg/L	1.0	0.50	1		10/03/19 02:32		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

Sample: BGWC-17 **Lab ID: 2623707003** Collected: 09/26/19 11:34 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.0097J**	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 14:05	7439-89-6	
Magnesium	**30.6**	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 14:05	7439-95-4	
Manganese	**0.16**	mg/L	0.0050	0.00042	1	10/08/19 16:13	10/09/19 14:05	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 14:05	7723-14-0	N2
Potassium	**3.3**	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 14:05	7440-09-7	
Sodium	**17.0**	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 14:05	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**118**	mg/L	20.0	20.0	1		10/03/19 12:26		
Alkalinity, Total as CaCO3	**118**	mg/L	20.0	20.0	1		10/03/19 12:26		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 20:41		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 18:05	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/03/19 03:24		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

Sample: BGWC-18 **Lab ID: 2623707004** Collected: 09/26/19 12:57 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.0094J**	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 14:09	7439-89-6	
Magnesium	**27.0**	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 14:09	7439-95-4	
Manganese	**0.048**	mg/L	0.0050	0.00042	1	10/08/19 16:13	10/09/19 14:09	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 14:09	7723-14-0	N2
Potassium	**2.0**	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 14:09	7440-09-7	
Sodium	**7.6**	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 14:09	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**160**	mg/L	20.0	20.0	1		10/03/19 12:31		
Alkalinity, Total as CaCO3	**160**	mg/L	20.0	20.0	1		10/03/19 12:31		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 20:42		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 18:15	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.67J**	mg/L	1.0	0.50	1		10/03/19 04:06		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

Sample: BGWC-32 **Lab ID: 2623707005** Collected: 09/26/19 13:48 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.065**	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 14:12	7439-89-6	
Magnesium	**61.1**	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 14:12	7439-95-4	
Manganese	**0.26**	mg/L	0.0050	0.00042	1	10/08/19 16:13	10/09/19 14:12	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 14:12	7723-14-0	N2
Potassium	**5.2**	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 14:12	7440-09-7	
Sodium	**20.9**	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 14:12	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**172**	mg/L	20.0	20.0	1		10/03/19 12:38		
Alkalinity, Total as CaCO3	**172**	mg/L	20.0	20.0	1		10/03/19 12:38		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 13:32		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 18:16	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.62J**	mg/L	1.0	0.50	1		10/03/19 04:21		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

Sample: BGWC-19 **Lab ID: 2623707006** Collected: 09/26/19 14:05 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	ND	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 14:15	7439-89-6	
Magnesium	**30.4**	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 14:15	7439-95-4	
Manganese	**0.23**	mg/L	0.0050	0.00042	1	10/08/19 16:13	10/09/19 14:15	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 14:15	7723-14-0	N2
Potassium	**2.8**	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 14:15	7440-09-7	
Sodium	**5.9**	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 14:15	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**164**	mg/L	20.0	20.0	1		10/03/19 12:43		
Alkalinity, Total as CaCO3	**164**	mg/L	20.0	20.0	1		10/03/19 12:43		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 13:54		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 18:16	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.76J**	mg/L	1.0	0.50	1		10/03/19 04:37		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

Sample: BGWC-20 **Lab ID: 2623707007** Collected: 09/26/19 16:15 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.19**	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 14:26	7439-89-6	
Magnesium	**41.7**	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 14:26	7439-95-4	
Manganese	**0.40**	mg/L	0.0050	0.00042	1	10/08/19 16:13	10/09/19 14:26	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 14:26	7723-14-0	N2
Potassium	**5.7**	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 14:26	7440-09-7	
Sodium	**26.0**	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 14:26	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**92.0**	mg/L	20.0	20.0	1		10/03/19 12:49		
Alkalinity, Total as CaCO3	**92.0**	mg/L	20.0	20.0	1		10/03/19 12:49		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 14:00		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 18:17	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/03/19 04:53		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

QC Batch: 576681 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 2623707001, 2623707002, 2623707003, 2623707004, 2623707005, 2623707006, 2623707007

METHOD BLANK: 3134011 Matrix: Water
Associated Lab Samples: 2623707001, 2623707002, 2623707003, 2623707004, 2623707005, 2623707006, 2623707007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.0092	10/09/19 12:43	
Magnesium	mg/L	ND	0.50	0.084	10/09/19 12:43	
Manganese	mg/L	ND	0.0050	0.00042	10/09/19 12:43	
Phosphorus	mg/L	ND	0.045	0.014	10/09/19 12:43	N2
Potassium	mg/L	ND	1.0	0.15	10/09/19 12:43	
Sodium	mg/L	ND	2.0	0.27	10/09/19 12:43	

LABORATORY CONTROL SAMPLE: 3134012

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	2.5	2.5	98	80-120	
Magnesium	mg/L	12.5	12.2	98	80-120	
Manganese	mg/L	0.25	0.25	98	80-120	
Phosphorus	mg/L	0.25	0.23	92	80-120	N2
Potassium	mg/L	12.5	12.1	97	80-120	
Sodium	mg/L	12.5	12.3	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3134013 3134014

Parameter	Units	2623635003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	3.1	2.5	2.5	5.6	5.6	98	100	75-125	1	20	
Magnesium	mg/L	8.6	12.5	12.5	21.1	21.2	99	101	75-125	1	20	
Manganese	mg/L	0.17	0.25	0.25	0.42	0.42	98	99	75-125	1	20	
Phosphorus	mg/L	0.083	0.25	0.25	0.33	0.33	98	99	75-125	1	20	N2
Potassium	mg/L	0.31J	12.5	12.5	13.1	13.1	102	103	75-125	0	20	
Sodium	mg/L	11.0	12.5	12.5	23.7	23.8	101	103	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

QC Batch: 36366 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623707001, 2623707002, 2623707003, 2623707004, 2623707005, 2623707006, 2623707007

METHOD BLANK: 164227 Matrix: Water
Associated Lab Samples: 2623707001, 2623707002, 2623707003, 2623707004, 2623707005, 2623707006, 2623707007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	10/03/19 11:56	

LABORATORY CONTROL SAMPLE: 164228

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	96.0	96	85-115	

SAMPLE DUPLICATE: 164468

Parameter	Units	2623706006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	173	172	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

QC Batch: 36119 Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623707001, 2623707002, 2623707003, 2623707004

METHOD BLANK: 163046 Matrix: Water
Associated Lab Samples: 2623707001, 2623707002, 2623707003, 2623707004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	09/27/19 20:37	

LABORATORY CONTROL SAMPLE: 163047

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.52	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163048 163049

Parameter	Units	2623707001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.50	0.51	100	102	80-120	2	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

QC Batch: 36125 Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623707005, 2623707006, 2623707007

METHOD BLANK: 163138 Matrix: Water
Associated Lab Samples: 2623707005, 2623707006, 2623707007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	09/28/19 13:30	

LABORATORY CONTROL SAMPLE: 163139

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.51	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163140 163141

Parameter	Units	2623698004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.50	0.50	100	101	80-120	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

QC Batch: 36187 Analysis Method: SM 4500-S2 D
QC Batch Method: SM 4500-S2 D Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623707001, 2623707002, 2623707003, 2623707004, 2623707005, 2623707006, 2623707007

METHOD BLANK: 163403 Matrix: Water
Associated Lab Samples: 2623707001, 2623707002, 2623707003, 2623707004, 2623707005, 2623707006, 2623707007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	09/30/19 17:04	

LABORATORY CONTROL SAMPLE: 163404

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.45	90	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163405 163406

Parameter	Units	2623614004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.40	0.40	81	80	30-129	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

QC Batch: 575018 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623707001, 2623707002, 2623707003, 2623707004, 2623707005, 2623707006, 2623707007

METHOD BLANK: 3124995 Matrix: Water
Associated Lab Samples: 2623707001, 2623707002, 2623707003, 2623707004, 2623707005, 2623707006, 2623707007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/02/19 23:00	

LABORATORY CONTROL SAMPLE: 3124996

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	18.9	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124997 3124998

Parameter	Units	2623718001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.4	19.4	95	95	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124999 3125000

Parameter	Units	2623707003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.9	19.9	97	97	80-120	0	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA	Pace Analytical Services - Atlanta, GA
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623707

