Georgia Power Company
Plant Yates – Ash Ponds 3, A, B, and B'

40 C.F.R. PART 257.96

Newnan, Georgia

Coweta County

ASSESSMENT OF CORRECTIVE MEASURES REPORT

Atlantic Coast Consulting, Inc.

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Prepared by

Atlantic Coast Consulting, Inc.

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LIST OF ACRONYMS

ACC	Atlantic Coast Consulting, Inc.
ACM	Assessment of Corrective Measures
AP	Ash Pond
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
EPRI	Electric Power Research Institute
GA EPD	Georgia Environmental Protection Division
GPC	Georgia Power Company
GWPS	Groundwater Protection Standard
ISS	In-Situ Stabilization/Solidification
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MNA	Monitored Natural Attenuation
NPDES	National Pollutant Discharge Elimination System
P.E.	Professional Engineer
P.G.	Professional Geologist
PRB	Permeable Reactive Barrier
SCS	Southern Company Services
Site	AP-3, AP-A, AP-B, and AP-B'
SSI	Statistically Significant Increases
SSL	Statistically Significant Level
SRB	Sulfate Reducing Bacteria
S.U.	Standard Units
US EPA	United States Environmental Protection Agency

1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (US EPA) Coal Combustion Residuals (CCR) Rule 40 Code of Federal Regulations (CFR) 257 Subpart D and the Georgia Environmental Protection Division (GA EPD) Rules of Solid Waste Management 391-3-4-.10, Atlantic Coast Consulting, Inc. (ACC) has prepared this assessment of corrective measures (ACM) report for Georgia Power Company's (GPC) Plant Yates Ash Ponds (AP) AP-3, AP-A, AP-B, and AP-B'. As required by 40 CFR 257.96 and the Georgia Rules 391-3-4-.10(6)(a), this ACM evaluates potential corrective measures to address a statistically significant level (SSL) of beryllium in one well (YGWC-33S) associated with the multi-unit groundwater monitoring network at ponds AP-3, AP-A, AP-B, and AP-B' (Site).

Statistical evaluations of groundwater monitoring data collected during the first detection monitoring event completed in October 2017 identified statistically significant increases (SSIs) of Appendix III groundwater monitoring parameters above background concentrations. In accordance with 40 CFR 257.94(e), Georgia Power initiated an assessment monitoring program and monitoring wells were sampled for Appendix IV parameters. Statistical analysis of the analytical data identified an SSL of beryllium in well YGWC-33S. Table 1, Appendix IV Statistically Significant Levels, provides data related to the statistical exceedance.

As discussed in the *2018 Annual Groundwater Monitoring and Corrective Action Report,* in September 2018, an additional well (YAMW-1) was installed to further characterize hydrogeologic conditions in the vicinity of well YGWC-33S. This new well and an existing downgradient well, PZ-35, were sampled in October 2018. Data from both locations confirm that the vertical and lateral extent of beryllium concentrations above the GWPS is limited to the immediate vicinity of YGWC-33S. Installation of these wells has been documented in the facility Operating Record pursuant to 40 CFR 257.91(e)(1).

This ACM is the first step in identifying the most viable corrective measure(s) to address groundwater at the Site. Based on the results of the ACM, further evaluation may be performed, site-specific studies completed, and a final corrective action plan developed and implemented pursuant to 40 CFR 257.97 and 257.98 and Georgia Rule 391-3-4-.10(6)(a).

1.1 Purpose

The primary purpose of this ACM is to begin the process of selecting the most viable corrective measure(s). This process may be composed of multiple components that will eliminate or reduce the migration of CCR constituents in groundwater in the affected area. The assessment of corrective measures, as stated in 40 CFR 257.96, is intended to prevent further migration, remediate impact(s), and restore the affected area to original conditions. The ACM will analyze the performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination; the time required to begin and complete the remedy; and the institutional requirements that may substantially affect the implementation of the remedy.

This ACM presents potential remedies to meet the objectives of 40 CFR 257.96(a) using the criteria specified in 40 CFR 257.96(c). The remedy evaluation in this ACM considers the following criteria:

- Performance

- Reliability
- Ease of Implementation
- Potential impacts of the remedy
- Time required to begin and complete the remedy
- Institutional, environmental, and public health requirements

This ACM includes an examination of potential sources of impact, further analysis of the nature and extent of impacted groundwater, and an evaluation of potential corrective measures. Based on the results of the ACM, further evaluation will be performed, and site-specific studies completed. If additional viable remedies are identified following the collection of new data, an addendum to this ACM presenting the additional potential correct measure(s) will be prepared. Once additional data have been collected and evaluated, the results of the ACM will be presented in a public meeting at least 30 days prior to the selection of a final remedy.

1.2 Site Location and Description

Plant Yates is located at 708 Dyer Road, on the east bank of the Chattahoochee River in Coweta County, Georgia near the Coweta and Carroll County line, approximately 8 miles northwest of the city of Newnan and 13 miles southeast of the city of Carrollton. Figure 1, Site Location Map, depicts the site location referenced to regional landmarks. Plant Yates was once a coal-fired power generating facility but was converted to natural gas combustion turbines in 2014. Plant Yates was built after World War II and originally had seven coal-fired steam generating units (Units 1 – 7). Units 1 through 5 were retired in 2015 following approval by the Georgia Public Service Commission through the company's 2013 Integrated Resource Plan. The two largest units (Units 6 and 7) were converted from coal to natural gas and remain in service.

1.3 Ash Pond Closure

Plant Yates is comprised of multiple CCR units which are in the process of closing in accordance with federal and state regulations. Ash ponds associated with this multi-unit groundwater monitoring network are currently being consolidated within the footprints of AP-3 and AP-B'. Ash removal has been completed for AP-A and is underway for AP-B. A Professional Engineer (P.E.) certified Notification of Intent to Initiate Closure for AP-3, B, and B' was completed on April 20, 2018. A P.E. certified 3-year Notice of Intent to Close AP-A and AP-2 were completed on December 7, 2015 and April 16, 2019, respectively.

2.0 HYDROGEOLOGIC CONDITIONS

2.1 Site Location and Description

The following sections summarizes the geologic and hydrogeologic conditions at the Site as described by Golder Associates (2017). The site and the groundwater monitoring network are presented on Figure 2, Site Plan and Monitoring Well Location Map.

2.2 Geology

At the Site, a thin layer of soil from one to two feet thick overlies a thick layer of saprolite. The saprolite, which extends to typical depths of 20-40 feet below ground surface, was formed from the physical and chemical weathering of the underlying metamorphic rocks. There is typically a

zone of variable thickness (approximately 5-20 feet) of weathered rock between the saprolite and competent bedrock. Localized alluvial soils consisting of generally coarser material (silty-sand, clayey silt, and silty clay with well-rounded gravel and cobbles) than that observed in saprolite may be related to former Chattahoochee River channel migration. Rock types present at the site include granitic/migmatitic gneiss, interlayered biotite gneiss/amphibolite, and muscovite schist all of which have highly variably mineralogy, texture and chemistry. Residual soils developed from weathering of these rock types may have variable geochemical characteristics.

Relatively hard migmatitic granite occurs within the gneiss and may exhibit a lesser degree of weathering and localized fault deflection. Amphibolites are interlayered within the gneissic lithologies. Porphyroblastic schist is observed in multiple borings and is readily discernable from the other lithogic units at the site. Based on a review of lithologic units described by Golder Associates, Inc. (2017), there are significant differences in rock type at the facility that may result in localized geochemical signatures in groundwater. The presence of ultramafic bodies (e.g. amphibolites) contribute to higher background concentrations of metals where present. Weathering of minerals occurring in schist such as garnets and staurolite may result in elevated levels of iron, manganese, calcium and zinc in groundwater. Additionally, weathering of sulfide minerals such as pyrite has the potential to alter groundwater pH and lead to increased mineral solubility.

2.3 Hydrogeology and Groundwater Flow

The facility lies within the Piedmont Physiographic Province, which characteristically has moderate rolling hills that are steeply cut with surface water drainages. Groundwater flow is directed toward a topographically low area, on which the ponds are located, formed by a tributary to the Chattahoochee River. Shallow groundwater is typically encountered slightly above the saprolite/weathered rock interface. The average depth of the water table at Plant Yates varies with topography (ranges of between approximately 5 to 50 feet below ground surface). Rock becomes increasing competent with depth and movement of groundwater occurring only in fractures (i.e. secondary porosity). Recharge to the water-bearing zones in fractured bedrock takes place by seepage through the overlying mantle of soil/saprolite, or by direct entrance through openings in outcrops. A recent water table elevation contour map showing overall flow directions is provided in Figure 3, Water Table Contour Map.

Groundwater flow in the upper aquifer is under unconfined conditions and the water table is typically noted in the saprolite near the bedrock interface. Deeper groundwater flow is within the fractured bedrock and along discontinuities. Groundwater flow direction in the upper aquifer is controlled by topography and by surface drainage features. The general site-wide groundwater flow direction is from the east-northeast to west-southwest. Groundwater flow within the uppermost aquifer is from three directions; south to north, southeast to northwest and east to west. These three flow directions are controlled somewhat by the former surface water drainage swale that meandered from the southeast corner of the site, around the southeast and south corners of the R6. A small, perennial stream, which originates less than a mile across from Hwy. 27, flows onto the facility property from the south and southeast and is routed around the R6 Landfill, then flowing into impoundment AP-2. Surface water discharge from AP-2 to the Chattahoochee River is regulated by a Georgia National Pollutant Discharge Elimination System (NPDES) permit No. GA0001473.

An extensive network of piezometers and groundwater monitoring wells at the site (Figure 2) provide a robust water level data set. Periodic water level data measured for several years

indicate a well-defined groundwater flow direction at the site; flow occurs from the side slopes of topographic highs towards the central valley and AP-2 (Figure 3). Dewatering of ash ponds at the site will temporarily depress the groundwater elevations, but the flow pattern is expected to remain topography-driven towards stream discharge areas.

3.0 NATURE AND EXTENT DELINEATION

3.1 Groundwater Monitoring & Constituents of Concern

In accordance with 40 CFR 257.91, a groundwater monitoring system was installed at the site, based on the characterization of site-specific hydrogeologic conditions. The well network was certified by a P.E. on October 17, 2017 (amended to include AP-A on April 17, 2019); the certification is maintained in the Operating Record. The certified compliance monitoring well network for the multi-unit system consists of a total of 13 monitoring wells: 8 upgradient wells and 5 downgradient wells. Additionally, there are 5 non-network wells utilized for water level measurements or non-routine sample collection. The locations of the compliance monitoring wells are shown on Figure 2; well construction details are listed in Table 2A, Monitoring Network Well Summary and Table 2B, Non-Network Well Summary.

In accordance with 40 CFR 257.94, eight baseline sampling events were completed at the site. Following the first detection monitoring event in October 2017, statistically significant increases of Appendix III parameters were noted. The Appendix III SSIs initiated assessment monitoring for Appendix IV constituents, with the initial Appendix IV scan sampling event occurring in April 2018, and subsequent semiannual monitoring events for Appendix III and the detected Appendix IV constituents occurring in June and October 2018. Baseline sampling data and semi-annual data have been presented in the 2017 and 2018 Annual Groundwater Monitoring and Corrective Action Plan Reports. Data for the first half of 2019 are summarized in Table 3A, Summary of Groundwater Analytical Data – March 2019 and Table 3B, Summary of Groundwater Analytical Data – April 2019. Laboratory Analytical reports for 2019 data are provided in Appendix A, Laboratory Analytical Reports.

Statistical analysis of the June and October 2018 analytical data identified an SSL for beryllium in one well, YGWC-33S. In accordance with 40 CFR 257.95(g), a notification identifying the SSL was prepared and placed in the Operating Record on November 14, 2018. Pursuant to 40 CFR 257.96, an assessment of corrective measures was initiated on January 13, 2019.

To assess the extent of groundwater protection standard (GWPS) exceedances identified in 2018, two additional groundwater monitoring wells, PZ-35 and YAMW-1, were sampled in 2018 to provide additional data for characterizing groundwater quality downgradient of this well. Analytical reports for these samples are included in Appendix A.

3.2 Field Investigation Activities

The facility has completed the actions included in 40 CFR 257.95(g)(1)(i – iv), including the installation of horizontal and vertical extent assessment wells (PZ-35 and YAMW-1). These well locations are approximately 515 feet downgradient from YGWC-33S between YGWC-36 and YGWC-24S creating a very narrow inter-well spacing of approximately 235 feet directly downgradient of YGWC-33S. The location of YGWC-33S is narrowly constrained to an area between R6 Landfill and the former footprint of AP-B'. Therefore, delineation wells YAMW-1 and

PZ-35 provide appropriate representations to constraint the spatial and vertical extent of beryllium in groundwater near well YGWC-33S.

3.3 Summary of Results

Since the start of background monitoring in June 2016, the beryllium concentrations of YGWC-33S have ranged between 0.012 to 0.024 milligrams per liter (mg/L). Statistical analysis of the data indicates that the level is an SSL above the GWPS of 0.004 mg/L. Groundwater data from the assessment wells show non-detect beryllium or concentrations less than the reporting limit for beryllium (0.003 mg/L), which is below the GWPS for beryllium and confirms the limited downgradient extent of beryllium in groundwater. Beryllium data from the September 2018 sampling event for YGWC-33S, YAMW-1, and PZ-35 are summarized in Table 4, Recent Beryllium Concentrations.

The only SSL for an Appendix IV constituent (beryllium at YGWC-33S) is isolated to a single location in the middle of Plant Yates (i.e. data indicate full delineation and no migration to the site boundary). Data from two assessment monitoring locations (PZ-35 and YAMW-1) directly confirm the limited horizontal and vertical extent of beryllium in the vicinity of YGWC-33S. YGWC-33S is located between Pond B and R6 Landfill and is within the boundary of the multi-unit (Figures 2 and 3). Groundwater monitoring wells YGWC-24S and YGWC-36 are located downgradient at respective distances of approximately 500 and 650 feet. These locations have not produced samples with detections of beryllium above the reporting limit. Assessment monitoring locations (PZ-35 and YAMW-1) were installed at the approximate mid-point of YGWC-24S and YGWC-36 in order to narrow the downgradient well spacing to further confirm that migration of beryllium beyond the monitoring network is not occurring.

A total of 44 additional network groundwater monitoring wells are present upgradient, sidegradient, and downgradient to this location to further confirm that the nature and extent of beryllium in groundwater is limited to a small area wholly contained within the plant property. Spatial and vertical delineation of beryllium in groundwater is completed. Additionally, AP-2 is located directly downgradient and its network further confirms the beryllium SSL only occurs in a small area near well YGWC-33S. Therefore, there is no offsite migration of beryllium in groundwater.

As shown in Figure 4, Historical Groundwater Elevation - YGWC-33S, groundwater levels declined sharply during early 2018. This decline is in response to dewatering activities related to site closure. Subsequent increases in groundwater levels are due to higher-than-normal rainfall totals recorded in 2018. Nonetheless, dewatering is anticipated to continue to lower the groundwater levels over a longer period of time during closure activities. As discussed in the following sections, dewatering appears to be a potential transient influence on groundwater geochemistry.