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623707001	**BGWC-35D**	EPA 3010	576681	EPA 6010	576722
2623707002	**BGWC-16**	EPA 3010	576681	EPA 6010	576722
2623707003	**BGWC-17**	EPA 3010	576681	EPA 6010	576722
2623707004	**BGWC-18**	EPA 3010	576681	EPA 6010	576722
2623707005	**BGWC-32**	EPA 3010	576681	EPA 6010	576722
2623707006	**BGWC-19**	EPA 3010	576681	EPA 6010	576722
2623707007	**BGWC-20**	EPA 3010	576681	EPA 6010	576722
2623707001	**BGWC-35D**	SM 2320B	36366		
2623707002	**BGWC-16**	SM 2320B	36366		
2623707003	**BGWC-17**	SM 2320B	36366		
2623707004	**BGWC-18**	SM 2320B	36366		
2623707005	**BGWC-32**	SM 2320B	36366		
2623707006	**BGWC-19**	SM 2320B	36366		
2623707007	**BGWC-20**	SM 2320B	36366		
2623707001	**BGWC-35D**	SM 4500-P	36119		
2623707002	**BGWC-16**	SM 4500-P	36119		
2623707003	**BGWC-17**	SM 4500-P	36119		
2623707004	**BGWC-18**	SM 4500-P	36119		
2623707005	**BGWC-32**	SM 4500-P	36125		
2623707006	**BGWC-19**	SM 4500-P	36125		
2623707007	**BGWC-20**	SM 4500-P	36125		
2623707001	**BGWC-35D**	SM 4500-S2 D	36187		
2623707002	**BGWC-16**	SM 4500-S2 D	36187		
2623707003	**BGWC-17**	SM 4500-S2 D	36187		
2623707004	**BGWC-18**	SM 4500-S2 D	36187		
2623707005	**BGWC-32**	SM 4500-S2 D	36187		
2623707006	**BGWC-19**	SM 4500-S2 D	36187		
2623707007	**BGWC-20**	SM 4500-S2 D	36187		
2623707001	**BGWC-35D**	SM 5310B	575018		
2623707002	**BGWC-16**	SM 5310B	575018		
2623707003	**BGWC-17**	SM 5310B	575018		
2623707004	**BGWC-18**	SM 5310B	575018		
2623707005	**BGWC-32**	SM 5310B	575018		
2623707006	**BGWC-19**	SM 5310B	575018		
2623707007	**BGWC-20**	SM 5310B	575018		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Bowen Additional Parameters	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:		Project #:	Ash Pond	Pace Profile #:	315.5

Regulatory Agency

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zinc Acetate	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (6010) *	Metals (6010/6020) **	Ortho Phosphorus (filtered)	Sulfide	Alkalinity, Bicarb	DOC (filtered)	TDS, NO3, NO2	Ammonia	TKN	TSS	BOD	Oil/ Grease	Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																	Y/N			Y			Y							
																		Analyses Test													
1	BGWC-35D	WT	G	9/26/19	0952				6	2		1	2	1					X		X	X	X	X							
2	BGWC-16	WT	G	9/26/19	0956				6	2		1	2	1					X		X	X	X	X							
3	BGWC-17	WT	G	9/26/19	1134				6	2		1	2	1					X		X	X	X	X							
4	BGWC-18	WT	G	9/26/19	1257				6	2		1	2	1					X		X	X	X	X							
5	BGWC-32	WT	G	9/26/19	1348				6	2		1	2	1					X		X	X	X	X							
6	BGWC-19	WT	G	9/26/19	1405				6	2		1	2	1					X		X	X	X	X							
7	BGWC-20	WT	G	9/26/19	1615				6	2		1	2	1					X		X	X	X	X							
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
* (6010) Fe, Mg, Mn, P, K, Na	Audrey Crafton	9/26	5:00	Cindy Mardis	9/26	5:00				
** (6010) Fe, Mg, Mn, P, K, Na, Hardness (6020) Cu, Zn	Cindy Mardis	9/27	1223	[illegible] Paige	9/27	1223				
				[illegible]	9/27/19	1315	5.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Audrey Crafton, Joe Booth

SIGNATURE of SAMPLER: Audrey Crafton DATE Signed: 9/26/19

WO# : 2623707

2623707

Pace Analytical

Sample Condition Upon Receip

WO#: 2623707

Client Name: GAPower/CCR

PM: BM Due Date: 10/04/19

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

Cooler Temperature 5.1°C Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/27/19

Temp should be above freezing to 6°C

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 23, 2019

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

RE: Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623708001	**BGWC-10**	Water	09/25/19 09:15	09/27/19 13:15
2623708002	**BGWC-12**	Water	09/25/19 14:05	09/27/19 13:15
2623708003	**BGWC-14**	Water	09/25/19 13:48	09/27/19 13:15
2623708004	**Dup-2**	Water	09/25/19 00:00	09/27/19 13:15
2623708005	**FBL 092519**	Water	09/25/19 16:24	09/27/19 13:15
2623708006	**EQBL 092519**	Water	09/25/19 16:31	09/27/19 13:15

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623708001	**BGWC-10**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623708002	**BGWC-12**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623708003	**BGWC-14**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623708004	**Dup-2**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623708005	**FBL 092519**	EPA 6010	LEC	9	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		EPA 353.2 Rev 2.0 1993	KDF1	1	PASI-A
		SM 5310B	SA1	1	PASI-O
2623708006	**EQBL 092519**	EPA 6010	LEC	9	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		EPA 353.2 Rev 2.0 1993	MFO	1	PASI-A
		SM 5310B	SA1	1	PASI-O

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

Sample: BGWC-10 **Lab ID: 2623708001** Collected: 09/25/19 09:15 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.54**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 19:21	7439-89-6	
Magnesium	**27.3**	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 19:21	7439-95-4	
Manganese	**0.065**	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 19:21	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 19:21	7723-14-0	N2
Potassium	**2.0**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 19:21	7440-09-7	
Sodium	**20.1**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 19:21	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**162**	mg/L	20.0	20.0	1		10/03/19 12:55		
Alkalinity, Total as CaCO3	**162**	mg/L	20.0	20.0	1		10/03/19 12:55		
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.78J**	mg/L	1.0	0.50	1		10/02/19 19:54		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

Sample: BGWC-12 **Lab ID: 2623708002** Collected: 09/25/19 14:05 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.082**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 19:26	7439-89-6	
Magnesium	**48.7**	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 19:26	7439-95-4	
Manganese	**0.0024J**	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 19:26	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 19:26	7723-14-0	N2
Potassium	**2.5**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 19:26	7440-09-7	
Sodium	**24.7**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 19:26	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**144**	mg/L	20.0	20.0	1		10/03/19 13:37		
Alkalinity, Total as CaCO3	**144**	mg/L	20.0	20.0	1		10/03/19 13:37		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 14:04		1A,H1
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 15:54	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 20:27		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

Sample: BGWC-14 **Lab ID: 2623708003** Collected: 09/25/19 13:48 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.032J**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 19:30	7439-89-6	
Magnesium	**43.4**	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 19:30	7439-95-4	
Manganese	**0.016**	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 19:30	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 19:30	7723-14-0	N2
Potassium	**2.8**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 19:30	7440-09-7	
Sodium	**22.7**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 19:30	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**209**	mg/L	20.0	20.0	1		10/03/19 13:42		
Alkalinity, Total as CaCO3	**209**	mg/L	20.0	20.0	1		10/03/19 13:42		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 14:05		1A,H1
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 15:55	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.66J**	mg/L	1.0	0.50	1		10/02/19 20:11		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

Sample: Dup-2 **Lab ID: 2623708004** Collected: 09/25/19 00:00 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.049**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 19:35	7439-89-6	
Magnesium	**49.1**	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 19:35	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 19:35	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 19:35	7723-14-0	N2
Potassium	**2.4**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 19:35	7440-09-7	
Sodium	**24.4**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 19:35	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**235**	mg/L	20.0	20.0	1		10/03/19 13:52		
Alkalinity, Total as CaCO3	**235**	mg/L	20.0	20.0	1		10/03/19 13:52		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 14:07		1A,H3
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 15:56	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 19:10		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

Sample: FBL 092519 **Lab ID: 2623708005** Collected: 09/25/19 16:24 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Copper	ND	mg/L	0.0050	0.0026	1	10/08/19 14:00	10/09/19 19:40	7440-50-8	
Iron	ND	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 19:40	7439-89-6	
Magnesium	ND	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 19:40	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 19:40	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 19:40	7723-14-0	N2
Potassium	ND	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 19:40	7440-09-7	
Sodium	ND	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 19:40	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	ND	mg/L	3.2	0.51	1	10/08/19 14:00	10/09/19 19:40		
Zinc	ND	mg/L	0.020	0.011	1	10/08/19 14:00	10/09/19 19:40	7440-66-6	
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/04/19 15:03		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/04/19 15:03		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**13.0**	mg/L	10.0	10.0	1		10/02/19 16:03		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	11.1	11.1	1		10/08/19 16:31		H1
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 14:07		1A,H1
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 16:05	18496-25-8	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993								
Nitrogen, NO2 plus NO3	ND	mg/L	0.040	0.017	1		10/23/19 08:31		
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 21:21		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

Sample: EQBL 092519 **Lab ID: 2623708006** Collected: 09/25/19 16:31 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Copper	ND	mg/L	0.0050	0.0026	1	10/08/19 14:00	10/09/19 19:54	7440-50-8	
Iron	ND	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 19:54	7439-89-6	
Magnesium	ND	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 19:54	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 19:54	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 19:54	7723-14-0	N2
Potassium	ND	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 19:54	7440-09-7	
Sodium	ND	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 19:54	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	ND	mg/L	3.2	0.51	1	10/08/19 14:00	10/09/19 19:54		
Zinc	ND	mg/L	0.020	0.011	1	10/08/19 14:00	10/09/19 19:54	7440-66-6	
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/04/19 15:08		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/04/19 15:08		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**15.0**	mg/L	10.0	10.0	1		10/02/19 16:03		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	10.0	10.0	1		10/08/19 16:31		H1
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 14:08		1A,H1
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 16:06	18496-25-8	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Rev 2.0 1993								
Nitrogen, NO2 plus NO3	ND	mg/L	0.040	0.017	1		10/18/19 20:59		P4
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 21:35		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