3.4 Potential Sources

Beryllium may originate from naturally occurring sources or CCR material. Certain conditions such as low pH may mobilize beryllium from either source. Beryllium mobility in soil and groundwater is typically limited by its strong tendency to adsorb to solid phases or to precipitate as beryllium hydroxide. Complete removal of beryllium from solution by adsorption can occur at and above pH of approximately 5.5 (Electric Power Research Institute [EPRI], 2006). Groundwater monitoring well YGWC-33S exhibited a relatively low (compared to site and regional background) pH of 3.97

standard units (S.U.) in September 2018 indicating the potential for increased beryllium solubility. The following sections discuss the potential sources of beryllium in groundwater.

3.4.1 Natural Occurrence

Concentrations of beryllium in soils can be locally enriched due to the presence of certain minerals (including multiple beryllium bearing silicate minerals present in the Piedmont Physiographic Province) (EPRI, 2006). The average concentration of beryllium in United States soil is 0.63 milligrams per kilogram (mg/kg) (Shackelette and Boerngen, 1984 and Eckel and Langley, 1998), but has been reported at levels up to 30.5 mg/kg in southeastern Piedmont soils (Anderson et al., 1990). Beryllium compounds in soil tend to remain in an insoluble form and are usually not found in high concentrations in groundwater or surface water under natural soil conditions (USEPA, 2003). However, low pH conditions such as those present at YGWC-33S may act to increase solubility.

3.4.2 CCR

The average concentration of beryllium in coal and coal ash is 2.13 mg/kg (Finkelman et al., 1994 and Palmer et al., 2015). This level is greater than the average for soil, but within the broad range of southeastern Piedmont soil concentrations. Beryllium is typically not detected in CCR leachate unless low pH conditions are present (EPRI, 2006). Therefore, only a CCR impact that coincides with a low (or high) pH condition would be anticipated to produce significant concentrations of beryllium in groundwater.

3.4.3 Closure Activities

Regardless of the source, beryllium is more soluble at lower pH levels (Kram et al., 1998). Closure construction activities may create transient geochemical changes. Based on a review of data collected beginning in 2016, pH levels for YGWC-33S have generally decreased while beryllium concentrations have generally increased (Table 5, Summary of Historical Beryllium and pH Results).

As part of the pond closure in progress at the Site, source control measures have begun with CCR removal and consolidation. The September 2018 pH level of 3.97 S.U. may be influenced by removal of material in Ponds A and B and/or by dewatering activities (i.e. the decreasing pH level also corresponds to the lower groundwater elevation trend illustrated in Figure 4). Field pH and beryllium levels for YGWC-24S, YGWC-36, PZ-35 and YAMW-1 along with data from YGWC-33S were included in the 2018 Annual Groundwater Monitoring and Corrective Action Report (ACC, 2019). The pH levels (pooled range of 5.45 to 6.30 S.U.) for the downgradient locations are consistently higher than those measured at YGWC-33S (3.97 to 5.07 S.U.). Consistent with the beryllium data, the area of lower pH is limited to the immediate vicinity of YGWC-33S.

4.0 GROUNDWATER CORRECTIVE MEASURES

This section describes potentially applicable corrective measures for groundwater based on screening criteria specified in 40 CFR 257.96(c) and 40 CFR 257.97(b). Table 6, Remedy Evaluation Summary provides a summary of remedial evaluations. Potential groundwater corrective action remedies include:

- Geochemical Manipulation (In-Situ Injection)
- Grouting
- Hydraulic Containment (Pump and Treat);

- In-situ Solidification/Stabilization
- Monitored Natural Attenuation
- Permeable Reactive Barriers; and
- Phytoremediation
- Subsurface Vertical Barrier Walls

Additional data will be collected from the Site and the following corrective measures may be further evaluated to select a remedy or combination of remedies suitable for the Site.

4.1 SOURCE CONTROL MEASURES

Source control is being implemented as part of the closure process and not specifically intended as a corrective measure. However, there is a strong potential for source control to limit future impact and improve groundwater quality. Source control at Plant Yates will be a process that ultimately results in a significant reduction in the footprint of CCR material. Removal of CCR has been initiated for AP-A and AP-B; removal will also ultimately be completed for AP-2. When closure is complete, CCR material will be consolidated within the footprints of AP-3 and AP-B' and will have engineered closures including capping and positive drainage that will ultimately result in less stormwater accumulation and infiltration. It is anticipated that this will benefit groundwater quality throughout the site.

Source control is a direct means of mitigating the source of beryllium at the facility. Permanent closure and footprint consolidation will require dewatering activities for an extended period of time (i.e. 5 – 10 years). Dewatering will result in transient gradient changes that may temporarily alter groundwater conditions and potentially complicate the implementation of some potential remedies.

During the closure process, institutional controls, (e.g. perimeter fencing, locking of monitoring wells and erosion control) are continually implemented. These controls limit the accessibility of the area and restrict activities that may result in unacceptable risk. Institutional controls are effective in prevention of exposure to potentially contaminated media.

4.2 Summary of Corrective Measures

4.2.1 Geochemical Manipulation (In-Situ Injection)

Chemical injection can be utilized to alter groundwater conditions to lower metal solubility. Reactive chemicals are introduced into groundwater and soil for the primary purpose of rapid and complete metal precipitation. This may involve adjustment of pH to higher levels while maintaining an adequate buffering capacity in groundwater to limit the upward extent of the pH range (i.e. at levels above 10 S.U. solubility begins to increase).

As discussed in Section 3, beryllium trends toward insolubility in its hydroxide form that occurs a near neutral pH. According to EPRI (2006), a precipitate which is formed in solution at near neutral pH will co-precipitate beryllium to some extent. Treatments that utilize iron or aluminum hydroxide precipitation at near-neutral pH are expected to be highly effective in immobilizing beryllium in a solid matrix. The adjustment of pH may be achieved by the injection of Portland cement or lime.

As an alternative to pH adjustment by injection of basic chemicals, research has demonstrated an increase in pH by stimulating naturally occurring sulfate reducing bacteria (SRB) to remediate pH sensitive metals such as beryllium in groundwater. Organic substrates such as organic acids (e.g. lactate) act to increase native SRB activity. The process of sulfate reduction consumes hydrogen ions and produces bicarbonate leading to increased pH (Miao, Z. et al, 2012).

Some additional routine data collection (e.g. alkalinity) would be desirable post-treatment to ensure conditions remain favorable for low beryllium solubility. Adjustment of pH would be anticipated to occur relatively quickly, with long term monitoring (i.e. similar considerations as monitored natural attenuation).

4.2.2 Hydraulic Containment (Pump and Treat)

Hydraulic containment may control potential hazards by eliminating risk pathways or reducing the rate of exposure to acceptable risk levels through containment of impacted groundwater migration. Groundwater withdrawal by pumping from extraction wells (or trenches) is used to remove beryllium mass and provide hydraulic control. Used alone, containment reduces mobility, but may not necessarily reduce the toxicity or volume of beryllium in groundwater. Hydraulic containment requires periodic monitoring to evaluate effectiveness.

The effluent may require treatment for compliance with regulatory requirements. Permits may be required for the withdrawal and re-injection (if used) of water, and the chemistry of the effluent after treatment would need to be compatible with the NPDES permit. Options for treatment of effluent may include pH adjustment, precipitation technologies (i.e. flocculation), adsorption on reactive media (e.g. activated alumina, ferric oxide, zeolite, etc), ion exchange, membrane filtration, or biological treatment.

Regulatory requirements and institutional controls may be greater for hydraulic containment than some of the other corrective measures. Hydraulic containment would be anticipated to become effective within a short period following construction (2 – 4 years).

4.2.3 In Situ Stabilization/Solidification

In Situ Stabilization/Solidification (ISS), also referred to as single-auger mixing or deep soil mixing, uses a crane-mounted auger system to drill into affected soils and uniformly mix the soils with cement to create a monolith (stabilization) or other appropriate chemical additives to chemically bind constituents within the solid matrix *(st*abilization). ISS can also be achieved by a cutter head on an excavator if treatment depths are not too great. Additional equipment utilized for treatment primarily consists of a grout mixing plant, a grout pump, and a mixing rig designed to encapsulate the constituents in a monolithic solid of high structural integrity, thereby minimizing constituent migration. This corrective measure would be anticipated to become effective within a short period following construction (2 – 4 years). However, ISS would not be directly effective if the source of beryllium is naturally occurring in aquifer materials. Some indirect benefit may still occur if pH is increased in the vadose zone soils. Due to the high percentage of fine-grained soil in the aquifer material, as documented in the soil samples collected during permitting of the Gypsum Stack Landfill (SCS, 1990), the ability to distribute media used to solidify/stabilize in heterogeneous porous media may be limited.

4.2.4 Monitored Natural Attenuation

The U.S. Environmental Protection Agency defines monitored natural attenuation (MNA) as the reliance on natural attenuation processes (within the context of a carefully controlled and

monitored site cleanup approach) to achieve site-specific remediation objectives within a time frame that is reasonable compared to that offered by other more active methods (USEPA 1999). The natural attenuation processes that are at work in such a remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, bioavailability, mobility, volume, or concentration of constituents in soil or groundwater. These in-situ processes include biodegradation; dispersion; dilution; sorption; volatilization; radioactive decay; and chemical or biological stabilization, transformation, or destruction of constituents (USEPA, 1995).

Attenuation mechanisms are either physical (e.g. dilution, dispersion, flushing, and related processes) or chemical. Dilution and dispersion may be appropriate as a polishing step (e.g., at the boundaries of a plume, when source control is complete, an active remedy is being used at the Site, and appropriate land use and groundwater controls are in place). Chemical attenuation of inorganic constituents may be possible through biogeochemical processes that lead to co-precipitation of metals with iron hydroxides or sequestration in sediments (Miller, 2011). Bacterial activity may occur in native groundwater but may also benefit from geochemical manipulation (as described in Section 4.2.2).

Removal of beryllium from solution approaches 100% as pH increases to a neutral range. For example, beryllium has an increased affinity for solids at pH 6 that is 10,000 times its affinity at pH 2 (EPRI, 2006). Common chemical mechanisms of attenuation for beryllium include adsorption to, or coprecipitation with, oxides, hydroxides, nitrate, or acetate (EPRI, 2006).

Constituent trend analysis of the delineated area and review of field parameters along with groundwater flow path indicate that the occurrence of beryllium is naturally attenuating by chemical processes (i.e. increased pH) and physical processes (i.e. dilution and dispersion). The preliminary evaluation suggests increased solubility of beryllium corresponds to relatively low pH within the delineated area. The concentrations of beryllium attenuate downgradient due to the increase in pH along the flow path. Dilution and dispersion may be acting as a subsequent step after a gradual pH increase. Additional subsurface and analytical data will be used to develop a conceptual geochemical model and make further evaluations on the attenuation mechanisms such as sorption, precipitation, dispersion, and dilution. These evaluations will assist in the development of the best corrective measure to supplement the natural attenuation of beryllium at the site. Long term groundwater monitoring will likely be necessary.

4.2.5 Permeable Reactive Barriers

Permeable Reactive Barriers (PRB) are reactive media designed to intercept and remediate impacted groundwater. The design of PRBs varies depending on the nature and extent of the impact. A trench/continuous wall approach can be used to apply remediation evenly over a wide area. Alternatively, a funnel and gate approach can be used to channel flow and concentrate remediation over a smaller area. The reactive media used in the PRB will vary depending on the reactive qualities of the impacted groundwater. Properties of groundwater such as pH can be adjusted through contact with the PRB media. Reactive media used to address beryllium could include limestone (i.e. limestone drain) to raise the total alkalinity concentration and raise pH (Naftz et al, 2003).

However, maximum trenching depths are limited by the presence of bedrock at the site. There is a possibility that the groundwater flow may be redirected to pass beneath the barrier and into fractured bedrock and therefore bypassing the PRB. Therefore, alteration of subsurface hydraulics (flow) may be a potential impact of this remedy. Additionally, because reactive media

are expended and/or may clog over time, future replacement of reactive media may be necessary.

A PRB wall could potentially reduce beryllium concentrations to below groundwater protection standards downgradient of the wall. However, due to the presence of bedrock at the Site, implementation may be difficult. Aquifer testing would be needed to better understand the localized groundwater flow dynamics (e.g. pumping tests). Because of required laboratory treatability studies on the reactive media, and depth of the wall, time to implement the remedy is estimated to be 2 to 4 years.

4.2.6 Phytoremediation

Phytoremediation is the use of plants to remove, transfer or stabilize constituents in soil or groundwater. Plants may remove constituents from groundwater from either direct plant uptake and metabolization or by microbial degradation in the root zone. For metals remediation, plants can be used to enhance groundwater quality by phytoaccumulation, which is the process of uptake and storage of constituents in the root systems. Phytoremediation is particularly effective in areas of relatively shallow groundwater constituent plumes, where the root zones of the plants can intercept the plume. Various plant species are known to hyperaccumulate certain metals; however beryllium has not been extensively studied. There is current research examining ways to increase resistance to beryllium toxicity in plants (Tanveer, M. and Wang, L.).

Engineered phytoremediation systems can be designed to promote downward root growth and target removal of constituents from groundwater even if a hyperaccumulating plant species cannot be identified. For example, TreeWell® technology-based remediation allows treatment of impacted groundwater. The system uses a root sleeve liner that directs root development to the targeted depth in groundwater while restricting lateral root growth. The root system intakes groundwater creating flow through treatment media. Remediation processes typically take place in the treatment media (both anaerobic and aerobic) before the water reaches the tree roots in the aerobic vadose zone.

This is a viable option based on site hydrogeologic conditions and may be evaluated along with MNA and select amendments for pH adjustment to facilitate biogeochemical processes for the removal of beryllium from groundwater at the site.

4.2.7 Subsurface Vertical Barrier Walls

Barrier walls are used to physically control the migration of impacted groundwater. They may be used to either directly contain impacted groundwater by isolating it or to manipulate the flow direction of groundwater. Vertical barriers should be keyed into a lower permeability layer (ideally the lower vertical boundary of the aquifer).

Barrier walls used alone can produce groundwater mounding, with possible rise of groundwater to the surface, or groundwater flow around the end of the barrier walls. Additionally, due to the geologic conditions of the Site, the potential for groundwater to migrate beneath the barrier wall in fractured bedrock would need to be addressed. However, barrier walls could be used to improve the subsurface hydraulic (flow) conditions for other technologies (i.e. PRB walls and pump-and-treat). Impermeable barrier walls can be used to direct groundwater to the treatment gates containing reactive media or to direct groundwater toward pumping wells in a pump-and-treat system. Since this is a physical corrective action it could become effective within a short period following construction (2 – 4 years). However, since it would likely need to be used in

conjunction with another corrective measure, time to completion would be based on the other corrective measure.

5.0 REMEDY SELECTION PROCESS

The purpose of this ACM is to begin the process of selecting corrective measure(s) for groundwater based on further evaluation using the criteria outlined in 40 CFR 257.96(c) and Georgia Rule 391-3-4-.10(6)(a). The following sections present the interim pond closure and site management strategy, additional data gathering, schedule, reporting, and next steps.

5.1 Pond Closure and Site Management Strategy

GPC plans to close the unit by excavation and consolidation of CCR material within the footprints of AP-3 and AP-B' providing source control. During the pond closure, temporary changes in site conditions may occur. Additionally, the site conceptual model may need to be refined and/or updated from the current understanding as more data are collected. GPC plans to proactively utilize adaptive site management to support the remedial strategy and address potential changes in site conditions as appropriate. Under an adaptive site management strategy, a remedial approach will be selected whereby: (1) a corrective measure will be installed or implemented to address current conditions; (2) the performance of the corrective measure will be monitored, evaluated, and reported semiannually; (3) the site conceptual model will be updated as more data are collected; and (4) adjustment and augmentation will be made to the corrective measure(s), as needed, to assure that performance criteria and site remedial goals are met.

5.2 Additional Data Gathering

Additional data, data analysis, and site-specific evaluation are necessary to refine the conceptual site model and to further evaluate the feasibility of each corrective measure presented herein such that an appropriate groundwater corrective measure may be selected. Some of the data needed to refine the conceptual site model may be collected concurrently with routine groundwater monitoring events under the assessment monitoring program, or during supplementary sampling, if required. However, additional data collection that includes aquifer testing, groundwater modeling, material compatibility testing, bench scale studies, and pilot tests may require an estimated one to two additional years to complete. Once sufficient data are available to arrive at a focused number of corrective measures or a combination of corrective measures that would provide an effective groundwater remedy, necessary steps will be taken to implement a remedy at the site in accordance with 40 CFR 257.98.

5.3 Schedule

It is anticipated that additional data collection will begin in 2019. GPC will prepare semiannual reports to document site groundwater conditions, results associated with additional data gathering identified in Section 5.2 and in Table 6, and the progress in selecting and designing the remedy in accordance with 40 CFR 257.97(a). The reports will be posted to GPC's website.

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

has been selected, the implementation of the remedy will be initiated in accordance with 40 CFR 257.98.

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TABLES

Table 1
Appendix IV Statistically Significant Levels
Plant Yates Ash Ponds 3, A, B, and B'
Newnan, Georgia

Constituent	Well	Upper Confidence Limit	Lower Confidence Limit	MCL
Beryllium	YGWC-33S	0.018	0.0142	0.004

Notes:

1. Units are milligrams per liter
2. MCL = maximum contaminant level
3. Data are from *2018 Groundwater Monitoring and Corrective Action Report.*

Table 2A
Monitoring Network Well Summary
Plant Yates
Newnan, Georgia

Well ID	Installation Date (mm/dd/yyyy)	Bottom Depth (ft BTOC)	Bottom Elevation (ft MSL)	Depth to Top of Screen (ft BTOC)	Top of Screen Elevation (ft MSL)	Purpose
YGWA-4I	05/21/2014	48.70	735.48	38.70	745.48	Upgradient
YGWA-5I	05/21/2014	57.60	726.93	47.60	736.93	Upgradient
YGWA-5D	05/21/2014	128.80	655.73	78.80	705.73	Upgradient
YGWA-17S	09/10/2015	40.10	742.93	30.10	752.93	Upgradient
YGWA-18S	09/08/2015	40.30	750.23	30.30	760.23	Upgradient
YGWA-18I	09/08/2015	80.00	710.56	70.00	720.56	Upgradient
YGWA-20S	09/29/2015	29.52	737.78	19.52	747.78	Upgradient
YGWA-21I	09/28/2015	80.35	703.27	70.35	713.27	Upgradient
YGWC-23S	09/21/2015	29.79	734.83	19.79	744.83	Downgradient
YGWC-24S	09/16/2015	57.57	706.55	47.57	716.55	Downgradient
YGWC-33S	03/03/2016	38.53	706.01	28.53	716.01	Downgradient
YGWC-36	07/20/2016	55.86	683.67	45.86	693.67	Downgradient
YGWC-49	07/13/2016	78.50	703.89	68.50	713.89	Downgradient

Notes:
1. ft BTOC indicates feet below top of casing.
2. ft MSL indicates feet mean sea level.

Table 2B
Non-Network Well Summary
Plant Yates
Newnan, Georgia

Well ID	Installation Date (mm/dd/yyyy)	Bottom Depth (ft BTOC)	Bottom Elevation (ft MSL)	Depth to Top of Screen (ft MSL)	Top of Screen Elevation (ft MSL)	Purpose
YGWA-6S	05/19/2014	39.55	742.73	29.55	752.73	Piezometer
YGWA-6I	05/19/2014	69.00	713.58	59.00	723.58	Piezometer
YAMW-1	07/20/2016	68.40	675.73	58.40	685.73	Downgradient
PZ-35	09/19/2018	49.40	694.34	39.40	704.34	Downgradient
PZ-48	07/12/2016	58.70	721.12	48.70	731.12	Piezometer

Notes:
1. ft BTOC indicates feet below top of casing.
2. ft MSL indicates feet mean sea level.

Table 3A
Summary of Groundwater Analytical Data
March 2019

Substance		MCL/ (SMCL)	YGWA-4I	YGWA-5I	YGWA-5D	YGWA-17S	YGWA-18S	YGWA-18I	YGWA-20S	YGWA-21I
			3/4/2019	3/4/2019	3/4/2019	3/5/2019	3/5/2019	3/6/2019	3/5/2019	3/5/2019
Appendix IV	Antimony	0.006	ND	ND	ND	ND	ND	ND	ND	ND (0.0011 J)
	Arsenic	0.01	ND	ND	ND	ND	ND	ND	ND	ND (0.0013 J)
	Barium	2	0.016	0.019	ND (0.0077 J)	0.015	0.020	0.024	0.016	0.011
	Beryllium	0.004	ND	ND	ND	ND (0.000091 J)	ND (0.000079 J)	ND	ND (0.00011 J)	ND
	Cadmium	0.005	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	0.1	ND	ND	ND	ND	ND	ND	ND	ND
	Cobalt	N/R	ND	ND	ND	ND	ND	ND	ND	ND (0.0039 J)
	Fluoride	4	ND	ND	ND (0.19 J)	ND	ND	ND	ND	0.32
	Lead	0.015	ND	ND	ND	ND	ND	ND	ND	ND
	Lithium	N/R	ND (0.015 J)	ND (0.0032 J)	ND (0.0065 J)	ND	ND (0.0031 J)	ND (0.0033 J)	ND	ND (0.0053 J)
	Mercury	0.002	ND	ND	ND	ND	ND	ND	ND	ND
	Molybdenum	N/R	ND	ND	ND	ND	ND	ND	ND	ND
	Radium	5	1.21 U	1.00 U	4.43	0.272 U	0.474 U	0.714 U	0.840 U	0.985 U
	Selenium	0.05	ND	ND	ND	ND	ND	ND	ND	ND
	Thallium	0.002	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

1. MCL indicates Environmental Protection Agency (EPA) and Georgia Environmental Protection Division (EPD) maximum contaminant level.

2. (SMCL) indicates a secondary MCL that is established by EPA as a general guidline only (not enforced).

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

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

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

6. N/R indicates a substance does not have an MCL or SMCL, but will be further evaluated statistically, as required by EPA's CCR rule.

7. TDS indicates total dissolved solids.

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

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

Table 3A
Summary of Groundwater Analytical Data
March 2019

Substance		MCL/ (SMCL)	YGWC-23S	YGWC-24S	YGWC-33S	YGWC-36
			3/6/2019	3/5/2019	3/6/2019	3/6/2019
Appendix IV	Antimony	0.006	ND	ND	ND	ND (0.0011 J)
	Arsenic	0.01	ND	ND	ND (0.0022 J)	ND
	Barium	2	0.019	0.019	0.012	0.041
	Beryllium	0.004	ND (0.000066 J)	ND (0.00016 J)	0.023	ND (0.00029 J)
	Cadmium	0.005	ND	ND	0.0030	ND (0.00015 J)
	Chromium	0.1	ND	ND	ND	ND
	Cobalt	N/R	ND	ND	0.028	ND
	Fluoride	4	ND	ND	0.49	ND
	Lead	0.015	ND	ND	ND (0.0012 J)	ND
	Lithium	N/R	ND (0.0025 J)	ND	ND (0.033 J)	ND (0.0057 J)
	Mercury	0.002	ND	ND	ND	ND
	Molybdenum	N/R	ND	ND	ND	ND
	Radium	5	0.736 U	0.837 U	0.970 U	0.919 U
	Selenium	0.05	0.019	ND	0.013	ND (0.0033 J)
	Thallium	0.002	ND	ND	ND (0.00016 J)	ND

Notes:

1. MCL indicates Environmental Protection Agency (EPA) and Georgia Environmental Protection Division (EPD) maximum contaminant level.
2. (SMCL) indicates a secondary MCL that is established by EPA as a general guidline only (not enforced).
3. Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
4. ND (Not Detected) indicates the substance was not detected above the laboratory method detection limit (MDL).
5. ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instrument could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated value.
6. N/R indicates a substance does not have an MCL or SMCL, but will be further evaluated statistically, as required by EPA's CCR rule.
7. TDS indicates total dissolved solids.
8. U indicates the substance was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value. Therefore, the value followed by U is qualified by the laboratory as estimated.
9. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring.

Table 3B
Summary of Groundwater Analytical Data
April 2019

Substance		MCL/ (SMCL)	YGWA-4I	YGWA-5I	YGWA-5D	YGWA-17S	YGWA-18S	YGWA-18I	YGWA-20S	YGWA-21I
			4/3/2019	4/3/2019	4/3/2019	4/2/2019	4/3/2019	4/3/2019	4/3/2019	4/2/2019
Appendix III	Boron	N/R	ND (0.0055 J)	ND (0.0044 J)	ND (0.0076 J)	ND (0.0066 J)	ND (0.0053 J)	ND	ND	ND (0.011 J)
	Calcium	N/R	8.4	2.8	ND (24.7 J)	2.5	1.2	5.3	2.9	8.8
	Chloride	(250)	4.3	4.2	4.0	4.8	6.3	6.9	3.1	2.5
	Fluoride	4	ND	ND	ND (0.047 J)	ND	ND	ND	ND	ND (0.12 J)
	Sulfate	(250)	8.5	2.1	7.0	5.1	1.3	ND (0.82 J)	ND (0.12 J)	3.8
	TDS	(500)	111	83.0	142	72.0	63.0	89.0	57.0	134
Appendix IV	Antimony	0.006	ND	ND	ND	ND	ND	ND	ND	ND (0.0011 J)
	Arsenic	0.01	ND	ND	ND	ND	ND	ND	ND	ND (0.00096 J)
	Barium	2	0.017	0.023	ND (0.0087 J)	0.016	0.017	0.025	0.018	0.011
	Beryllium	0.004	ND	ND	ND	ND (0.000090 J)	ND (0.000075 J)	ND	ND (0.000064 J)	ND
	Cadmium	0.005	ND	ND	ND	ND	ND	ND	ND	ND
	Cobalt	N/R	ND (0.00083 J)	ND	ND	ND	ND	ND	ND	ND (0.0039 J)
	Lead	0.015	ND	ND	ND	ND	ND	ND	ND	ND
	Lithium	N/R	ND (0.014 J)	ND (0.0035 J)	ND (0.0070 J)	ND	ND (0.0028 J)	ND (0.0035 J)	ND	ND (0.0051 J)
	Radium	5	1.07 U	0.430 U	4.79	0.847 U	0.429 U	0.385 U	1.01	1.42
	Selenium	0.05	ND	ND	ND	ND	ND	ND	ND	ND
	Thallium	0.002	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

1. MCL indicates Environmental Protection Agency (EPA) and Georgia Environmental Protection Division (EPD) maximum contaminant level.

2. (SMCL) indicates a secondary MCL that is established by EPA as a general guidline only (not enforced).

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

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

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

6. N/R indicates a substance does not have an MCL or SMCL, but will be further evaluated statistically, as required by EPA's CCR rule.

7. TDS indicates total dissolved solids.

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

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

10. Well added to monitoring network in April 2019.

Table 3B
Summary of Groundwater Analytical Data
April 2019

Substance		MCL/ (SMCL)	YGWC-23S 4/4/2019	YGWC-24S 4/4/2019	YGWC-33S 4/4/2019	YGWC-36 4/4/2019	YGWC-49 3/28/2019
Appendix III	Boron	N/R	0.60	ND	15.4	0.22	ND
	Calcium	N/R	3.7	1.9	163	ND (16.9 J)	ND (11.3 J)
	Chloride	(250)	1.7	5.9	5.8	5.4	4.4
	Fluoride	4	ND (0.049 J)	ND (0.033 J)	0.57	ND (0.043 J)	ND
	Sulfate	(250)	27.9	ND (0.29 J)	847	119	82.8
	TDS	(500)	85.0	63.0	1260	240	164
Appendix IV	Antimony	0.006	ND	ND	ND	0.0041	See Note 10
	Arsenic	0.01	ND	ND	ND (0.0024 J)	ND	
	Barium	2	0.019	0.020	0.014	0.042	
	Beryllium	0.004	ND (0.000072 J)	ND (0.00015 J)	0.025	ND (0.00033 J)	
	Cadmium	0.005	ND	ND	0.0035	ND (0.00019 J)	
	Cobalt	N/R	ND	ND	0.031	ND	
	Lead	0.015	ND	ND	ND (0.0014 J)	ND (0.00037 J)	
	Lithium	N/R	ND (0.0018 J)	ND	ND (0.035 J)	ND (0.0058 J)	
	Radium	5	0.474 U	0.502 U	1.14	1.05 U	
	Selenium	0.05	0.017	ND	0.012	ND (0.0029 J)	
	Thallium	0.002	ND	ND	ND (0.00018 J)	ND	

Notes:

1. MCL indicates Environmental Protection Agency (EPA) and Georgia Environmental Protection Division (EPD) maximum contaminant level.

2. (SMCL) indicates a secondary MCL that is established by EPA as a general guidline only (not enforced).

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

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

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

6. N/R indicates a substance does not have an MCL or SMCL, but will be further evaluated statistically, as required by EPA's CCR rule.

7. TDS indicates total dissolved solids.

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

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

10. Well added to monitoring network in April 2019.

Table 4
Recent Beryllium Concentrations
Plant Yates Ash Ponds 3, A, B, and B'
Newnan, Georgia

Well	Concentration	MCL
YGWC-33S	0.024	0.004
YAMW-1	ND	0.004
PZ-35	ND (0.00036 J)	0.004

Notes:

1. Units are milligrams per liter
2. MCL = maximum contaminant level
3. Data are from *2018 Groundwater Monitoring and Corrective Action Report.*
4. ND (Not Detected) indicates the substance was not detected above the laboratory method detection limit (MDL).
5. ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instrument could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated value.