QC Batch: 576597 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 2623708001, 2623708002, 2623708003, 2623708004, 2623708005, 2623708006

METHOD BLANK: 3133444 Matrix: Water
Associated Lab Samples: 2623708001, 2623708002, 2623708003, 2623708004, 2623708005, 2623708006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Copper	ug/L	ND	5.0	2.6	10/09/19 08:23	
Iron	mg/L	ND	0.040	0.0092	10/09/19 08:23	
Magnesium	mg/L	ND	0.50	0.084	10/09/19 08:23	
Manganese	mg/L	ND	0.0050	0.00042	10/09/19 08:23	
Phosphorus	mg/L	ND	0.045	0.014	10/09/19 08:23	N2
Potassium	mg/L	ND	1.0	0.15	10/09/19 08:23	
Sodium	mg/L	ND	2.0	0.27	10/09/19 08:23	
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3210	506	10/09/19 08:23	
Zinc	ug/L	ND	20.0	11.0	10/09/19 08:23	

LABORATORY CONTROL SAMPLE: 3133445

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	240	96	80-120	
Iron	mg/L	2.5	2.5	101	80-120	
Magnesium	mg/L	12.5	12.4	100	80-120	
Manganese	mg/L	0.25	0.25	101	80-120	
Phosphorus	mg/L	0.25	0.24	95	80-120	N2
Potassium	mg/L	12.5	12.2	98	80-120	
Sodium	mg/L	12.5	12.4	100	80-120	
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	82600	100	80-120	
Zinc	ug/L	1250	1280	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3133609 3133610

Parameter	Units	2623708004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	ND	250	250	268	259	107	104	75-125	3	20	
Iron	mg/L	0.049	2.5	2.5	2.7	2.7	104	104	75-125	0	20	
Magnesium	mg/L	49.1	12.5	12.5	61.6	62.2	100	105	75-125	1	20	
Manganese	mg/L	ND	0.25	0.25	0.27	0.26	107	104	75-125	3	20	
Phosphorus	mg/L	ND	0.25	0.25	0.27	0.26	106	103	75-125	3	20	N2
Potassium	mg/L	2.4	12.5	12.5	15.5	15.6	105	105	75-125	1	20	
Sodium	mg/L	24.4	12.5	12.5	37.3	37.8	104	107	75-125	1	20	
Tot Hardness asCaCO3 (SM 2340B	ug/L	526000	82700	82700	600000	603000	90	93	75-125	0	20	
Zinc	ug/L	ND	1250	1250	1310	1270	105	102	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.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

QC Batch: 36366 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623708001, 2623708002, 2623708003, 2623708004

METHOD BLANK: 164227 Matrix: Water
Associated Lab Samples: 2623708001, 2623708002, 2623708003, 2623708004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	10/03/19 11:56	

LABORATORY CONTROL SAMPLE: 164228

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	96.0	96	85-115	

SAMPLE DUPLICATE: 164468

Parameter	Units	2623706006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	173	172	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

QC Batch: 36503 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity, Low Level
Associated Lab Samples: 2623708005, 2623708006

METHOD BLANK: 164938 Matrix: Water
Associated Lab Samples: 2623708005, 2623708006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	1.0	1.0	10/04/19 14:44	

LABORATORY CONTROL SAMPLE: 164939

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	47.5	95	85-115	

SAMPLE DUPLICATE: 164940

Parameter	Units	2623704001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	ND		10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

QC Batch: 36344
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623708005, 2623708006

LABORATORY CONTROL SAMPLE: 164074

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	419	105	84-108	

SAMPLE DUPLICATE: 164075

Parameter	Units	2623639001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	503	491	2	10	

SAMPLE DUPLICATE: 164076

Parameter	Units	2623623008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	126	119	6	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

QC Batch: 36634 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 2623708005, 2623708006

METHOD BLANK: 165502 Matrix: Water
Associated Lab Samples: 2623708005, 2623708006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	5.0	10/08/19 16:31	

LABORATORY CONTROL SAMPLE: 165503

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	99.0	99	90-110	

SAMPLE DUPLICATE: 165504

Parameter	Units	2622860001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	H1

SAMPLE DUPLICATE: 165505

Parameter	Units	2623854001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	163	190	15	10	D6

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

QC Batch: 36125 Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623708002, 2623708003, 2623708004, 2623708005, 2623708006

METHOD BLANK: 163138 Matrix: Water
Associated Lab Samples: 2623708002, 2623708003, 2623708004, 2623708005, 2623708006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	09/28/19 13:30	

LABORATORY CONTROL SAMPLE: 163139

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.51	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163140 163141

Parameter	Units	2623698004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.50	0.50	100	101	80-120	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

QC Batch: 36186 Analysis Method: SM 4500-S2 D
QC Batch Method: SM 4500-S2 D Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623708002, 2623708003, 2623708004, 2623708005, 2623708006

METHOD BLANK: 163399 Matrix: Water
Associated Lab Samples: 2623708002, 2623708003, 2623708004, 2623708005, 2623708006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	09/30/19 14:59	

LABORATORY CONTROL SAMPLE: 163400

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.51	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163401 163402

Parameter	Units	2623644003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.49	0.50	98	100	30-129	2	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

QC Batch: 504416
QC Batch Method: EPA 353.2 Rev 2.0 1993
Analysis Method: EPA 353.2 Rev 2.0 1993
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 2623708006

METHOD BLANK: 2710764 Matrix: Water
Associated Lab Samples: 2623708006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.040	0.017	10/18/19 20:57	

LABORATORY CONTROL SAMPLE: 2710765

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2710766 2710767

Parameter	Units	92448984001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.80	2.5	2.5	2.9	3.0	84	87	90-110	3	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2710768 2710769

Parameter	Units	92449201001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	18.9	2.5	2.5	23.7	26.5	191	306	90-110	11	10	M6,R1

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

QC Batch: 504958
QC Batch Method: EPA 353.2 Rev 2.0 1993
Analysis Method: EPA 353.2 Rev 2.0 1993
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 2623708005

METHOD BLANK: 2713292 Matrix: Water
Associated Lab Samples: 2623708005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.040	0.017	10/23/19 08:29	

LABORATORY CONTROL SAMPLE: 2713311

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2.5	2.5	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2713312 2713313

Parameter	Units	92449927001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.10	2.5	2.5	2.5	2.5	97	97	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2713314 2713315

Parameter	Units	92449927002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, NO2 plus NO3	mg/L	0.33	2.5	2.5	2.5	2.5	88	88	90-110	0	10	M1

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

QC Batch: 575017 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623708001, 2623708002, 2623708003, 2623708004, 2623708005, 2623708006

METHOD BLANK: 3124986 Matrix: Water
Associated Lab Samples: 2623708001, 2623708002, 2623708003, 2623708004, 2623708005, 2623708006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/02/19 15:06	

LABORATORY CONTROL SAMPLE: 3124987

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	19.0	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124988 3124989

Parameter	Units	2623704001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	0.65J	20	20	19.6	19.8	95	96	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124990 3124991

Parameter	Units	2623708004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.4	96	96	80-120	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

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
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

1A	Sample was received outside of the EPA recommended holding time or was received with insufficient time to run sample within the EPA recommended holding time.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H1	Analysis conducted outside the EPA method holding time.
H3	Sample was received or analysis requested beyond the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
P4	Sample field preservation does not meet EPA or method recommendations for this analysis.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Additional Paramet
Pace Project No.: 2623708

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623708001	**BGWC-10**	EPA 3010	576597	EPA 6010	576709
2623708002	**BGWC-12**	EPA 3010	576597	EPA 6010	576709
2623708003	**BGWC-14**	EPA 3010	576597	EPA 6010	576709
2623708004	**Dup-2**	EPA 3010	576597	EPA 6010	576709
2623708005	**FBL 092519**	EPA 3010	576597	EPA 6010	576709
2623708006	**EQBL 092519**	EPA 3010	576597	EPA 6010	576709
2623708001	**BGWC-10**	SM 2320B	36366		
2623708002	**BGWC-12**	SM 2320B	36366		
2623708003	**BGWC-14**	SM 2320B	36366		
2623708004	**Dup-2**	SM 2320B	36366		
2623708005	**FBL 092519**	SM 2320B	36503		
2623708006	**EQBL 092519**	SM 2320B	36503		
2623708005	**FBL 092519**	SM 2540C	36344		
2623708006	**EQBL 092519**	SM 2540C	36344		
2623708005	**FBL 092519**	SM 2540D	36634		
2623708006	**EQBL 092519**	SM 2540D	36634		
2623708002	**BGWC-12**	SM 4500-P	36125		
2623708003	**BGWC-14**	SM 4500-P	36125		
2623708004	**Dup-2**	SM 4500-P	36125		
2623708005	**FBL 092519**	SM 4500-P	36125		
2623708006	**EQBL 092519**	SM 4500-P	36125		
2623708002	**BGWC-12**	SM 4500-S2 D	36186		
2623708003	**BGWC-14**	SM 4500-S2 D	36186		
2623708004	**Dup-2**	SM 4500-S2 D	36186		
2623708005	**FBL 092519**	SM 4500-S2 D	36186		
2623708006	**EQBL 092519**	SM 4500-S2 D	36186		
2623708005	**FBL 092519**	EPA 353.2 Rev 2.0 1993	504958		
2623708006	**EQBL 092519**	EPA 353.2 Rev 2.0 1993	504416		
2623708001	**BGWC-10**	SM 5310B	575017		
2623708002	**BGWC-12**	SM 5310B	575017		
2623708003	**BGWC-14**	SM 5310B	575017		
2623708004	**Dup-2**	SM 5310B	575017		
2623708005	**FBL 092519**	SM 5310B	575017		
2623708006	**EQBL 092519**	SM 5310B	575017		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Bowen Additional Parameters	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:		Project #:	Ash Pond	Pace Profile #:	315.5

Regulatory Agency

State / Location: GA

SAMPLE ID
One Character per box.
(A-Z, 0-9 / , -)
Sample Ids must be unique

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zinc Acetate	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (6010) *	Metals (6010/6020) **	Ortho Phosphorus (filtered)	Sulfide	Alkalinity, Bicarb	DOC (filtered)	TDS, NO3, NO2	Ammonia	TKN	TSS	BOD	Oil/ Grease	Residual Chlorine (Y/N)
	Analyses Test																				Y			Y			Y				
1	BGWC-10	WT	G	9/25/19	0915				4	1		1	2						X				X	X							
2	BGWC-12	WT	G	9/25/19	1405				6	2		1	2	1					X		X	X	X	X							
3	BGWC-14	WT	G	9/25/19	1348				6	2		1	2	1					X		X	X	X	X							
4	DUP-2	WT	G	9/25/19	—				6	2		1	2	1					X		X	X	X	X							
5	FBL 092519	WT	G	9/25/19	1624				6	2		1	2	1					X		X	X	X	X							
6	EQBL 092519	WT	G	9/25/19	1631				6	2		1	2	1					X		X	X	X	X							
7																														
8																														
9																														
10																														
11																														
12																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* (6010) Fe, Mg, Mn, P, K, Na	Audrey Crafton	9/26	5:00	Cindy Marsh	9/26	5:00	
** (6010) Fe, Mg, Mn, P, K, Na, Hardness (6020) Cu, Zn	Cindy Marsh	9/27	1223	[illegible]	9/27	1223	
				Charles Hunter	9/27/19	1315	5.0 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Audrey Crafton, Joe Booth

SIGNATURE of SAMPLER: Audrey Crafton DATE Signed: 9/25/19

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

WO#: 2623708

2623708

Pace Analytical

Sample Condition Upon Receipt

WO#: 2623708

Client Name: GA Power CCR

PM: BM Due Date: 10/04/19

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

Cooler Temperature 5.0°C Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/27/19

Temp should be above freezing to 6°C

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

November 11, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 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,

Kevin Herring for
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623718001	**BGWC-7**	Water	09/24/19 08:58	09/27/19 13:15
2623718002	**BGWC-8**	Water	09/24/19 10:15	09/27/19 13:15
2623718003	**BGWC-9**	Water	09/24/19 12:05	09/27/19 13:15
2623718004	**BGWC-31**	Water	09/24/19 13:36	09/27/19 13:15
2623718005	**BGWC-34D**	Water	09/24/19 10:45	09/27/19 13:15
2623718006	**FBL092419**	Water	09/24/19 15:30	09/27/19 13:15
2623718007	**EQBL092419**	Water	09/24/19 15:35	09/27/19 13:15

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623718001	**BGWC-7**	EPA 6010	ATC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623718002	**BGWC-8**	EPA 6010	ATC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623718003	**BGWC-9**	EPA 6010	ATC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623718004	**BGWC-31**	EPA 6010	ATC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623718005	**BGWC-34D**	EPA 6010	ATC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623718006	**FBL092419**	EPA 6010	ATC	9	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		SM 5310B	SA1	1	PASI-O
2623718007	**EQBL092419**	EPA 6010	CS2	9	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
		SM 5310B	SA1	1	PASI-O

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

Sample: BGWC-7 **Lab ID: 2623718001** Collected: 09/24/19 08:58 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**1.1**	mg/L	0.20	0.046	1	10/08/19 14:00	10/09/19 10:32	7439-89-6	
Magnesium	**42.2**	mg/L	2.5	0.42	1	10/08/19 14:00	10/09/19 10:32	7439-95-4	
Manganese	**0.033**	mg/L	0.025	0.0021	1	10/08/19 14:00	10/09/19 10:32	7439-96-5	
Phosphorus	ND	mg/L	0.22	0.070	1	10/08/19 14:00	10/09/19 10:32	7723-14-0	N2
Potassium	**2.4J**	mg/L	5.0	0.75	1	10/08/19 14:00	10/09/19 10:32	7440-09-7	
Sodium	**17.8**	mg/L	10.0	1.4	1	10/08/19 14:00	10/09/19 10:32	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**276**	mg/L	20.0	20.0	1		10/03/19 14:00		
Alkalinity, Total as CaCO3	**276**	mg/L	20.0	20.0	1		10/03/19 14:00		
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 23:29		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

Sample: BGWC-8 **Lab ID: 2623718002** Collected: 09/24/19 10:15 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.028J**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 10:36	7439-89-6	
Magnesium	**14.7**	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 10:36	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 10:36	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 10:36	7723-14-0	N2
Potassium	**2.5**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 10:36	7440-09-7	
Sodium	**4.5**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 10:36	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**143**	mg/L	20.0	20.0	1		10/03/19 14:06		
Alkalinity, Total as CaCO3	**143**	mg/L	20.0	20.0	1		10/03/19 14:06		
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.55J**	mg/L	1.0	0.50	1		10/03/19 00:49		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

Sample: BGWC-9 **Lab ID: 2623718003** Collected: 09/24/19 12:05 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.60**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 10:43	7439-89-6	
Magnesium	**24.0**	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 10:43	7439-95-4	
Manganese	**0.12**	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 10:43	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 10:43	7723-14-0	N2
Potassium	**2.7**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 10:43	7440-09-7	
Sodium	**24.0**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 10:43	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**215**	mg/L	20.0	20.0	1		10/03/19 14:13		
Alkalinity, Total as CaCO3	**215**	mg/L	20.0	20.0	1		10/03/19 14:13		
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**1.3**	mg/L	1.0	0.50	1		10/03/19 01:21		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

Sample: BGWC-31 **Lab ID: 2623718004** Collected: 09/24/19 13:36 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**2.0**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 10:46	7439-89-6	
Magnesium	**36.7**	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 10:46	7439-95-4	
Manganese	**0.17**	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 10:46	7439-96-5	
Phosphorus	**0.053**	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 10:46	7723-14-0	N2
Potassium	**1.2**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 10:46	7440-09-7	
Sodium	**8.8**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 10:46	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**184**	mg/L	20.0	20.0	1		10/03/19 14:15		
Alkalinity, Total as CaCO3	**184**	mg/L	20.0	20.0	1		10/03/19 14:15		
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**1.3**	mg/L	1.0	0.50	1		10/03/19 01:36		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

Sample: BGWC-34D **Lab ID: 2623718005** Collected: 09/24/19 10:45 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.70**	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 10:39	7439-89-6	
Magnesium	**31.9**	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 10:39	7439-95-4	
Manganese	**0.024**	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 10:39	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 10:39	7723-14-0	N2
Potassium	**1.8**	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 10:39	7440-09-7	
Sodium	**5.7**	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 10:39	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**253**	mg/L	20.0	20.0	1		10/03/19 14:19		
Alkalinity, Total as CaCO3	**253**	mg/L	20.0	20.0	1		10/03/19 14:19		
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**2.1**	mg/L	1.0	0.50	1		10/03/19 01:07		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

Sample: FBL092419 **Lab ID: 2623718006** Collected: 09/24/19 15:30 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Copper	ND	ug/L	5.0	2.6	1	10/08/19 14:00	10/09/19 10:49	7440-50-8	
Iron	ND	mg/L	0.040	0.0092	1	10/08/19 14:00	10/09/19 10:49	7439-89-6	
Magnesium	ND	mg/L	0.50	0.084	1	10/08/19 14:00	10/09/19 10:49	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/08/19 14:00	10/09/19 10:49	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:00	10/09/19 10:49	7723-14-0	N2
Potassium	ND	mg/L	1.0	0.15	1	10/08/19 14:00	10/09/19 10:49	7440-09-7	
Sodium	ND	mg/L	2.0	0.27	1	10/08/19 14:00	10/09/19 10:49	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	ND	ug/L	3210	506	1	10/08/19 14:00	10/09/19 10:49		
Zinc	ND	ug/L	20.0	11.0	1	10/08/19 14:00	10/09/19 10:49	7440-66-6	
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/04/19 15:12		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/04/19 15:12		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/01/19 19:35		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	10.0	10.0	1		10/08/19 16:31		H1
300.0 IC anions 48hr	Analytical Method: EPA 300.0 Rev 2.1 1993								
Nitrate as N	ND	mg/L	0.10	0.060	1		10/05/19 22:10	14797-55-8	H3
Nitrate-Nitrite (as N)	ND	mg/L	0.20	0.11	1		10/05/19 22:10	7727-37-9	H3
Nitrite as N	ND	mg/L	0.10	0.050	1		10/05/19 22:10	14797-65-0	H3
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/03/19 01:50		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