Table 5
Summary of Historical Beryllium and pH Results
Plant Yates Ash Ponds 3, A, B, and B'
Newnan, Georgia

Well	Date	Beryllium (mg/L)	pH (S.U)
YGWC-33S	6/8/2016	0.0120	5.07
YGWC-33S	8/1/2016	0.0146	4.62
YGWC-33S	9/21/2016	0.0149	4.63
YGWC-33S	11/14/2016	0.0152	4.35
YGWC-33S	1/17/2017	0.0142	4.16
YGWC-33S	3/1/2017	0.0150	4.17
YGWC-33S	5/3/2017	0.0154	4.19
YGWC-33S	7/10/2017	0.0143	4.02
YGWC-33S	3/30/2018	0.0180	4.05
YGWC-33S	9/26/2018	0.0240	3.97
YAMW-1	10/16/2018	ND	6.03
PZ-35	10/16/2018	ND (0.00036 J)	5.60

Notes:

1. mg/L = milligrams per liter
2. S.U. = Standard Units
4. ND (Not Detected) indicates the substance was not detected above the laboratory method detection limit (MDL).
5. ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instrument could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated value.

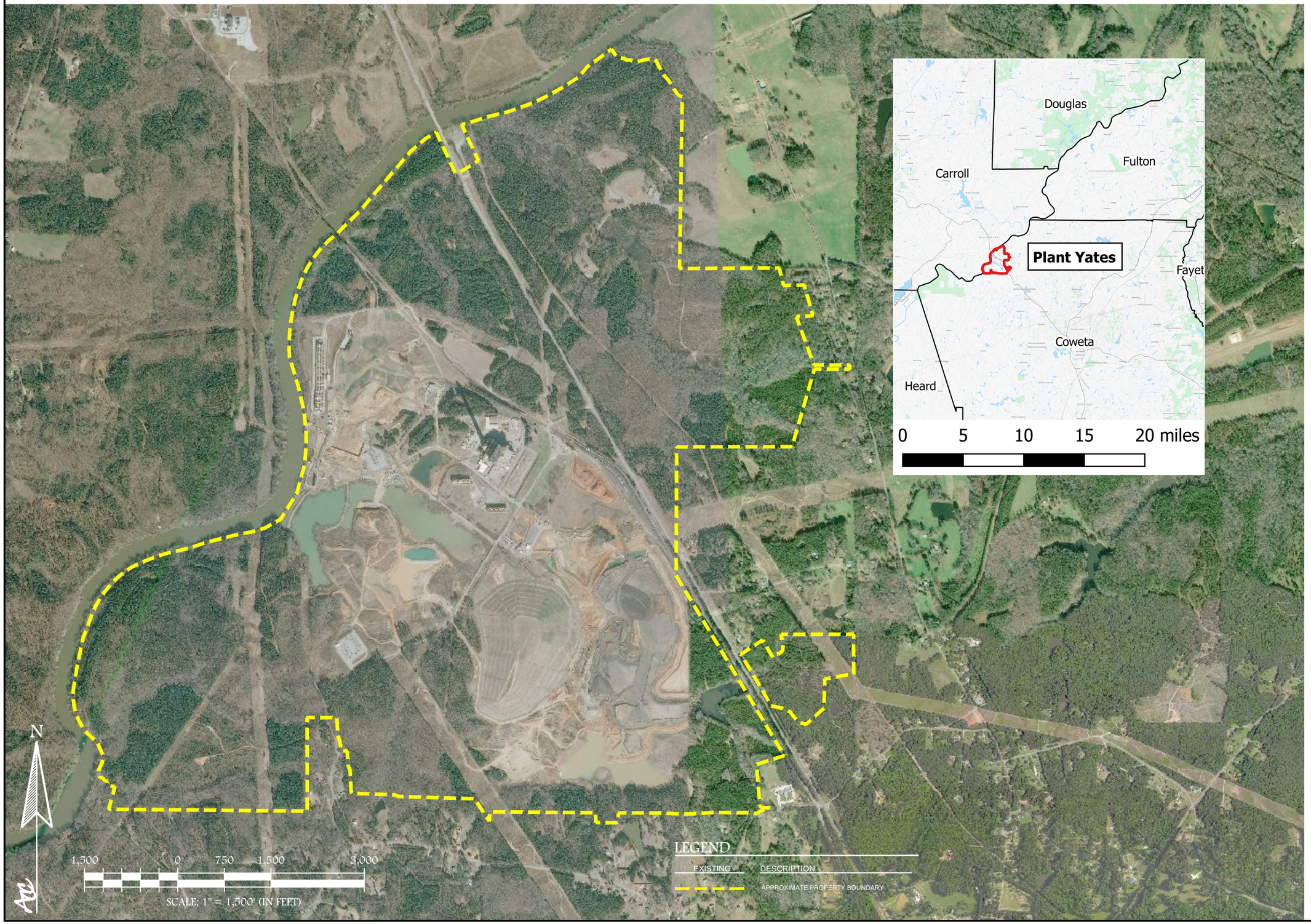
Table 6
Remedy Evaluation Summary
Plant Yates Ash Ponds 3, A, B, and B'
Newnan, Georgia

Corrective Measure	Description	Ease of Implementation	Performance	Potential Impacts	Reliability
		40 CFR 257.96(c)(1)	40 CFR 257.96(c)(1)	40 CFR 257.96(c)(1)	40 CFR 257.96(c)(1)
Geochemical Manipulation (In Situ Injection)	Injection of a chemical or organic substrate to alter geochemical conditions to those more favorable for stabilization of beryllium. In this case an injection that would increase the pH to the 6-8 range is desirable.	This process is not substantially limited by implementation. Bench testing and pilot testing can be used to optimize implementation.	This process has the potential to alter conditions rapidly but requires ongoing monitoring to ensure conditions remain favorable.	Non-hazardous chemicals used for pH adjustment will not create undesirable byproducts. High pH conditions (> 10) must be avoided due to increased solubility of beryllium at higher pH levels.	This process will likely have overall reliability in achieving GWPS goals when adequate volume and subsurface distribution are achieved. Ongoing monitoring is necessary to ensure favorable conditions are maintained once achieved.
Hydraulic Containment (Pump and Treat)	Combines a groundwater extraction system with a surface treatment system to remove target analytes from the subsurface and/or to control/prevent constituent migration.	Relative ease in implementation compared to other technologies.	Groundwater Pump & Treat is an effective corrective measure for dissolved constituents provided regular maintenance is performed throughout the operational life. Not typically immediately effective for trace level metals. Rebounding can occur as water levels return to normal once the pumping system is turned off post-remediation. Generally, requires disposal of treated water and sludges.	Groundwater Pump & Treat is more effective with constituents that are easily oxidized (low boiling point) and less effective with inorganic compounds (metals).	This technology provides moderate reliability by hydraulically controlling migration of the beryllium groundwater plume.
In-Situ Stabilization/Solidification	In situ stabilization is achieved by creating reactive zones in the subsurface through chemical injection to intercept constituents and permanently immobilize or degrade them into harmless end products. In-situ solidification is the process by which constituent mobility in a solid matrix is decreased through physical and/or chemical means. Grout or other chemical additives are mixed with aquifer materials to reduce permeability. The resulting lower aquifer permeability limits the flow of impacted groundwater.	Relative ease in implementation compared to other technologies; however, stabilization is likely not suitable due to high percentage of fine-grained materials in aquifer.	Performance would need to be assessed through pilot testing. May need to be used in conjunction with an additional technology. This treatment may reduce the permeability of the aquifer with precipitation of beryllium hydroxides.	Treatment may result in the stabilization of beryllium, however, increases in the solubility of non-target metals need to be considered. Can result in undesirably high pH levels if geochemical buffering system is not maintained.	The reliability of this technology is limited by the ability to distribute media used to solidify/stabilize in heterogeneous porous media. Fine-grained materials limit viability of stabilization.
Monitored Natural Attenuation	A remedial solution that takes advantage of natural attenuation processes to attenuate constituents in soil and groundwater. This option can meet the GWPS given sufficient time and favorable conditions.	This process is not limited by implementation.	This process provides ongoing effectiveness and is well documented as an effective measure for remediating groundwater	This process is effective in reducing toxicity, mobility, and concentrations of beryllium via natural processes.	This process will likely have overall reliability in achieving GWPS goals where impacted area remains internal to the site and is adequately monitored.
Permeable Reactive Barrier	A permeable reactive barrier is a zone of reactive material that extends below the water table to intercept and treat groundwater.	Depth to bedrock may make this technology challenging to implement.	This technology may have a limited reactive lifespan and is only effective for specific constituents Marginally effective over long periods of time without replacement of PRB material. The approach is expected to achieve GWPS for both constituents as impacted groundwater passes through the reactive barrier.	This technology may reduce the toxicity, mobility or volume of metals in groundwater through precipitation of the metal(s) as oxides in the reactive media.	This technology may not provide reliability in the site-specific lithology due to difficulty in interception groundwater flow though fractured bedrock.
Phytoremediation	Phytoremediation is the use of plants to remove, transfer or stabilize constituents in soil or groundwater. This technology can meet the GWPS for low level metal concentrations present in shallow groundwater.	The depth of the treatment zone is limited with this technology.	May be directly effective by hyperaccumulation of some metals, however phytoaccumulation is directly related to the plant species. Beryllium may need to be addressed by a method that does not involve direct uptake of impacted groundwater (i.e. traditional phytoremediation). An alternative method such as a TreeWell® system may need to be considered.	This technology is expected to marginally reduce the mobility or volume of inorganic constituents with the uptake of beryllium in the root system of the plant. Alternatively, plant root systems may be used to alter flow hydraulics and direct groundwater through a treatment media.	The presence of impacted groundwater below typical root zones and the lack of a readily identified beryllium hyperaccumulating plant species would need to be addressed for phytoremediation to be a reliable technology.
Subsurface Vertical Barrier Walls	Used to physically control the migration of impacted groundwater. They may be used to either directly contain impacted groundwater by isolating it or to manipulate the flow direction of groundwater.	Ideally the lower depth would achieve a low permeability zone. This may not be viable given the relatively deeply fractured nature of bedrock at the facility.	May need to be used in conjunction with an additional technology such as a permeable reactive barrier or pump-and-treat.	Potential mounding of groundwater, creating possible changes in flow direction or daylighting of seepage.	The reliability of this technology is limited by the ability to manage changes in the flow direction and hydraulic head of groundwater.

Table 6 (Continued)
Remedy Evaluation Summary
Plant Yates Ash Ponds 3, A, B, and B'
Newnan, Georgia

Corrective Measure	Begin/Complete	Institutional Requirements	Other Env or Public Health Requirements	Relative Costs
	40 CFR 257.96(c)(2)	**40 CFR 257.96(c)(3)**	**40 CFR 257.96(c)(3)**	
Geochemical Manipulation (In Situ Injection)	Can begin immediately upon completion of pilot testing and/or bench scale testing, which may take up to 24 months. Long-term monitoring and reporting likely required.	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 waterbodies, there currently appear to be no potential receptors downgradient of the units. Following installation, the remedy is passive.	Moderate costs are associated with this technology.
Hydraulic Containment (Pump and Treat)	Time needed to model and design may take up to 24 months; variable time for construction depending on scale, generally can be accomplished in 6 months.	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 if groundwater conditions are above regulatory standards for unrestricted use.	Based on downgradient sampling results near adjacent waterbodies, there currently are no complete receptor pathways downgradient of the units. Above-ground treatment components may need to be present for an extended period, and generating residuals requiring management and disposal.	High costs are associated with this technology (O&M and groundwater disposal).
In-Situ Stabilization/Solidification	Time needed to model and design may take up to 24 months; variable time for construction depending on scale, generally can be accomplished relatively quickly between 6 and 12 months. Solidification is likely not suitable due to high percentage of fine-grained materials in aquifer.	Deed restrictions may be necessary for groundwater areas downgradient of the stabilized and/or solidified areas. No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent waterbodies, there currently appear to be no potential receptors downgradient of the unit. Following implementation of ISS, this source control remedy is passive, does not create carbon emissions, and preserves groundwater resources.	Moderate costs are associated with this technology (repeat injections if there is a rebound in concentrations).
Monitored Natural Attenuation	Can begin immediately. Long-term monitoring and reporting likely required.	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 waterbodies, there currently are no complete receptor pathways downgradient of the units.	Relatively lower capital costs are associated with this technology.
Permeable Reactive Barrier	Time needed to model and design may take up to 24 months; variable time for construction depending on scale, generally can be accomplished in 6 to 12 months.	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 waterbodies, there currently are no complete receptor pathways downgradient of the unit. Following installation, the remedy is passive. However, certain treatment media have the potential to mobilize naturally occurring constituents downgradient of the PRB.	High capital costs are associated with this technology.
Phytoremediation	Time needed to model and design may take up to 6 months. Pilot testing may be required, which could take up to three years. Depending on the number of required units, the installation effort is expected to last several weeks. Full hydraulic capture/control is expected approximately three years after planting.	Deed restrictions may be necessary for groundwater areas upgradient of the phytoremediation area or *TreeWell®* system. No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent waterbodies, there currently are no complete receptor pathways downgradient of the units. Innovative and green technology may be positively received by various stakeholders. Following installation, the remedy is passive and does not require external energy.	Relatively lower costs are associated with this technology. May require periodic harvesting and disposal of plant species.
Subsurface Vertical Barrier Walls	Time needed to model and design may take up to 24 months. Variable time for construction depending on scale, generally can be accomplished relatively quickly between 6 and 12 months.	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 waterbodies, there currently appears to be no potential receptors downgradient of the unit. Due to the need for groundwater extraction associated with barrier walls, above-ground treatment components may need to be present for an extended period, creating carbon emissions and generating residuals requiring management and disposal	High capital costs are associated with this technology.

FIGURES



ATLANTIC COAST CONSULTING, INC.
630 Colonial Park Dr.
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Roswell, GA 30075
o 770.594.5998
www.atlcc.net

PROJECT:

PLANT YATES

708 DYER ROAD
NEWNAN, GEORGIA

REVISIONS

Drawn by: MM

Checked by: EP

PROJECT NUMBER:

I054-110

May 2019

SITE LOCATION MAP

FIGURE 1

ATLANTIC COAST CONSULTING, INC.
630 Colonial Park Dr.
Suite 110
Roswell, GA 30075
o 770.594.5998
www.atlcc.net

PROJECT:

PLANT YATES

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NEWNAN, GEORGIA

REVISIONS

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May 2019

SITE PLAN AND MONITORING WELL LOCATION MAP

FIGURE 2

P:\Industrial\I054 - Southern Company\110 - Groundwater Consulting Services 2018 - 2021\Plant Yates\2019 AP-3-B-B' ACM\Figures\Plant Yates May 2019 ACM Map For AP-3,A,B,B'.dwg 2019-05-09 MATT MALONE

Summary of Groundwater Elevations
Plant Yates
R6, Ash Ponds 3, A, B/B`
March 2019 Sampling Event

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YAMW-1	70.53	743.76	12.08	731.68
YGWA-4I	49.70	784.18	19.03	765.15
YGWA-5I	58.50	784.53	15.49	769.04
YGWA-5D	131.60	784.53	22.57	761.96
YGWA-17S	39.91	783.03	11.05	771.98
YGWA-18S	39.86	790.53	17.15	773.38
YGWA-18I	79.67	790.56	20.78	769.78
YGWA-20S	29.71	767.30	11.10	756.20
YGWA-21I	80.07	783.62	*	755.96
YGWA-39	68.50	817.99	22.41	795.58
YGWA-40	48.35	815.63	23.82	791.81
YGWC-23S	39.18	764.62	*	748.55
YGWC-24S	57.01	764.12	26.67	737.45
YGWC-33S	38.73	744.54	*	731.32
YGWC-36	60.00	739.53	*	729.53
YGWC-38	50.12	799.45	*	770.48
YGWC-41	67.70	803.83	25.62	778.21
YGWC-42	60.00	797.75	25.45	772.30
YGWC-43	80.00	744.99	14.08	730.91
YGWC-49	79.00	782.72	29.34	753.38
PZ-04S	33.57	784.53	20.65	763.88
PZ-05S	42.65	784.64	15.40	769.24
YGWA-6S	39.60	782.28	16.62	765.66
YGWA-6I	69.10	782.58	17.17	765.41
PZ-06D	136.34	781.93	20.12	761.81
PZ-24I	89.60	764.33	27.63	736.70
PZ-37	46.90	760.53	*	744.07
PZ-48	59.00	779.88	18.04	761.84

Notes: Depths to water measured within a 24-hour period March 25-26, 2019.
ft MSL = feet mean sea level
ft BTOC = feet below top of casing
*Depth to water recorded from transducer reading on March 25, 12:00 pm.