Sample: EQBL092419 **Lab ID: 2623718007** Collected: 09/24/19 15:35 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Copper	ND	ug/L	5.0	2.6	1	10/08/19 16:13	10/09/19 13:55	7440-50-8	
Iron	ND	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 13:55	7439-89-6	
Magnesium	ND	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 13:55	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/08/19 16:13	10/09/19 13:55	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 13:55	7723-14-0	N2
Potassium	ND	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 13:55	7440-09-7	
Sodium	ND	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 13:55	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	ND	ug/L	3210	506	1	10/08/19 16:13	10/09/19 13:55		
Zinc	ND	ug/L	20.0	11.0	1	10/08/19 16:13	10/09/19 13:55	7440-66-6	
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/04/19 15:16		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/04/19 15:16		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/01/19 19:37		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	10.0	10.0	1		10/08/19 16:31		H1
300.0 IC anions 48hr	Analytical Method: EPA 300.0 Rev 2.1 1993								
Nitrate as N	ND	mg/L	0.10	0.060	1		10/05/19 22:25	14797-55-8	H3
Nitrate-Nitrite (as N)	ND	mg/L	0.20	0.11	1		10/05/19 22:25	7727-37-9	H3
Nitrite as N	ND	mg/L	0.10	0.050	1		10/05/19 22:25	14797-65-0	H3
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/03/19 02:05		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

QC Batch: 576597 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 2623718001, 2623718002, 2623718003, 2623718004, 2623718005, 2623718006

METHOD BLANK: 3133444 Matrix: Water
Associated Lab Samples: 2623718001, 2623718002, 2623718003, 2623718004, 2623718005, 2623718006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Copper	ug/L	ND	5.0	2.6	10/09/19 08:23	
Iron	mg/L	ND	0.040	0.0092	10/09/19 08:23	
Magnesium	mg/L	ND	0.50	0.084	10/09/19 08:23	
Manganese	mg/L	ND	0.0050	0.00042	10/09/19 08:23	
Phosphorus	mg/L	ND	0.045	0.014	10/09/19 08:23	N2
Potassium	mg/L	ND	1.0	0.15	10/09/19 08:23	
Sodium	mg/L	ND	2.0	0.27	10/09/19 08:23	
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3210	506	10/09/19 08:23	
Zinc	ug/L	ND	20.0	11.0	10/09/19 08:23	

LABORATORY CONTROL SAMPLE: 3133445

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	240	96	80-120	
Iron	mg/L	2.5	2.5	101	80-120	
Magnesium	mg/L	12.5	12.4	100	80-120	
Manganese	mg/L	0.25	0.25	101	80-120	
Phosphorus	mg/L	0.25	0.24	95	80-120	N2
Potassium	mg/L	12.5	12.2	98	80-120	
Sodium	mg/L	12.5	12.4	100	80-120	
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	82600	100	80-120	
Zinc	ug/L	1250	1280	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3133609 3133610

Parameter	Units	2623708004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	ND	250	250	268	259	107	104	75-125	3	20	
Iron	mg/L	0.049	2.5	2.5	2.7	2.7	104	104	75-125	0	20	
Magnesium	mg/L	49.1	12.5	12.5	61.6	62.2	100	105	75-125	1	20	
Manganese	mg/L	ND	0.25	0.25	0.27	0.26	107	104	75-125	3	20	
Phosphorus	mg/L	ND	0.25	0.25	0.27	0.26	106	103	75-125	3	20	N2
Potassium	mg/L	2.4	12.5	12.5	15.5	15.6	105	105	75-125	1	20	
Sodium	mg/L	24.4	12.5	12.5	37.3	37.8	104	107	75-125	1	20	
Tot Hardness asCaCO3 (SM 2340B	ug/L	526000	82700	82700	600000	603000	90	93	75-125	0	20	
Zinc	ug/L	ND	1250	1250	1310	1270	105	102	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.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

QC Batch: 576681
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Associated Lab Samples: 2623718007

METHOD BLANK: 3134011 Matrix: Water
Associated Lab Samples: 2623718007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.0092	10/09/19 12:43	
Magnesium	mg/L	ND	0.50	0.084	10/09/19 12:43	
Manganese	mg/L	ND	0.0050	0.00042	10/09/19 12:43	
Phosphorus	mg/L	ND	0.045	0.014	10/09/19 12:43	N2
Potassium	mg/L	ND	1.0	0.15	10/09/19 12:43	
Sodium	mg/L	ND	2.0	0.27	10/09/19 12:43	
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3210	506	10/09/19 12:43	
Zinc	ug/L	ND	20.0	11.0	10/09/19 12:43	

LABORATORY CONTROL SAMPLE: 3134012

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	2.5	2.5	98	80-120	
Magnesium	mg/L	12.5	12.2	98	80-120	
Manganese	mg/L	0.25	0.25	98	80-120	
Phosphorus	mg/L	0.25	0.23	92	80-120	N2
Potassium	mg/L	12.5	12.1	97	80-120	
Sodium	mg/L	12.5	12.3	98	80-120	
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	81100	98	80-120	
Zinc	ug/L	1250	1260	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3134013 3134014

Parameter	Units	2623635003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	3.1	2.5	2.5	5.6	5.6	98	100	75-125	1	20	
Magnesium	mg/L	8.6	12.5	12.5	21.1	21.2	99	101	75-125	1	20	
Manganese	mg/L	0.17	0.25	0.25	0.42	0.42	98	99	75-125	1	20	
Phosphorus	mg/L	0.083	0.25	0.25	0.33	0.33	98	99	75-125	1	20	N2
Potassium	mg/L	0.31J	12.5	12.5	13.1	13.1	102	103	75-125	0	20	
Sodium	mg/L	11.0	12.5	12.5	23.7	23.8	101	103	75-125	1	20	
Tot Hardness asCaCO3 (SM 2340B	ug/L	337000	82700	82700	418000	421000	99	102	75-125	1	20	
Zinc	ug/L		1250	1250	1240	1250	99	100	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

QC Batch: 36366 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623718001, 2623718002, 2623718003, 2623718004, 2623718005

METHOD BLANK: 164227 Matrix: Water
Associated Lab Samples: 2623718001, 2623718002, 2623718003, 2623718004, 2623718005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	10/03/19 11:56	

LABORATORY CONTROL SAMPLE: 164228

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	96.0	96	85-115	

SAMPLE DUPLICATE: 164468

Parameter	Units	2623706006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	173	172	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

QC Batch: 36503 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity, Low Level
Associated Lab Samples: 2623718006, 2623718007

METHOD BLANK: 164938 Matrix: Water
Associated Lab Samples: 2623718006, 2623718007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	1.0	1.0	10/04/19 14:44	

LABORATORY CONTROL SAMPLE: 164939

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	47.5	95	85-115	

SAMPLE DUPLICATE: 164940

Parameter	Units	2623704001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	ND		10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

QC Batch: 36295
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623718006, 2623718007

LABORATORY CONTROL SAMPLE: 163905

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	379	95	84-108	

SAMPLE DUPLICATE: 163906

Parameter	Units	2623719002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	193	190	2	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

QC Batch: 36634 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 2623718006, 2623718007

METHOD BLANK: 165502 Matrix: Water
Associated Lab Samples: 2623718006, 2623718007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	5.0	10/08/19 16:31	

LABORATORY CONTROL SAMPLE: 165503

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	99.0	99	90-110	

SAMPLE DUPLICATE: 165504

Parameter	Units	2622860001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	H1

SAMPLE DUPLICATE: 165505

Parameter	Units	2623854001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	163	190	15	10	D6

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

QC Batch: 508795
QC Batch Method: EPA 300.0 Rev 2.1 1993
Analysis Method: EPA 300.0 Rev 2.1 1993
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623718006, 2623718007

METHOD BLANK: 2731096
Matrix: Water
Associated Lab Samples: 2623718006, 2623718007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	0.060	10/05/19 19:16	
Nitrate-Nitrite (as N)	mg/L	ND	0.20	0.11	10/05/19 19:16	
Nitrite as N	mg/L	ND	0.10	0.050	10/05/19 19:16	

LABORATORY CONTROL SAMPLE: 2731097

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.5	99	90-110	
Nitrate-Nitrite (as N)	mg/L	5	4.9	99	90-110	
Nitrite as N	mg/L	2.5	2.5	99	90-110	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

QC Batch: 575018 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623718001, 2623718002, 2623718003, 2623718004, 2623718005, 2623718006, 2623718007

METHOD BLANK: 3124995 Matrix: Water
Associated Lab Samples: 2623718001, 2623718002, 2623718003, 2623718004, 2623718005, 2623718006, 2623718007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/02/19 23:00	