Summary of Groundwater Elevations
Plant Yates
Ash Pond 2
March 2019 Sampling Event

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-1I	54.93	836.48	32.65	803.83
YGWA-1D	128.60	837.13	45.08	792.05
YGWA-2I	65.74	866.15	41.40	824.75
YGWA-3I	60.00	796.33	52.28	744.05
YGWA-3D	137.10	796.70	28.63	768.07
YGWA-14S	35.82	748.77	13.39	735.38
YGWA-30I	59.65	762.59	35.68	726.91
YGWC-26S	40.10	716.20	18.39	697.81
YGWC-26I	69.71	715.91	22.39	693.52
YGWC-27S	40.26	716.66	25.44	691.22
YGWC-27I	79.84	716.23	25.98	690.25
YGWC-28S	44.85	717.92	21.64	696.28
YGWC-28I	69.89	717.89	21.94	695.95
YGWC-29I	39.46	717.24	25.28	691.96
PZ-01S	36.74	836.74	28.63	803.78
PZ-03S	42.87	796.21	32.52	763.69
PZ-13S	43.52	807.89	32.15	775.74
PZ-13I	60.80	807.72	35.89	771.83
PZ-14I	53.26	749.11	15.03	734.08
PZ-25S	56.80	766.50	35.04	731.46
PZ-25I	84.20	766.25	36.48	729.77
PZ-31S	36.60	738.79	14.16	724.63

Notes: Depths to water measured within a 24-hour period March 25-26, 2019.
ft MSL = feet mean sea level
ft BTOC = feet below top of casing

Summary of Groundwater Elevations
Plant Yates
Gypsum Storage Facility
March 2019 Sampling Event

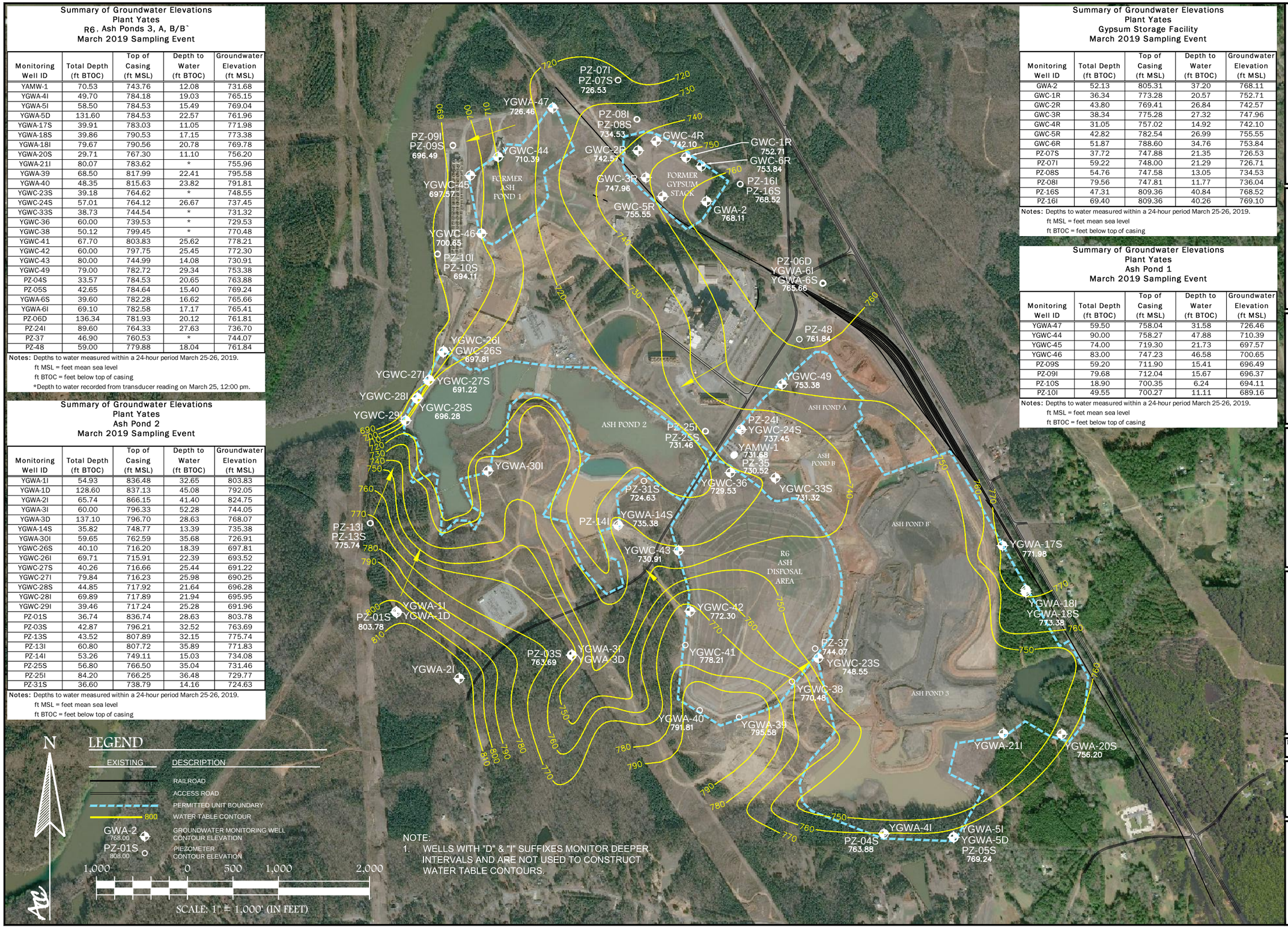
Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
GWA-2	52.13	805.31	37.20	768.11
GWC-1R	36.34	773.28	20.57	752.71
GWC-2R	43.80	769.41	26.84	742.57
GWC-3R	38.34	775.28	27.32	747.96
GWC-4R	31.05	757.02	14.92	742.10
GWC-5R	42.82	782.54	26.99	755.55
GWC-6R	51.87	788.60	34.76	753.84
PZ-07S	37.72	747.88	21.35	726.53
PZ-07I	59.22	748.00	21.29	726.71
PZ-08S	54.76	747.58	13.05	734.53
PZ-08I	79.56	747.81	11.77	736.04
PZ-16S	47.31	809.36	40.84	768.52
PZ-16I	69.40	809.36	40.26	769.10

Notes: Depths to water measured within a 24-hour period March 25-26, 2019.
ft MSL = feet mean sea level
ft BTOC = feet below top of casing

Summary of Groundwater Elevations
Plant Yates
Ash Pond 1
March 2019 Sampling Event

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-47	59.50	758.04	31.58	726.46
YGWC-44	90.00	758.27	47.88	710.39
YGWC-45	74.00	719.30	21.73	697.57
YGWC-46	83.00	747.23	46.58	700.65
PZ-09S	59.20	711.90	15.41	696.49
PZ-09I	79.68	712.04	15.67	696.37
PZ-10S	18.90	700.35	6.24	694.11
PZ-10I	49.55	700.27	11.11	689.16

Notes: Depths to water measured within a 24-hour period March 25-26, 2019.
ft MSL = feet mean sea level
ft BTOC = feet below top of casing



N

LEGEND

EXISTING	DESCRIPTION
	RAILROAD
	ACCESS ROAD
	PERMITTED UNIT BOUNDARY
800	WATER TABLE CONTOUR
GWA-2 768.00	GROUNDWATER MONITORING WELL CONTOUR ELEVATION
PZ-01S 808.00	PIEZOMETER CONTOUR ELEVATION

1,000 0 500 1,000 2,000

SCALE: 1" = 1,000' (IN FEET)

NOTE:
1. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.

ATLANTIC COAST CONSULTING, INC.
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PROJECT:

PLANT YATES

708 DYER ROAD
NEWNAN, GEORGIA

REVISIONS

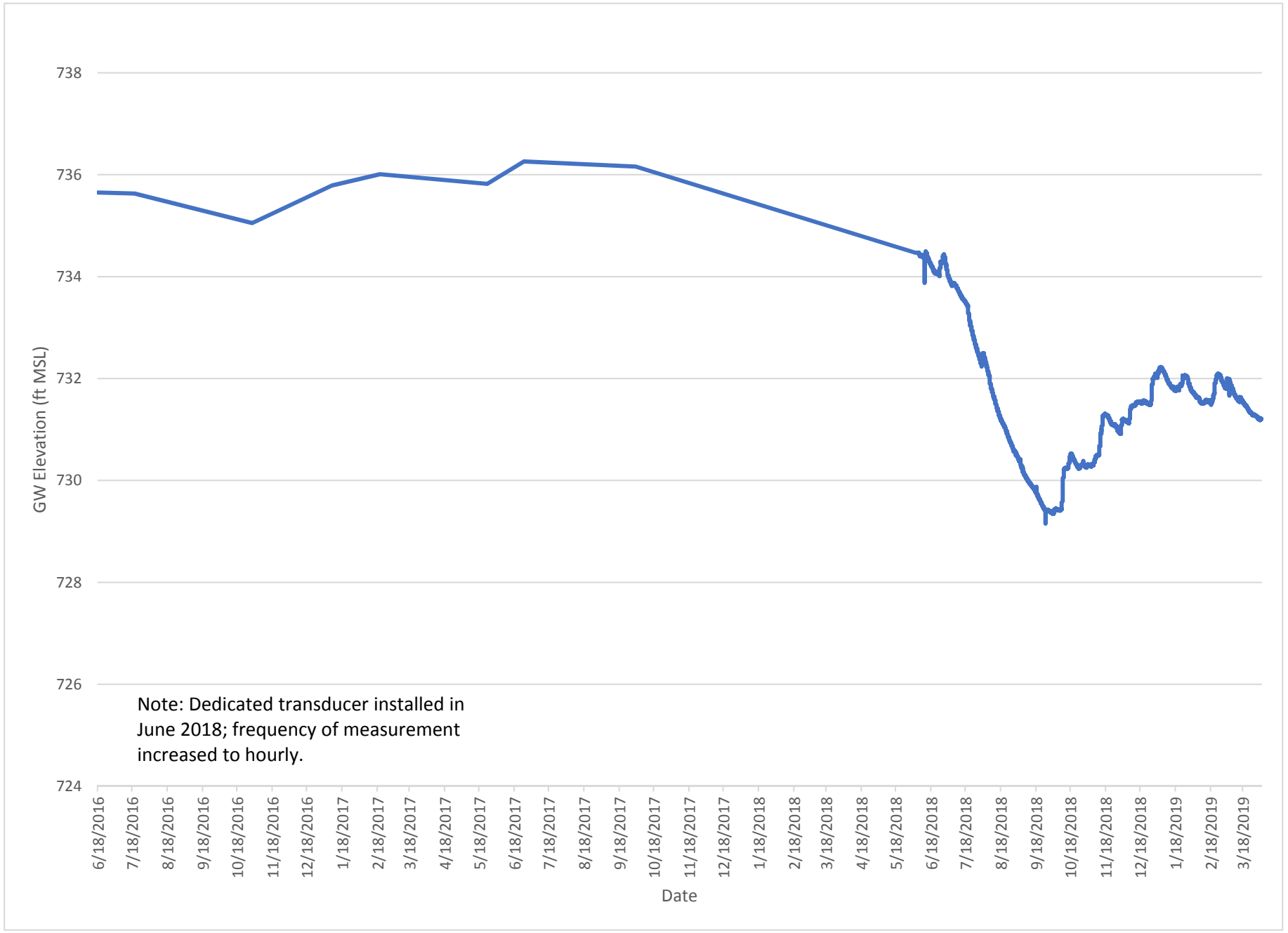
Drawn by: MM
Checked by: EP

PROJECT NUMBER:
I054-110
May 2019

WATER TABLE CONTOUR MAP

FIGURE 3

Figure 4 - Historical Groundwater Elevation - YGWC-33S



APPENDIX A

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

October 23, 2018

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

RE: Project: Plant Yates Ash Ponds
Pace Project No.: 2610582

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2018. 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: Maria Padilla, Georgia Power
Chris Parker, Atlantic Coast Consulting
Evan Perry, Atlantic Coast Consulting
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta

Pace Analytical Services, LLC
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(770)734-4200

CERTIFICATIONS

Project: Plant Yates Ash Ponds
Pace Project No.: 2610582

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
Texas Certification #: T104704397-08-TX
Virginia Certification #: 460204

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: Plant Yates Ash Ponds
Pace Project No.: 2610582

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2610582001	**YAMW-1**	Water	10/16/18 11:00	10/17/18 16:15
2610582002	**PZ-35**	Water	10/16/18 12:35	10/17/18 16:15

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: Plant Yates Ash Ponds
Pace Project No.: 2610582

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2610582001	**YAMW-1**	EPA 6020B	CSW	9
		SM 2540C	JPT	1
		EPA 300.0	MWB	3
2610582002	**PZ-35**	EPA 6020B	CSW	9
		SM 2540C	JPT	1
		EPA 300.0	MWB	3

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

ANALYTICAL RESULTS

Project: Plant Yates Ash Ponds
Pace Project No.: 2610582

Sample: YAMW-1 **Lab ID: 2610582001** Collected: 10/16/18 11:00 Received: 10/17/18 16:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00057	1	10/19/18 11:16	10/19/18 16:21	7440-38-2	
Barium	**0.048**	mg/L	0.010	0.00078	1	10/19/18 11:16	10/19/18 16:21	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	10/19/18 11:16	10/19/18 16:21	7440-41-7	
Boron	**0.20**	mg/L	0.040	0.0039	1	10/19/18 11:16	10/19/18 16:21	7440-42-8	
Cadmium	**0.00014J**	mg/L	0.0010	0.000093	1	10/19/18 11:16	10/19/18 16:21	7440-43-9	
Calcium	**14.5J**	mg/L	25.0	0.69	50	10/19/18 11:16	10/19/18 16:26	7440-70-2	D3,M6
Cobalt	**0.032**	mg/L	0.010	0.00052	1	10/19/18 11:16	10/19/18 16:21	7440-48-4	
Lithium	**0.0052J**	mg/L	0.050	0.00097	1	10/19/18 11:16	10/19/18 16:21	7439-93-2	
Selenium	**0.0019J**	mg/L	0.010	0.0014	1	10/19/18 11:16	10/19/18 16:21	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**209**	mg/L	25.0	10.0	1		10/18/18 13:17		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**12.1**	mg/L	0.25	0.024	1		10/19/18 22:23	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/19/18 22:23	16984-48-8	
Sulfate	**83.7**	mg/L	5.0	0.085	5		10/23/18 13:53	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Yates Ash Ponds
Pace Project No.: 2610582

Sample: PZ-35 **Lab ID: 2610582002** Collected: 10/16/18 12:35 Received: 10/17/18 16:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.00069J**	mg/L	0.0050	0.00057	1	10/19/18 11:16	10/19/18 17:32	7440-38-2	
Barium	**0.063**	mg/L	0.010	0.00078	1	10/19/18 11:16	10/19/18 17:32	7440-39-3	
Beryllium	**0.00036J**	mg/L	0.0030	0.000050	1	10/19/18 11:16	10/19/18 17:32	7440-41-7	
Boron	**0.031J**	mg/L	0.040	0.0039	1	10/19/18 11:16	10/19/18 17:32	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	10/19/18 11:16	10/19/18 17:32	7440-43-9	
Calcium	**6.5**	mg/L	0.50	0.014	1	10/19/18 11:16	10/19/18 17:32	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	10/19/18 11:16	10/19/18 17:32	7440-48-4	
Lithium	**0.0011J**	mg/L	0.050	0.00097	1	10/19/18 11:16	10/19/18 17:32	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	10/19/18 11:16	10/19/18 17:32	7782-49-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**123**	mg/L	25.0	10.0	1		10/18/18 13:17		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**8.5**	mg/L	0.25	0.024	1		10/19/18 23:31	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/19/18 23:31	16984-48-8	
Sulfate	**34.2**	mg/L	1.0	0.017	1		10/19/18 23:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Yates Ash Ponds
Pace Project No.: 2610582

QC Batch: 15677 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2610582001, 2610582002

METHOD BLANK: 69912 Matrix: Water
Associated Lab Samples: 2610582001, 2610582002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00057	10/19/18 16:09	
Barium	mg/L	ND	0.010	0.00078	10/19/18 16:09	
Beryllium	mg/L	ND	0.0030	0.000050	10/19/18 16:09	
Boron	mg/L	ND	0.040	0.0039	10/19/18 16:09	
Cadmium	mg/L	ND	0.0010	0.000093	10/19/18 16:09	
Calcium	mg/L	ND	0.50	0.014	10/19/18 16:09	
Cobalt	mg/L	ND	0.010	0.00052	10/19/18 16:09	
Lithium	mg/L	ND	0.050	0.00097	10/19/18 16:09	
Selenium	mg/L	ND	0.010	0.0014	10/19/18 16:09	

LABORATORY CONTROL SAMPLE: 69913

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.1	0.10	101	80-120	
Barium	mg/L	.1	0.10	101	80-120	
Beryllium	mg/L	.1	0.099	99	80-120	
Boron	mg/L	1	0.98	98	80-120	
Cadmium	mg/L	.1	0.099	99	80-120	
Calcium	mg/L	1	0.97	97	80-120	
Cobalt	mg/L	.1	0.098	98	80-120	
Lithium	mg/L	.1	0.10	102	80-120	
Selenium	mg/L	.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 69914 69915

Parameter	Units	2610582001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	.1	.1	0.10	0.11	104	107	75-125	3	20	
Barium	mg/L	0.048	.1	.1	0.15	0.16	107	110	75-125	2	20	
Beryllium	mg/L	ND	.1	.1	0.099	0.10	99	103	75-125	4	20	
Boron	mg/L	0.20	1	1	1.1	1.2	95	97	75-125	2	20	
Cadmium	mg/L	0.00014J	.1	.1	0.10	0.10	103	104	75-125	1	20	
Calcium	mg/L	14.5J	1	1	16.2J	16.0J	163	144	75-125	1	20	M6
Cobalt	mg/L	0.032	.1	.1	0.14	0.14	105	109	75-125	2	20	
Lithium	mg/L	0.0052J	.1	.1	0.10	0.11	96	103	75-125	6	20	
Selenium	mg/L	0.0019J	.1	.1	0.10	0.11	103	109	75-125	6	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 Yates Ash Ponds
Pace Project No.: 2610582

QC Batch: 15623
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2610582001, 2610582002

LABORATORY CONTROL SAMPLE: 69731

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	396	99	84-108	

SAMPLE DUPLICATE: 69733

Parameter	Units	2610582002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	123	128	4	10	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Yates Ash Ponds
Pace Project No.: 2610582

QC Batch: 15672 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2610582001, 2610582002

METHOD BLANK: 69897 Matrix: Water
Associated Lab Samples: 2610582001, 2610582002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	0.25	0.024	10/19/18 21:38	
Fluoride	mg/L	ND	0.30	0.029	10/19/18 21:38	
Sulfate	mg/L	ND	1.0	0.017	10/19/18 21:38	

LABORATORY CONTROL SAMPLE: 69898

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.3	103	90-110	
Fluoride	mg/L	10	10.8	108	90-110	
Sulfate	mg/L	10	11.0	110	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 69899 69900

Parameter	Units	2610582001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	12.1	10	10	21.3	21.4	92	93	90-110	0	15	
Fluoride	mg/L	ND	10	10	10.1	9.9	101	99	90-110	2	15	
Sulfate	mg/L	83.7	10	10	75.1	74.6	-86	-91	90-110	1	15	E

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 Yates Ash Ponds
Pace Project No.: 2610582

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Yates Ash Ponds
Pace Project No.: 2610582

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2610582001	**YAMW-1**	EPA 3005A	15677	EPA 6020B	15694
2610582002	**PZ-35**	EPA 3005A	15677	EPA 6020B	15694
2610582001	**YAMW-1**	SM 2540C	15623		
2610582002	**PZ-35**	SM 2540C	15623		
2610582001	**YAMW-1**	EPA 300.0	15672		
2610582002	**PZ-35**	EPA 300.0	15672		

CHAIN OF CUSTODY RECORD

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

PAGE: _____ OF _____

CLIENT NAME: Georgia Power

CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:
241 Ralph McGill Blvd SE B10185
Atlanta, GA 30308
404-506-7239

REPORT TO: Joju Abraham
CC: Maria Padilla, Heath McCorkle

REQUESTED COMPLETION DATE:
PO #: laburch@southernco.com

PROJECT NAME/STATE: Plant Yates - Ash Pond 3

PROJECT #: Phase 2 CCR

ANALYSIS REQUESTED

Collection DATE	Collection TIME	MATRIX CODE*	COMP	GRAB	SAMPLE IDENTIFICATION	# of CONTAINERS		Metals App. III (EPA 6020/7470) Boron, Calcium	Cl, F, SO_4 & TDS (EPA 300.0 & SM 2540C)	Detected App. IV As, Ba, Be, Cd, Co, Li, Se	Radium 226 + 228					LAB ID NUMBER
CONTAINER TYPE:								P	P	P	P					
PRESERVATION:								3	7	3	3					
10-16-18	1100	GW		X	YAMW-1	4		✓	✓	✓	✓					
10-16-18	1235	GW		X	PZ-35	4		✓	✓	✓	✓					

CONTAINER TYPE	PRESERVATION
P - PLASTIC	1 - HCl, ≤6°C
A - AMBER GLASS	2 - H_2SO_4, ≤6°C
G - CLEAR GLASS	3 - HNO_3
V - VOA VIAL	4 - NaOH, ≤6°C
S - STERILE	5 - NaOH/ZnAc, ≤6°C
O - OTHER	6 - $Na_2S_2O_3$, ≤6°C
	7 - ≤6°C not frozen

*MATRIX CODES:

DW - DRINKING WATER	S - SOIL
WW - WASTEWATER	SL - SLUDGE
GW - GROUNDWATER	SD - SOLID
SW - SURFACE WATER	A - AIR
ST - STORM WATER	L - LIQUID
W - WATER	P - PRODUCT

REMARKS/ADDITIONAL INFORMATION

WO# : 2610582

2610582

SAMPLED BY AND TITLE: J Barnsford ACC	DATE/TIME: See above	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY: Mike Nguyen	DATE/TIME: 10/17/18 1545	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY LAB: M Lalman	DATE/TIME: 10/17/18 1615	SAMPLE SHIPPED VIA: UPS FED-EX USPS COURIER ACO CLIENT OTHER FS	FOR LAB USE ONLY LAB #: Entered into LIMS: Tracking #:
pH checked: Yes No NA	Ice: Yes No NA	Temperature: Min: 0.2 Max:	Custody Seal: Intact Broken Not Present / # of Coolers / Cooler ID

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2610582

PM: BM Due Date: 10/24/18

CLIENT: GAPower-CCR

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

Tracking #:

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

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

Thermometer Used 83 **Type of Ice:** (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 0.2 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 10/17/18 MP

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: GW			
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 12, 2018

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

RE: Project: Plant Yates Ash Ponds
Pace Project No.: 2610583

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2018. 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: Maria Padilla, Georgia Power
Chris Parker, Atlantic Coast Consulting
Evan Perry, Atlantic Coast Consulting
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta

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

CERTIFICATIONS

Project: Plant Yates Ash Ponds
Pace Project No.: 2610583

Pennsylvania Certification IDs

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

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

SAMPLE SUMMARY

Project: Plant Yates Ash Ponds
Pace Project No.: 2610583

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2610583001	**YAMW-1**	Water	10/16/18 11:00	10/17/18 16:15
2610583002	**PZ-35**	Water	10/16/18 12:35	10/17/18 16:15

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(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Yates Ash Ponds
Pace Project No.: 2610583

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2610583001	**YAMW-1**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2610583002	**PZ-35**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Ponds
Pace Project No.: 2610583

Sample: YAMW-1 **Lab ID: 2610583001** Collected: 10/16/18 11:00 Received: 10/17/18 16:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.292 ± 0.146 (0.164) C:93% T:NA**	pCi/L	11/06/18 09:20	13982-63-3	
Radium-228	EPA 9320	**0.0922 ± 0.278 (0.628) C:80% T:84%**	pCi/L	11/01/18 15:29	15262-20-1	
Total Radium	Total Radium Calculation	**0.384 ± 0.424 (0.792)**	pCi/L	11/09/18 13:24	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Ponds
Pace Project No.: 2610583

Sample: PZ-35 **Lab ID: 2610583002** Collected: 10/16/18 12:35 Received: 10/17/18 16:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.0184 ± 0.127 (0.318) C:98% T:NA**	pCi/L	11/06/18 09:20	13982-63-3	
Radium-228	EPA 9320	**0.345 ± 0.330 (0.674) C:80% T:79%**	pCi/L	11/01/18 15:29	15262-20-1	
Total Radium	Total Radium Calculation	**0.363 ± 0.457 (0.992)**	pCi/L	11/09/18 13:24	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Yates Ash Ponds
Pace Project No.: 2610583

QC Batch: 318192 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2610583001, 2610583002

METHOD BLANK: 1552035 Matrix: Water
Associated Lab Samples: 2610583001, 2610583002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0766 ± 0.110 (0.238) C:97% T:NA	pCi/L	11/06/18 08:09	

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 - RADIOCHEMISTRY

Project: Plant Yates Ash Ponds
Pace Project No.: 2610583

QC Batch: 317858 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2610583001, 2610583002

METHOD BLANK: 1550522 Matrix: Water
Associated Lab Samples: 2610583001, 2610583002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.177 ± 0.319 (0.697) C:77% T:91%	pCi/L	11/01/18 12:04	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant Yates Ash Ponds
Pace Project No.: 2610583

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Yates Ash Ponds
Pace Project No.: 2610583

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2610583001	**YAMW-1**	EPA 9315	318192		
2610583002	**PZ-35**	EPA 9315	318192		
2610583001	**YAMW-1**	EPA 9320	317858		
2610583002	**PZ-35**	EPA 9320	317858		
2610583001	**YAMW-1**	Total Radium Calculation	319938		
2610583002	**PZ-35**	Total Radium Calculation	319938		

CHAIN OF CUSTODY RECORD

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

PAGE: _____ OF _____

CLIENT NAME: Georgia Power

CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:
241 Ralph McGill Blvd SE B10185
Atlanta, GA 30308
404-506-7239

REPORT TO: Joju Abraham
CC: Maria Padilla, Heath McCorkle

REQUESTED COMPLETION DATE:
PO #: laburch@southernco.com

PROJECT NAME/STATE: Plant Yates - Ash Pond 3

PROJECT #: Phase 2 CCR

ANALYSIS REQUESTED

Collection DATE	Collection TIME	MATRIX CODE*	COMP	GRAB	SAMPLE IDENTIFICATION	# of CONTAINERS		Metals App. III (EPA 6020/7470) Boron, Calcium	Cl, F, SO_4 & TDS (EPA 300.0 & SM 2540C)	Detected App. IV As, Ba, Be, Cd, Co, Li, Se	Radium 226 + 228					LAB ID NUMBER
CONTAINER TYPE:								P	P	P	P					
PRESERVATION:								3	7	3	3					
10-16-18	1100	GW		X	YAMW-1	4		✓	✓	✓	✓					
10-16-18	1255	GW		X	PZ-35	4		✓	✓	✓	✓					

WO# : 2610583
2610583

CONTAINER TYPE	PRESERVATION
P - PLASTIC	1 - HCl, ≤6°C
A - AMBER GLASS	2 - H_2SO_4, ≤6°C
G - CLEAR GLASS	3 - HNO_3
V - VOA VIAL	4 - NaOH, ≤6°C
S - STERILE	5 - NaOH/ZnAc, ≤6°C
O - OTHER	6 - $Na_2S_2O_3$, ≤6°C
	7 - ≤6°C not frozen

*MATRIX CODES:

DW - DRINKING WATER	S - SOIL
WW - WASTEWATER	SL - SLUDGE
GW - GROUNDWATER	SD - SOLID
SW - SURFACE WATER	A - AIR
ST - STORM WATER	L - LIQUID
W - WATER	P - PRODUCT

REMARKS/ADDITIONAL INFORMATION

SAMPLED BY AND TITLE: J Bradford ACC
DATE/TIME: See above
RELINQUISHED BY:
DATE/TIME:

RECEIVED BY: Mike Nguyen
DATE/TIME: 10/17/18 1545
RELINQUISHED BY:
DATE/TIME:

RECEIVED BY LAB: M Lalman
DATE/TIME: 10/17/18 1615
SAMPLE SHIPPED VIA: UPS FED-EX USPS COURIER Pace CLIENT OTHER FS

pH checked: Yes No NA
Ice: Yes No NA
Temperature: Min 0.2 Max:
Custody Seal: Intact Broken Not Present
# of Coolers:
Cooler ID:

FOR LAB USE ONLY
LAB #:
Entered into LIMS:
Tracking #:

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2610583

PM: BM Due Date: 11/14/18

CLIENT: GAPower-CCR

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

Tracking #:

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

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

Thermometer Used 83 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 0.2 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 10/17/18 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: GW		
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

April 04, 2019

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

RE: Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on March 06, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the report issued on 3/13/2019. The report has been revised to correct a sample ID per consultant request. No other changes have been made to this report.