LABORATORY CONTROL SAMPLE: 3124996

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	18.9	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124997 3124998

Parameter	Units	2623718001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.4	19.4	95	95	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124999 3125000

Parameter	Units	2623707003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.9	19.9	97	97	80-120	0	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

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
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H1	Analysis conducted outside the EPA method holding time.
H3	Sample was received or analysis requested beyond the recognized method holding time.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2623718

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623718001	**BGWC-7**	EPA 3010	576597	EPA 6010	576709
2623718002	**BGWC-8**	EPA 3010	576597	EPA 6010	576709
2623718003	**BGWC-9**	EPA 3010	576597	EPA 6010	576709
2623718004	**BGWC-31**	EPA 3010	576597	EPA 6010	576709
2623718005	**BGWC-34D**	EPA 3010	576597	EPA 6010	576709
2623718006	**FBL092419**	EPA 3010	576597	EPA 6010	576709
2623718007	**EQBL092419**	EPA 3010	576681	EPA 6010	576722
2623718001	**BGWC-7**	SM 2320B	36366		
2623718002	**BGWC-8**	SM 2320B	36366		
2623718003	**BGWC-9**	SM 2320B	36366		
2623718004	**BGWC-31**	SM 2320B	36366		
2623718005	**BGWC-34D**	SM 2320B	36366		
2623718006	**FBL092419**	SM 2320B	36503		
2623718007	**EQBL092419**	SM 2320B	36503		
2623718006	**FBL092419**	SM 2540C	36295		
2623718007	**EQBL092419**	SM 2540C	36295		
2623718006	**FBL092419**	SM 2540D	36634		
2623718007	**EQBL092419**	SM 2540D	36634		
2623718006	**FBL092419**	EPA 300.0 Rev 2.1 1993	508795		
2623718007	**EQBL092419**	EPA 300.0 Rev 2.1 1993	508795		
2623718001	**BGWC-7**	SM 5310B	575018		
2623718002	**BGWC-8**	SM 5310B	575018		
2623718003	**BGWC-9**	SM 5310B	575018		
2623718004	**BGWC-31**	SM 5310B	575018		
2623718005	**BGWC-34D**	SM 5310B	575018		
2623718006	**FBL092419**	SM 5310B	575018		
2623718007	**EQBL092419**	SM 5310B	575018		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Bowen Additional Parameters	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:		Project #:	Ash Pond	Pace Profile #:	315.5

Regulatory Agency

State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Requested Analysis Filtered (Y/N): Y/N	Analyses Test: Metals (6010) *	Metals (6010/6020) **	Ortho Phosphorus (filtered)	Sulfide	Alkalinity, Bicarb	DOC (filtered)	TDS, NO3, NO2	Ammonia	TKN	TSS	BOD	Oil/ Grease	Residual Chlorine (Y/N)
																		Y						Y						
1	BGWC-7	WT	G	9/24/19	0858				4	1		1	2						X				X	X						
2	BGWC-8	WT	G	9/24/19	1015				4	1		1	2						X				X	X						
3	BGWC-9	WT	G	9/24/19	1205				4	1		1	2						X				X	X						
4	BGWC-31	WT	G	9/24/19	1336				4	1		1	2						X				X	X						
5	BGWC-34D	WT	G	9/24/19	1045				4	1		1	2						X				X	X						
6	FB092419	WT	G	9/24/19	1530				4	1		1	2						X				X	X						
7	EQBL092419	WT	G	9/24/19	1535				4	1		1	2						X				X	X						
8																														
9																														
10																														
11																														
12																														

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

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
* (6010) Fe, Mg, Mn, P, K, Na	Audrey Crafton	9/26	5:00	Cindy Mands	9-26	5:00				
** (6010) Fe, Mg, Mn, P, K, Na, Hardness (6020) Cu, Zn	Cindy Mands	9/27	1223	Pace	9/27	1223				
					9/27/19	1315	5.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Audrey Crafton, Joe Booth

SIGNATURE of SAMPLER: Audrey Crafton DATE Signed: 9/25/19

WO#: 2623718

2623718

Sample Condition Upon Rece

WO#: 26237 16

PM: BM Due Date: 10/04/19

CLIENT: GAPower-CCR

Pace Analytical

Client Name: GA Power

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Optional
Proj. Due Date:
Proj. Name:

Tracking #: _____

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

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214

Type of Ice: Wet Blue None

☐ Samples on ice, cooling process has begun

Cooler Temperature 5.0°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/27/19 CM

Temp should be above freezing to 6°C

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

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Field Data Required? Y / N

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)

Project 26DEHNR

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 04, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2623810

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623810

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Bowen Ash Pond
Pace Project No.: 2623810

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623810001	**BGWC-31**	Water	10/01/19 09:58	10/01/19 16:30

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond
Pace Project No.: 2623810

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2623810001	**BGWC-31**	SM 4500-P	JAD	1
		SM 4500-S2 D	KN	1

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623810

Sample: BGWC-31 **Lab ID: 2623810001** Collected: 10/01/19 09:58 Received: 10/01/19 16:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		10/02/19 12:32		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/04/19 17:06	18496-25-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623810

QC Batch: 36329
QC Batch Method: SM 4500-P
Analysis Method: SM 4500-P
Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623810001

METHOD BLANK: 164011 Matrix: Water
Associated Lab Samples: 2623810001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	10/02/19 12:29	

LABORATORY CONTROL SAMPLE: 164012

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.51	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164013 164014

Parameter	Units	2623811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.52	0.52	103	102	80-120	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623810

QC Batch: 36501
QC Batch Method: SM 4500-S2 D
Analysis Method: SM 4500-S2 D
Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623810001

METHOD BLANK: 164930 Matrix: Water
Associated Lab Samples: 2623810001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	10/04/19 15:41	

LABORATORY CONTROL SAMPLE: 164931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.50	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164932 164933

Parameter	Units	2623773004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.42	0.42	85	85	30-129	0	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623810

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2623810

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623810001	**BGWC-31**	SM 4500-P	36329		
2623810001	**BGWC-31**	SM 4500-S2 D	36501		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax	Project Name:	Plant Bowen Additional Parameters	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:		Project #:	Ash Pond	Pace Profile #:	315.5

Regulatory Agency
State / Location
GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zinc Acetate	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (6010) *	Metals (6010/6020) **	Ortho Phosphorus (filtered)	Sulfide	Alkalinity, Bicarb	DOC (filtered)	TDS, NO3, NO2	Ammonia	TKN	TSS	BOD	Oil/ Grease	Residual Chlorine (Y/N)
	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																	Y			Y									
1	BGWC-31	WT	G	10/1/19	0958				2	1				1							X	X								
2																														
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														

WO# : 2623810

2623810

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* (6010) Fe, Mg, Mn, P, K, Na	[illegible]	10/1/19	1400	Meg Millet	10/1/19	1400	
** (6010) Fe, Mg, Mn, P, K, Na, Hardness (6020) Cu, Zn	Meg Millet	10/1/19	1515	M Washington	10-1-19	15:17	
	M Washington	10-1-19	16:30	M Zalimann	10/01/19	1630	

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Joe Booth		2.0	Y	Y	Y
SIGNATURE of SAMPLER:	[signature]	DATE Signed: 10/1/19				

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power Project #

WO# : 2623810

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☑ Commercial ☐ Pace Other

Tracking #:

PM: BM Due Date: 10/08/19

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 2.0 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 10/01/19 MB

Temp should be above freezing to 6°C Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

November 11, 2019

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

RE: Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 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,

Kevin Herring for
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623811001	**BGWA-2**	Water	09/30/19 14:13	10/01/19 16:30
2623811002	**BGWA-6**	Water	09/30/19 15:14	10/01/19 16:30
2623811003	**BGWC-21**	Water	09/30/19 09:40	10/01/19 16:30
2623811004	**BGWC-24**	Water	09/30/19 11:25	10/01/19 16:30
2623811005	**BGWC-25**	Water	09/30/19 12:18	10/01/19 16:30
2623811006	**BGWA-29**	Water	09/30/19 13:42	10/01/19 16:30
2623811007	**Dup-3**	Water	09/30/19 00:00	10/01/19 16:30
2623811008	**FBL 093019**	Water	09/30/19 15:20	10/01/19 16:30
2623811009	**EQBL 093019**	Water	09/30/19 15:25	10/01/19 16:30

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623811001	**BGWA-2**	SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
2623811002	**BGWA-6**	SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
2623811003	**BGWC-21**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623811004	**BGWC-24**	EPA 6010	CS2, LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623811005	**BGWC-25**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623811006	**BGWA-29**	SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
2623811007	**Dup-3**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623811008	**FBL 093019**	EPA 6010	LEC	9	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623811009	**EQBL 093019**	EPA 6010	LEC	9	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2540D	ALW	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		SM 5310B	SA1	1	PASI-O