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

Sincerely,

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

Enclosures

cc: Chris Parker, Atlantic Coast Consulting
Evan Perry, Atlantic Coast Consulting
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
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CERTIFICATIONS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Atlanta Certification IDs

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

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SAMPLE SUMMARY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2615736001	**YGWA-4I**	Water	03/04/19 14:35	03/06/19 16:13
2615736002	**YGWA-5I**	Water	03/04/19 13:17	03/06/19 16:13
2615736003	**YGWA-5D**	Water	03/04/19 12:03	03/06/19 16:13
2615736004	**YGWA-17S**	Water	03/05/19 11:38	03/06/19 16:13
2615736005	**YGWA-18S**	Water	03/05/19 16:53	03/06/19 16:13
2615736006	**YGWA-18I**	Water	03/06/19 11:25	03/06/19 16:13
2615736007	**YGWA-20S**	Water	03/05/19 13:40	03/06/19 16:13
2615736008	**YGWA-21I**	Water	03/05/19 12:05	03/06/19 16:13
2615736009	**YGWC-23S**	Water	03/06/19 13:15	03/06/19 16:13
2615736010	**YGWC-24S**	Water	03/05/19 14:55	03/06/19 16:13
2615736011	**YGWC-33S**	Water	03/06/19 13:00	03/06/19 16:13
2615736012	**YGWC-36**	Water	03/06/19 11:30	03/06/19 16:13
2615736013	**EB-3-3-5-19**	Water	03/05/19 11:00	03/06/19 16:13
2615736014	**EB-4-3-6-19**	Water	03/06/19 10:45	03/06/19 16:13
2615736015	**DUP-3**	Water	03/06/19 00:00	03/06/19 16:13
2615736016	**DUP-4**	Water	03/06/19 00:00	03/06/19 16:13
2615736017	**FB-3-3-5-19**	Water	03/05/19 13:30	03/06/19 16:13
2615736018	**FB-4-3-6-19**	Water	03/06/19 13:45	03/06/19 16:13

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SAMPLE ANALYTE COUNT

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2615736001	YGWA-4I	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736002	YGWA-5I	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736003	YGWA-5D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736004	YGWA-17S	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736005	YGWA-18S	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736006	YGWA-18I	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736007	YGWA-20S	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736008	YGWA-21I	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736009	YGWC-23S	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736010	YGWC-24S	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736011	YGWC-33S	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736012	YGWC-36	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736013	EB-3-3-5-19	EPA 6020B	CSW	12

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SAMPLE ANALYTE COUNT

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736014	**EB-4-3-6-19**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736015	**DUP-3**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736016	**DUP-4**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736017	**FB-3-3-5-19**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2615736018	**FB-4-3-6-19**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1

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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWA-4I **Lab ID: 2615736001** Collected: 03/04/19 14:35 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 18:46	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 18:46	7440-38-2	
Barium	**0.016**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 18:46	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 18:46	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 18:46	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 18:46	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 18:46	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 18:46	7439-92-1	
Lithium	**0.015J**	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 18:46	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 18:46	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 18:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 18:46	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 14:30	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 08:17	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWA-5I **Lab ID: 2615736002** Collected: 03/04/19 13:17 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 18:52	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 18:52	7440-38-2	
Barium	**0.019**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 18:52	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 18:52	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 18:52	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 18:52	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 18:52	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 18:52	7439-92-1	
Lithium	**0.0032J**	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 18:52	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 18:52	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 18:52	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 18:52	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 14:44	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 09:27	16984-48-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWA-5D **Lab ID: 2615736003** Collected: 03/04/19 12:03 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 18:58	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 18:58	7440-38-2	
Barium	**0.0077J**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 18:58	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 18:58	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 18:58	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 18:58	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 18:58	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 18:58	7439-92-1	
Lithium	**0.0065J**	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 18:58	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 18:58	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 18:58	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 18:58	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 14:51	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	**0.19J**	mg/L	0.30	0.029	1		03/09/19 09:50	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWA-17S **Lab ID: 2615736004** Collected: 03/05/19 11:38 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 19:03	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 19:03	7440-38-2	
Barium	**0.015**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 19:03	7440-39-3	
Beryllium	**0.000091J**	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 19:03	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 19:03	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 19:03	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 19:03	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 19:03	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 19:03	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 19:03	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 19:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 19:03	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 14:53	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 10:13	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWA-18S **Lab ID: 2615736005** Collected: 03/05/19 16:53 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 19:09	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 19:09	7440-38-2	
Barium	**0.020**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 19:09	7440-39-3	
Beryllium	**0.000079J**	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 19:09	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 19:09	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 19:09	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 19:09	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 19:09	7439-92-1	
Lithium	**0.0031J**	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 19:09	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 19:09	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 19:09	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 19:09	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 14:56	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 10:37	16984-48-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWA-18I **Lab ID: 2615736006** Collected: 03/06/19 11:25 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 19:15	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 19:15	7440-38-2	
Barium	**0.024**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 19:15	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 19:15	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 19:15	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 19:15	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 19:15	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 19:15	7439-92-1	
Lithium	**0.0033J**	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 19:15	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 19:15	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 19:15	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 19:15	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 14:58	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 11:00	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWA-20S **Lab ID: 2615736007** Collected: 03/05/19 13:40 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 19:20	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 19:20	7440-38-2	
Barium	**0.016**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 19:20	7440-39-3	
Beryllium	**0.00011J**	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 19:20	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 19:20	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 19:20	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 19:20	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 19:20	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 19:20	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 19:20	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 19:20	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 19:20	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:01	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 11:23	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWA-21I **Lab ID: 2615736008** Collected: 03/05/19 12:05 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	**0.0011J**	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 19:26	7440-36-0	
Arsenic	**0.0013J**	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 19:26	7440-38-2	
Barium	**0.011**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 19:26	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 19:26	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 19:26	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 19:26	7440-47-3	
Cobalt	**0.0039J**	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 19:26	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 19:26	7439-92-1	
Lithium	**0.0053J**	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 19:26	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 19:26	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 19:26	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 19:26	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:03	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	**0.32**	mg/L	0.30	0.029	1		03/09/19 11:46	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWC-23S **Lab ID: 2615736009** Collected: 03/06/19 13:15 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 19:43	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 19:43	7440-38-2	
Barium	**0.019**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 19:43	7440-39-3	
Beryllium	**0.000066J**	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 19:43	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 19:43	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 19:43	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 19:43	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 19:43	7439-92-1	
Lithium	**0.0025J**	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 19:43	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 19:43	7439-98-7	
Selenium	**0.019**	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 19:43	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 19:43	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:05	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 13:42	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWC-24S **Lab ID: 2615736010** Collected: 03/05/19 14:55 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 19:49	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 19:49	7440-38-2	
Barium	**0.019**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 19:49	7440-39-3	
Beryllium	**0.00016J**	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 19:49	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 19:49	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 19:49	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 19:49	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 19:49	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 19:49	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 19:49	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 19:49	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 19:49	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:08	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 14:06	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWC-33S **Lab ID: 2615736011** Collected: 03/06/19 13:00 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 19:55	7440-36-0	
Arsenic	**0.0022J**	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 19:55	7440-38-2	
Barium	**0.012**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 19:55	7440-39-3	
Beryllium	**0.023**	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 19:55	7440-41-7	
Cadmium	**0.0030**	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 19:55	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 19:55	7440-47-3	
Cobalt	**0.028**	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 19:55	7440-48-4	
Lead	**0.0012J**	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 19:55	7439-92-1	
Lithium	**0.033J**	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 19:55	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 19:55	7439-98-7	
Selenium	**0.013**	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 19:55	7782-49-2	
Thallium	**0.00016J**	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 19:55	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:10	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	**0.49**	mg/L	0.30	0.029	1		03/09/19 14:52	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: YGWC-36 **Lab ID: 2615736012** Collected: 03/06/19 11:30 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	**0.0011J**	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 20:18	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 20:18	7440-38-2	
Barium	**0.041**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 20:18	7440-39-3	
Beryllium	**0.00029J**	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 20:18	7440-41-7	
Cadmium	**0.00015J**	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 20:18	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 20:18	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 20:18	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 20:18	7439-92-1	
Lithium	**0.0057J**	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 20:18	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 20:18	7439-98-7	
Selenium	**0.0033J**	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 20:18	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 20:18	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:12	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 15:15	16984-48-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: EB-3-3-5-19 **Lab ID: 2615736013** Collected: 03/05/19 11:00 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 20:23	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 20:23	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 20:23	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 20:23	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 20:23	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 20:23	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 20:23	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 20:23	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 20:23	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 20:23	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 20:23	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 20:23	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:20	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 15:38	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: EB-4-3-6-19 **Lab ID: 2615736014** Collected: 03/06/19 10:45 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 20:29	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 20:29	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 20:29	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 20:29	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 20:29	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 20:29	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 20:29	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 20:29	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 20:29	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 20:29	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 20:29	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 20:29	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:22	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 16:02	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: DUP-3 **Lab ID: 2615736015** Collected: 03/06/19 00:00 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 20:35	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 20:35	7440-38-2	
Barium	**0.019**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 20:35	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 20:35	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 20:35	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 20:35	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 20:35	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 20:35	7439-92-1	
Lithium	**0.0032J**	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 20:35	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 20:35	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 20:35	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 20:35	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:24	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 16:25	16984-48-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: DUP-4 **Lab ID: 2615736016** Collected: 03/06/19 00:00 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 20:52	7440-36-0	
Arsenic	**0.0023J**	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 20:52	7440-38-2	
Barium	**0.012**	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 20:52	7440-39-3	
Beryllium	**0.024**	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 20:52	7440-41-7	
Cadmium	**0.0030**	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 20:52	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 20:52	7440-47-3	
Cobalt	**0.029**	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 20:52	7440-48-4	
Lead	**0.0013J**	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 20:52	7439-92-1	
Lithium	**0.035J**	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 20:52	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 20:52	7439-98-7	
Selenium	**0.014**	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 20:52	7782-49-2	
Thallium	**0.00016J**	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 20:52	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:27	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	**0.40**	mg/L	0.30	0.029	1		03/09/19 16:48	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: FB-3-3-5-19 **Lab ID: 2615736017** Collected: 03/05/19 13:30 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 20:58	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 20:58	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 20:58	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 20:58	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 20:58	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 20:58	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 20:58	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 20:58	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 20:58	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 20:58	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 20:58	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 20:58	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:29	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 17:12	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Sample: FB-4-3-6-19 **Lab ID: 2615736018** Collected: 03/06/19 13:45 Received: 03/06/19 16:13 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/08/19 12:18	03/08/19 21:04	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/08/19 12:18	03/08/19 21:04	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/08/19 12:18	03/08/19 21:04	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/08/19 12:18	03/08/19 21:04	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/08/19 12:18	03/08/19 21:04	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/08/19 12:18	03/08/19 21:04	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/08/19 12:18	03/08/19 21:04	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/08/19 12:18	03/08/19 21:04	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/08/19 12:18	03/08/19 21:04	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/08/19 12:18	03/08/19 21:04	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/08/19 12:18	03/08/19 21:04	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/08/19 12:18	03/08/19 21:04	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/08/19 08:56	03/08/19 15:31	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/09/19 19:13	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

QC Batch: 23871 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2615736001, 2615736002, 2615736003, 2615736004, 2615736005, 2615736006, 2615736007, 2615736008, 2615736009, 2615736010, 2615736011, 2615736012, 2615736013, 2615736014, 2615736015, 2615736016, 2615736017, 2615736018

METHOD BLANK: 107019 Matrix: Water
Associated Lab Samples: 2615736001, 2615736002, 2615736003, 2615736004, 2615736005, 2615736006, 2615736007, 2615736008, 2615736009, 2615736010, 2615736011, 2615736012, 2615736013, 2615736014, 2615736015, 2615736016, 2615736017, 2615736018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000036	03/08/19 14:25	

LABORATORY CONTROL SAMPLE: 107020

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 107021 107022

Parameter	Units	2615736001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0025	98	100	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

QC Batch: 23903 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2615736001, 2615736002, 2615736003, 2615736004, 2615736005, 2615736006, 2615736007, 2615736008, 2615736009, 2615736010, 2615736011, 2615736012, 2615736013, 2615736014, 2615736015, 2615736016, 2615736017, 2615736018

METHOD BLANK: 107116 Matrix: Water
Associated Lab Samples: 2615736001, 2615736002, 2615736003, 2615736004, 2615736005, 2615736006, 2615736007, 2615736008, 2615736009, 2615736010, 2615736011, 2615736012, 2615736013, 2615736014, 2615736015, 2615736016, 2615736017, 2615736018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/08/19 18:35	
Arsenic	mg/L	ND	0.0050	0.00057	03/08/19 18:35	
Barium	mg/L	ND	0.010	0.00078	03/08/19 18:35	
Beryllium	mg/L	ND	0.0030	0.000050	03/08/19 18:35	
Cadmium	mg/L	ND	0.0010	0.000093	03/08/19 18:35	
Chromium	mg/L	ND	0.010	0.0016	03/08/19 18:35	
Cobalt	mg/L	ND	0.010	0.00052	03/08/19 18:35	
Lead	mg/L	ND	0.0050	0.00027	03/08/19 18:35	
Lithium	mg/L	ND	0.050	0.00097	03/08/19 18:35	
Molybdenum	mg/L	ND	0.010	0.0019	03/08/19 18:35	
Selenium	mg/L	ND	0.010	0.0014	03/08/19 18:35	
Thallium	mg/L	ND	0.0010	0.00014	03/08/19 18:35	

LABORATORY CONTROL SAMPLE: 107117

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.098	98	80-120	
Arsenic	mg/L	0.1	0.095	95	80-120	
Barium	mg/L	0.1	0.097	97	80-120	
Beryllium	mg/L	0.1	0.099	99	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Chromium	mg/L	0.1	0.097	97	80-120	
Cobalt	mg/L	0.1	0.095	95	80-120	
Lead	mg/L	0.1	0.092	92	80-120	
Lithium	mg/L	0.1	0.10	100	80-120	
Molybdenum	mg/L	0.1	0.095	95	80-120	
Selenium	mg/L	0.1	0.10	100	80-120	
Thallium	mg/L	0.1	0.091	91	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 107118 107119

Parameter	Units	2615736011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	2	20	
Arsenic	mg/L	0.0022J	0.1	0.1	0.10	0.10	101	100	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 107118 107119