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Sample: BGWA-2 **Lab ID: 2623811001** Collected: 09/30/19 14:13 Received: 10/01/19 16:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		10/02/19 12:32		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/04/19 16:13	18496-25-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Sample: BGWA-6 **Lab ID: 2623811002** Collected: 09/30/19 15:14 Received: 10/01/19 16:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		10/02/19 12:35		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/04/19 16:14	18496-25-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Sample: BGWC-21 **Lab ID: 2623811003** Collected: 09/30/19 09:40 Received: 10/01/19 16:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.080**	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 22:25	7439-89-6	
Magnesium	**27.4**	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 22:25	7439-95-4	
Manganese	**0.052**	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 22:25	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 22:25	7723-14-0	N2
Potassium	**1.5**	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 22:25	7440-09-7	
Sodium	**2.4**	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 22:25	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**162**	mg/L	20.0	20.0	1		10/04/19 13:15		
Alkalinity, Total as CaCO3	**162**	mg/L	20.0	20.0	1		10/04/19 13:15		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		10/01/19 20:56		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/04/19 16:15	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/05/19 07:18		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Sample: BGWC-24 **Lab ID: 2623811004** Collected: 09/30/19 11:25 Received: 10/01/19 16:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.010J**	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 22:29	7439-89-6	
Magnesium	**186**	mg/L	10.0	1.7	20	10/08/19 14:47	10/10/19 13:53	7439-95-4	
Manganese	**5.5**	mg/L	0.10	0.0084	20	10/08/19 14:47	10/10/19 13:53	7439-96-5	
Phosphorus	**0.43**	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 22:29	7723-14-0	N2
Potassium	**11.4**	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 22:29	7440-09-7	
Sodium	**31.7**	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 22:29	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**155**	mg/L	20.0	20.0	1		10/04/19 13:26		
Alkalinity, Total as CaCO3	**155**	mg/L	20.0	20.0	1		10/04/19 13:26		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	**0.81**	mg/L	0.20	0.20	10		10/01/19 20:57		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/04/19 16:16	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.96J**	mg/L	1.0	0.50	1		10/05/19 07:36		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Sample: BGWC-25 **Lab ID: 2623811005** Collected: 09/30/19 12:18 Received: 10/01/19 16:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.36**	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 22:44	7439-89-6	
Magnesium	**24.4**	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 22:44	7439-95-4	
Manganese	**0.29**	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 22:44	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 22:44	7723-14-0	N2
Potassium	**0.84J**	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 22:44	7440-09-7	
Sodium	**1.5J**	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 22:44	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**218**	mg/L	20.0	20.0	1		10/04/19 13:34		
Alkalinity, Total as CaCO3	**218**	mg/L	20.0	20.0	1		10/04/19 13:34		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		10/01/19 20:57		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/04/19 16:16	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/05/19 07:51		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Sample: BGWA-29 **Lab ID: 2623811006** Collected: 09/30/19 13:42 Received: 10/01/19 16:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		10/02/19 12:35		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/04/19 16:18	18496-25-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Sample: Dup-3 **Lab ID: 2623811007** Collected: 09/30/19 00:00 Received: 10/01/19 16:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.077**	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 22:20	7439-89-6	
Magnesium	**27.4**	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 22:20	7439-95-4	
Manganese	**0.059**	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 22:20	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 22:20	7723-14-0	N2
Potassium	**1.5**	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 22:20	7440-09-7	
Sodium	**2.2**	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 22:20	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**165**	mg/L	20.0	20.0	1		10/04/19 13:40		
Alkalinity, Total as CaCO3	**165**	mg/L	20.0	20.0	1		10/04/19 13:40		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		10/01/19 20:54		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/04/19 16:18	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/05/19 06:38		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Sample: FBL 093019 **Lab ID: 2623811008** Collected: 09/30/19 15:20 Received: 10/01/19 16:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Copper	ND	ug/L	5.0	2.6	1	10/08/19 14:47	10/09/19 22:48	7440-50-8	
Iron	ND	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 22:48	7439-89-6	
Magnesium	ND	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 22:48	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 22:48	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 22:48	7723-14-0	N2
Potassium	ND	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 22:48	7440-09-7	
Sodium	ND	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 22:48	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	ND	ug/L	3210	506	1	10/08/19 14:47	10/09/19 22:48		
Zinc	ND	ug/L	20.0	11.0	1	10/08/19 14:47	10/09/19 22:48	7440-66-6	
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/08/19 12:50		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/08/19 12:50		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**22.0**	mg/L	10.0	10.0	1		10/04/19 20:03		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		10/08/19 16:31		H1
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		10/02/19 12:36		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/04/19 16:38	18496-25-8	
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	**0.010J**	mg/L	0.050	0.0050	1		10/11/19 08:32	14797-55-8	H1
Nitrite as N	**0.016J**	mg/L	0.050	0.011	1		10/11/19 08:32	14797-65-0	B,H1
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/05/19 08:43		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Sample: EQBL 093019 **Lab ID: 2623811009** Collected: 09/30/19 15:25 Received: 10/01/19 16:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Copper	ND	ug/L	5.0	2.6	1	10/08/19 14:47	10/09/19 22:53	7440-50-8	
Iron	ND	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 22:53	7439-89-6	
Magnesium	ND	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 22:53	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 22:53	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 22:53	7723-14-0	N2
Potassium	ND	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 22:53	7440-09-7	
Sodium	ND	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 22:53	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	ND	ug/L	3210	506	1	10/08/19 14:47	10/09/19 22:53		
Zinc	ND	ug/L	20.0	11.0	1	10/08/19 14:47	10/09/19 22:53	7440-66-6	
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/08/19 12:53		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/08/19 12:53		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**21.0**	mg/L	10.0	10.0	1		10/04/19 20:03		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		10/08/19 16:31		H1
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		10/02/19 12:37		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/04/19 17:06	18496-25-8	
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	**0.020J**	mg/L	0.050	0.0050	1		10/11/19 09:41	14797-55-8	H1
Nitrite as N	**0.017J**	mg/L	0.050	0.011	1		10/11/19 09:41	14797-65-0	B,H1, M1
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/05/19 08:57		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

QC Batch: 576632 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 2623811003, 2623811004, 2623811005, 2623811007, 2623811008, 2623811009

METHOD BLANK: 3133743 Matrix: Water
Associated Lab Samples: 2623811003, 2623811004, 2623811005, 2623811007, 2623811008, 2623811009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Copper	ug/L	ND	5.0	2.6	10/10/19 13:56	
Iron	mg/L	ND	0.040	0.0092	10/10/19 13:56	
Magnesium	mg/L	ND	0.50	0.084	10/10/19 13:56	
Manganese	mg/L	ND	0.0050	0.00042	10/10/19 13:56	
Phosphorus	mg/L	ND	0.045	0.014	10/10/19 13:56	N2
Potassium	mg/L	ND	1.0	0.15	10/10/19 13:56	
Sodium	mg/L	ND	2.0	0.27	10/10/19 13:56	
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3210	506	10/10/19 13:56	
Zinc	ug/L	ND	20.0	11.0	10/10/19 13:56	

LABORATORY CONTROL SAMPLE: 3133744

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	ug/L	250	257	103	80-120	
Iron	mg/L	2.5	2.6	105	80-120	
Magnesium	mg/L	12.5	13.0	104	80-120	
Manganese	mg/L	0.25	0.26	106	80-120	
Phosphorus	mg/L	0.25	0.25	99	80-120	N2
Potassium	mg/L	12.5	12.8	103	80-120	
Sodium	mg/L	12.5	13.2	106	80-120	
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	86400	104	80-120	
Zinc	ug/L	1250	1280	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3133745 3133746

Parameter	Units	2623752004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	ug/L	ND	250	250	265	260	106	103	75-125	2	20	
Iron	mg/L	0.22	2.5	2.5	2.8	2.8	105	103	75-125	1	20	
Magnesium	mg/L	8.5	12.5	12.5	21.6	21.3	105	103	75-125	2	20	
Manganese	mg/L	0.040	0.25	0.25	0.31	0.30	107	103	75-125	3	20	
Phosphorus	mg/L	0.019J	0.25	0.25	0.28	0.28	103	104	75-125	1	20	N2
Potassium	mg/L	0.69J	12.5	12.5	13.6	13.5	103	103	75-125	1	20	
Sodium	mg/L	118	12.5	12.5	135	131	130	102	75-125	3	20	M1
Tot Hardness asCaCO3 (SM 2340B	ug/L	107000	82700	82700	196000	191000	107	102	75-125	2	20	
Zinc	ug/L	ND	1250	1250	1280	1300	102	104	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

QC Batch: 36486 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623811003, 2623811004, 2623811005, 2623811007

METHOD BLANK: 164845 Matrix: Water
Associated Lab Samples: 2623811003, 2623811004, 2623811005, 2623811007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	10/04/19 12:28	

LABORATORY CONTROL SAMPLE: 164846

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	102	102	85-115	

SAMPLE DUPLICATE: 164847

Parameter	Units	2623698004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	153	152	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

QC Batch: 36620 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity, Low Level
Associated Lab Samples: 2623811008, 2623811009

METHOD BLANK: 165408 Matrix: Water
Associated Lab Samples: 2623811008, 2623811009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	1.0	1.0	10/08/19 12:42	

LABORATORY CONTROL SAMPLE: 165409

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	46.0	92	85-115	

SAMPLE DUPLICATE: 165410

Parameter	Units	2623811008 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	ND		10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

QC Batch: 36519 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623811008, 2623811009

LABORATORY CONTROL SAMPLE: 165036

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	409	102	84-108	

SAMPLE DUPLICATE: 165037

Parameter	Units	2623748003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	442	458	4	10	

SAMPLE DUPLICATE: 165038

Parameter	Units	2623793003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	475	497	5	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

QC Batch: 36634 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 2623811008, 2623811009

METHOD BLANK: 165502 Matrix: Water
Associated Lab Samples: 2623811008, 2623811009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	5.0	10/08/19 16:31	

LABORATORY CONTROL SAMPLE: 165503

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	99.0	99	90-110	

SAMPLE DUPLICATE: 165504

Parameter	Units	2622860001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	H1

SAMPLE DUPLICATE: 165505

Parameter	Units	2623854001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	163	190	15	10	D6

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

QC Batch: 36288 Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623811003, 2623811004, 2623811005, 2623811007

METHOD BLANK: 163887 Matrix: Water
Associated Lab Samples: 2623811003, 2623811004, 2623811005, 2623811007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	10/01/19 20:51	

LABORATORY CONTROL SAMPLE: 163888

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.52	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163889 163890

Parameter	Units	2623811007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.52	0.49	103	97	80-120	6	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

QC Batch: 36329 Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623811001, 2623811002, 2623811006, 2623811008, 2623811009

METHOD BLANK: 164011 Matrix: Water
Associated Lab Samples: 2623811001, 2623811002, 2623811006, 2623811008, 2623811009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	10/02/19 12:29	

LABORATORY CONTROL SAMPLE: 164012

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.51	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164013 164014

Parameter	Units	2623811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.52	0.52	103	102	80-120	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

QC Batch: 36501 Analysis Method: SM 4500-S2 D
QC Batch Method: SM 4500-S2 D Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623811001, 2623811002, 2623811003, 2623811004, 2623811005, 2623811006, 2623811007, 2623811008, 2623811009

METHOD BLANK: 164930 Matrix: Water
Associated Lab Samples: 2623811001, 2623811002, 2623811003, 2623811004, 2623811005, 2623811006, 2623811007, 2623811008, 2623811009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	10/04/19 15:41	

LABORATORY CONTROL SAMPLE: 164931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.50	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164932 164933

Parameter	Units	2623773004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.42	0.42	85	85	30-129	0	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

QC Batch: 36842 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623811008, 2623811009

METHOD BLANK: 166535 Matrix: Water
Associated Lab Samples: 2623811008, 2623811009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.050	0.0050	10/11/19 07:48	
Nitrite as N	mg/L	0.019J	0.050	0.011	10/11/19 07:48	

LABORATORY CONTROL SAMPLE: 166536

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	10	10.7	107	90-110	
Nitrite as N	mg/L	10	10.8	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 166537 166538

Parameter	Units	2623811008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	0.010J	10	10	10.6	10.7	106	106	90-110	0	15	H1
Nitrite as N	mg/L	0.016J	10	10	10.7	10.7	107	107	90-110	0	15	H1

MATRIX SPIKE SAMPLE: 166539

Parameter	Units	2623811009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	0.020J	10	10.7	107	90-110	H1
Nitrite as N	mg/L	0.017J	10	11.1	111	90-110	H1,M1

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

QC Batch: 575614 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623811003, 2623811004, 2623811005, 2623811007, 2623811008, 2623811009

METHOD BLANK: 3128950 Matrix: Water
Associated Lab Samples: 2623811003, 2623811004, 2623811005, 2623811007, 2623811008, 2623811009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/05/19 06:10	

LABORATORY CONTROL SAMPLE: 3128951

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	18.9	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3128952 3128953

Parameter	Units	2623811007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.4	19.3	96	95	80-120	1	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA	Pace Analytical Services - Atlanta, GA
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H1	Analysis conducted outside the EPA method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Bowen Ash Pond
Pace Project No.: 2623811

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623811003	**BGWC-21**	EPA 3010	576632	EPA 6010	576717
2623811004	**BGWC-24**	EPA 3010	576632	EPA 6010	576717
2623811005	**BGWC-25**	EPA 3010	576632	EPA 6010	576717
2623811007	**Dup-3**	EPA 3010	576632	EPA 6010	576717
2623811008	**FBL 093019**	EPA 3010	576632	EPA 6010	576717
2623811009	**EQBL 093019**	EPA 3010	576632	EPA 6010	576717
2623811003	**BGWC-21**	SM 2320B	36486		
2623811004	**BGWC-24**	SM 2320B	36486		
2623811005	**BGWC-25**	SM 2320B	36486		
2623811007	**Dup-3**	SM 2320B	36486		
2623811008	**FBL 093019**	SM 2320B	36620		
2623811009	**EQBL 093019**	SM 2320B	36620		
2623811008	**FBL 093019**	SM 2540C	36519		
2623811009	**EQBL 093019**	SM 2540C	36519		
2623811008	**FBL 093019**	SM 2540D	36634		
2623811009	**EQBL 093019**	SM 2540D	36634		
2623811001	**BGWA-2**	SM 4500-P	36329		
2623811002	**BGWA-6**	SM 4500-P	36329		
2623811003	**BGWC-21**	SM 4500-P	36288		
2623811004	**BGWC-24**	SM 4500-P	36288		
2623811005	**BGWC-25**	SM 4500-P	36288		
2623811006	**BGWA-29**	SM 4500-P	36329		
2623811007	**Dup-3**	SM 4500-P	36288		
2623811008	**FBL 093019**	SM 4500-P	36329		
2623811009	**EQBL 093019**	SM 4500-P	36329		
2623811001	**BGWA-2**	SM 4500-S2 D	36501		
2623811002	**BGWA-6**	SM 4500-S2 D	36501		
2623811003	**BGWC-21**	SM 4500-S2 D	36501		
2623811004	**BGWC-24**	SM 4500-S2 D	36501		
2623811005	**BGWC-25**	SM 4500-S2 D	36501		
2623811006	**BGWA-29**	SM 4500-S2 D	36501		
2623811007	**Dup-3**	SM 4500-S2 D	36501		
2623811008	**FBL 093019**	SM 4500-S2 D	36501		
2623811009	**EQBL 093019**	SM 4500-S2 D	36501		
2623811008	**FBL 093019**	EPA 300.0	36842		
2623811009	**EQBL 093019**	EPA 300.0	36842		
2623811003	**BGWC-21**	SM 5310B	575614		
2623811004	**BGWC-24**	SM 5310B	575614		
2623811005	**BGWC-25**	SM 5310B	575614		
2623811007	**Dup-3**	SM 5310B	575614		
2623811008	**FBL 093019**	SM 5310B	575614		
2623811009	**EQBL 093019**	SM 5310B	575614		

REPORT OF LABORATORY ANALYSIS

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Bowen Additional Parameters	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:		Project #:	Ash Pond	Pace Profile #:	315.5

Regulatory Agency: —

State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Requested Analysis Filtered (Y/N)	Analyses Test: Y/N	Metals (6010) *	Metals (6010/6020) **	Ortho Phosphorus (filtered)	Sulfide	Alkalinity, Bicarb	DOC (filtered)	TDS, NO3, NO2	Ammonia	TKN	TSS	BOD	Oil/ Grease	Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																		Y										
1	BGWA-2	WT	G	9/30/19	1413				2	1				1							X	X							
2	BGWA-6	WT	G	9/30/19	1514				2	1				1							X	X							
3	BGWC-21	WT	G	9/30/19	0940				6	2		1	2	1					X		X	X	X	X					
4	BGWC-24	WT	G	9/30/19	1125				6	2		1	2	1					X		X	X	X	X					
5	BGWC-25	WT	G	9/30/19	1218				6	2		1	2	1					X		X	X	X	X					
6	BGWA-29	WT	G	9/30/19	1342				2	1				1							X	X							
7	DUP-3	WT	G	9/30/19	—				6	2		1	2	1					X		X	X	X	X					
8	FBL 093019	WT	G	9/30/19	1520				6	2		1	2	1					X		X	X	X	X					
9	EQBL 093019	WT	G	9/30/19	1525				6	2		1	2	1					X		X	X	X	X					
10																													
11																													
12																													

WO# : 2623811

2623811

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
* (6010) Fe, Mg, Mn, P, K, Na	Audrey Crafton	10/1/2019	1400	Lee Millet	10/1/2019	1400
** (6010) Fe, Mg, Mn, P, K, Na, Hardness (6020) Cu, Zn	Lee Millet	10/1/2019	1515	MC Washington	10-1-19	15:17
	MC Washington	10-1-19	16:30	M Lalman	10/01/19	1630

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Audrey Crafton, Joe Booth

SIGNATURE of SAMPLER: Audrey Crafton DATE Signed: 9/30/19

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

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power Project # _____

WO#: 2623811

PM: BM Due Date: 10/08/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☑ Commercial ☐ Pace Other

Tracking #: _____

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

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 2.0 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 10/01/19 MP

Temp should be above freezing to 6°C

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