Parameter	Units	2615736011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.012	0.1	0.1	0.11	0.11	99	97	75-125	2	20	
Beryllium	mg/L	0.023	0.1	0.1	0.11	0.11	84	82	75-125	2	20	
Cadmium	mg/L	0.0030	0.1	0.1	0.10	0.10	97	98	75-125	1	20	
Chromium	mg/L	ND	0.1	0.1	0.098	0.097	97	96	75-125	0	20	
Cobalt	mg/L	0.028	0.1	0.1	0.12	0.12	91	94	75-125	2	20	
Lead	mg/L	0.0012J	0.1	0.1	0.080	0.081	79	79	75-125	1	20	
Lithium	mg/L	0.033J	0.1	0.1	0.12	0.12	87	86	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Selenium	mg/L	0.013	0.1	0.1	0.12	0.11	103	102	75-125	0	20	
Thallium	mg/L	0.00016J	0.1	0.1	0.081	0.080	81	80	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

QC Batch: 23825 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2615736001, 2615736002, 2615736003, 2615736004, 2615736005, 2615736006, 2615736007, 2615736008, 2615736009, 2615736010, 2615736011, 2615736012, 2615736013, 2615736014, 2615736015, 2615736016, 2615736017, 2615736018

METHOD BLANK: 106700 Matrix: Water
Associated Lab Samples: 2615736001, 2615736002, 2615736003, 2615736004, 2615736005, 2615736006, 2615736007, 2615736008, 2615736009, 2615736010, 2615736011, 2615736012, 2615736013, 2615736014, 2615736015, 2615736016, 2615736017, 2615736018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	03/09/19 07:31	

LABORATORY CONTROL SAMPLE: 106701

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 106702 106703

Parameter	Units	2615736001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	ND	10	10	10.0	10.1	100	101	90-110	0	15	

MATRIX SPIKE SAMPLE: 106704

Parameter	Units	2615736002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	ND	10	10.4	104	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

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QUALIFIERS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615736

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615736001	YGWA-4I	EPA 3005A	23903	EPA 6020B	23932
2615736002	YGWA-5I	EPA 3005A	23903	EPA 6020B	23932
2615736003	YGWA-5D	EPA 3005A	23903	EPA 6020B	23932
2615736004	YGWA-17S	EPA 3005A	23903	EPA 6020B	23932
2615736005	YGWA-18S	EPA 3005A	23903	EPA 6020B	23932
2615736006	YGWA-18I	EPA 3005A	23903	EPA 6020B	23932
2615736007	YGWA-20S	EPA 3005A	23903	EPA 6020B	23932
2615736008	YGWA-21I	EPA 3005A	23903	EPA 6020B	23932
2615736009	YGWC-23S	EPA 3005A	23903	EPA 6020B	23932
2615736010	YGWC-24S	EPA 3005A	23903	EPA 6020B	23932
2615736011	YGWC-33S	EPA 3005A	23903	EPA 6020B	23932
2615736012	YGWC-36	EPA 3005A	23903	EPA 6020B	23932
2615736013	EB-3-3-5-19	EPA 3005A	23903	EPA 6020B	23932
2615736014	EB-4-3-6-19	EPA 3005A	23903	EPA 6020B	23932
2615736015	DUP-3	EPA 3005A	23903	EPA 6020B	23932
2615736016	DUP-4	EPA 3005A	23903	EPA 6020B	23932
2615736017	FB-3-3-5-19	EPA 3005A	23903	EPA 6020B	23932
2615736018	FB-4-3-6-19	EPA 3005A	23903	EPA 6020B	23932
2615736001	YGWA-4I	EPA 7470A	23871	EPA 7470A	23922
2615736002	YGWA-5I	EPA 7470A	23871	EPA 7470A	23922
2615736003	YGWA-5D	EPA 7470A	23871	EPA 7470A	23922
2615736004	YGWA-17S	EPA 7470A	23871	EPA 7470A	23922
2615736005	YGWA-18S	EPA 7470A	23871	EPA 7470A	23922
2615736006	YGWA-18I	EPA 7470A	23871	EPA 7470A	23922
2615736007	YGWA-20S	EPA 7470A	23871	EPA 7470A	23922
2615736008	YGWA-21I	EPA 7470A	23871	EPA 7470A	23922
2615736009	YGWC-23S	EPA 7470A	23871	EPA 7470A	23922
2615736010	YGWC-24S	EPA 7470A	23871	EPA 7470A	23922
2615736011	YGWC-33S	EPA 7470A	23871	EPA 7470A	23922
2615736012	YGWC-36	EPA 7470A	23871	EPA 7470A	23922
2615736013	EB-3-3-5-19	EPA 7470A	23871	EPA 7470A	23922
2615736014	EB-4-3-6-19	EPA 7470A	23871	EPA 7470A	23922
2615736015	DUP-3	EPA 7470A	23871	EPA 7470A	23922
2615736016	DUP-4	EPA 7470A	23871	EPA 7470A	23922
2615736017	FB-3-3-5-19	EPA 7470A	23871	EPA 7470A	23922
2615736018	FB-4-3-6-19	EPA 7470A	23871	EPA 7470A	23922
2615736001	YGWA-4I	EPA 300.0	23825		
2615736002	YGWA-5I	EPA 300.0	23825		
2615736003	YGWA-5D	EPA 300.0	23825		
2615736004	YGWA-17S	EPA 300.0	23825		
2615736005	YGWA-18S	EPA 300.0	23825		
2615736006	YGWA-18I	EPA 300.0	23825		
2615736007	YGWA-20S	EPA 300.0	23825		
2615736008	YGWA-21I	EPA 300.0	23825		
2615736009	YGWC-23S	EPA 300.0	23825		
2615736010	YGWC-24S	EPA 300.0	23825		
2615736011	YGWC-33S	EPA 300.0	23825		
2615736012	YGWC-36	EPA 300.0	23825		

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 Yates - Ash Pond 3
Pace Project No.: 2615736

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615736013	**EB-3-3-5-19**	EPA 300.0	23825		
2615736014	**EB-4-3-6-19**	EPA 300.0	23825		
2615736015	**DUP-3**	EPA 300.0	23825		
2615736016	**DUP-4**	EPA 300.0	23825		
2615736017	**FB-3-3-5-19**	EPA 300.0	23825		
2615736018	**FB-4-3-6-19**	EPA 300.0	23825		

CHAIN OF CUSTODY RECORD

Pace Analytical®

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

CLIENT NAME: Georgia Power

CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:
241 Ralph McGill Blvd SE B10185
Atlanta, GA 30308
404-506-7239

REPORT TO: Joju Abraham

CC:

REQUESTED COMPLETION DATE:

PO #:

PROJECT NAME/STATE: Plant Yates - Ash Pond 3

PROJECT #:

ANALYSIS REQUESTED

Collection DATE	Collection TIME	MATRIX CODE*	COMP	GRAB	SAMPLE IDENTIFICATION	# of CONTAINERS	Metals App. IV (EPA 6020/7470)	Fluoride	Radium 226 & 228 (SW846 9315/9320)	LAB ID NUMBER
	CONTAINER TYPE:						P	P	P	
	PRESERVATION:						3	7	3	
3-5-19	1100	W		G	EB-3-3-5-19	4	1	1	2	13
3-6-19	1045	W		G	EB-4-3-6-19	4	1	1	2	14
3-6-19	—	GW		G	Dup-3	4	1	1	2	15
3-6-19	—	GW		G	Dup-4	4	1	1	2	16
3-5-19	1330	W		G	FB-3-3-5-19	4	1	1	2	17
3-6-19	1345	W		G	FB-4-3-6-19	4	1	1	2	18

CONTAINER TYPE	PRESERVATION
P - PLASTIC	1 - HCl, ≤6°C
A - AMBER GLASS	2 - H_2SO_4, ≤6°C
G - CLEAR GLASS	3 - HNO_3
V - VOA VIAL	4 - NaOH, ≤6°C
S - STERILE	5 - NaOH/ZnAc, ≤6°C
O - OTHER	6 - $Na_2S_2O_3$, ≤6°C
	7 - ≤6°C not frozen

*MATRIX CODES:

DW -	DRINKING WATER	S -	SOIL
WW -	WASTEWATER	SL -	SLUDGE
GW -	GROUNDWATER	SD -	SOLID
SW -	SURFACE WATER	A -	AIR
ST -	STORM WATER	L -	LIQUID
W -	WATER	P -	PRODUCT

REMARKS/ADDITIONAL INFORMATION

SAMPLED BY AND TITLE: C. Packer, H. Auld / ACC — DATE/TIME: See above

RELINQUISHED BY: — DATE/TIME: 3-6-19 / 1613

RECEIVED BY: — DATE/TIME:

RELINQUISHED BY: — DATE/TIME:

RECEIVED BY LAB: — DATE/TIME: 3/6/19 1613

SAMPLE SHIPPED VIA: UPS FED-EX USPS COURIER CLIENT OTHER FS

pH Checked: Yes No NA — Ice: Yes No NA — Temperature: Min: 2 Max: 4°C — Custody Seal: Intact Broken Not Present — # of Coolers: — Cooler ID:

WO#: 2615736

2615736

CHAIN OF CUSTODY RECORD

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PROJECT NAME/STATE: Plant Yates - Ash Pond 3

PROJECT #:

ANALYSIS REQUESTED

Collection DATE	Collection TIME	MATRIX CODE*	COMP	GRAB	SAMPLE IDENTIFICATION	# of CONTAINERS	Metals App. IV (EPA 6020/7470)	Flouride	Radium 226 & 228 (SW-846 9315/9320)	LAB ID NUMBER
					CONTAINER TYPE:		P	P	P	
					PRESERVATION:		3	7	3	
3-4-19	1435	GW		✓	YGWA-41	4	1	1	2	1
3-4-19	1317	GW		✓	YGWA-5I	4	1	1	2	2
3-4-19	1203	GW		✓	YGWA-5D	4	1	1	2	3
3-5-19	1138	GW		✓	YGWA-17S	4	1	1	2	4
3-5-19	1653	GW		✓	YGWA-18S	4	1	1	2	5
3-6-19	1125	GW		✓	YGWA-18I	4	1	1	2	6
3-5-19	1340	GW		✓	YGWA-20S	4	1	1	2	7
3-5-19	1205	GW		✓	YGWA-21I	4	1	1	2	8
3-6-19	1315	GW		✓	YGWC-23S	6	1	1	4	9
3-5-19	1455	GW		✓	YGWC-24S	4	1	1	2	10
3-6-19	1300	GW		✓	YGWC-33S	4	1	1	2	11
3-6-19	1130	GW		✓	YGWC-36	4	1	1	2	12

extra Rad here

CONTAINER TYPE / PRESERVATION

CONTAINER TYPE	PRESERVATION
P - PLASTIC	1 - HCl, ≤6°C
A - AMBER GLASS	2 - H_2SO_4, ≤6°C
G - CLEAR GLASS	3 - HNO_3
V - VOA VIAL	4 - NaOH, ≤6°C
S - STERILE	5 - NaOH/ZnAc, ≤6°C
O - OTHER	6 - $Na_2S_2O_3$, ≤6°C
	7 - ≤6°C not frozen

*MATRIX CODES:

DW - DRINKING WATER	S - SOIL
WW - WASTEWATER	SL - SLUDGE
GW - GROUNDWATER	SD - SOLID
SW - SURFACE WATER	A - AIR
ST - STORM WATER	L - LIQUID
W - WATER	P - PRODUCT

REMARKS/ADDITIONAL INFORMATION

SAMPLED BY AND TITLE: C. Parker, H. Auld ATC

DATE/TIME: See above

RELINQUISHED BY:

DATE/TIME: 3-6-19 1613

RECEIVED BY:

DATE/TIME:

RELINQUISHED BY:

DATE/TIME:

FOR LAB USE ONLY

LAB #: WO#: 2615736

RECEIVED BY LAB:

DATE/TIME: 3/6/19 1613

SAMPLE SHIPPED VIA: UPS FED-EX USPS COURIER CLIENT OTHER

pH checked: Yes No NA

Ice: Yes No NA

Temperature: Min: 2 Max: 4 °C

Custody Seal: Intact Broken Not Present

# of Coolers:

Cooler ID:

PM: BM Due Date: 03/13/19

CLIENT: GAPower-CCR

APPROV

Pace Analytical

Sample Condition Upon Receipt

WO#: 2615736

PM: BM **Due Date: 03/13/19**

CLIENT: GAPower-CCR

Client Name: Georgia Power - CCR

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

Tracking #: _____

Optional
Proj. Due Date:
Proj. Name:

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

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

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

Cooler Temperature 2.4°C **Biological Tissue is Frozen:** Yes No

Date and Initials of person examining contents: 3/7/19 JW

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: WT					
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

April 04, 2019

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

RE: Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on March 06, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the report issued on 4/2/2019. The report has been revised to correct a sample ID per consultant request. No other changes have been made to this report.

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

Sincerely,

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

Enclosures

cc: Chris Parker, Atlantic Coast Consulting
Evan Perry, Atlantic Coast Consulting
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Pennsylvania Certification IDs

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

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110 Technology Parkway
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(770)734-4200

SAMPLE SUMMARY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2615739001	**YGWA-4I**	Water	03/04/19 14:35	03/06/19 16:13
2615739002	**YGWA-5I**	Water	03/04/19 13:17	03/06/19 16:13
2615739003	**YGWA-5D**	Water	03/04/19 12:03	03/06/19 16:13
2615739004	**YGWA-17S**	Water	03/05/19 11:38	03/06/19 16:13
2615739005	**YGWA-18S**	Water	03/05/19 16:53	03/06/19 16:13
2615739006	**YGWA-18I**	Water	03/06/19 11:25	03/06/19 16:13
2615739007	**YGWA-20S**	Water	03/05/19 13:40	03/06/19 16:13
2615739008	**YGWA-21I**	Water	03/05/19 12:05	03/06/19 16:13
2615739009	**YGWC-23S**	Water	03/06/19 13:15	03/06/19 16:13
2615739010	**YGWC-24S**	Water	03/05/19 14:55	03/06/19 16:13
2615739011	**YGWC-33S**	Water	03/06/19 13:00	03/06/19 16:13
2615739012	**YGWC-36**	Water	03/06/19 11:30	03/06/19 16:13
2615739013	**EB-3-3-5-19**	Water	03/05/19 11:00	03/06/19 16:13
2615739014	**EB-4-3-6-19**	Water	03/06/19 10:45	03/06/19 16:13
2615739015	**DUP-3**	Water	03/06/19 00:00	03/06/19 16:13
2615739016	**DUP-4**	Water	03/06/19 00:00	03/06/19 16:13
2615739017	**FB-3-3-5-19**	Water	03/05/19 13:30	03/06/19 16:13
2615739018	**FB-4-3-6-19**	Water	03/06/19 13:45	03/06/19 16:13

Pace Analytical Services, LLC
110 Technology Parkway
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SAMPLE ANALYTE COUNT

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2615739001	**YGWA-4I**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739002	**YGWA-5I**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739003	**YGWA-5D**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739004	**YGWA-17S**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739005	**YGWA-18S**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739006	**YGWA-18I**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739007	**YGWA-20S**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739008	**YGWA-21I**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739009	**YGWC-23S**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739010	**YGWC-24S**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739011	**YGWC-33S**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739012	**YGWC-36**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739013	**EB-3-3-5-19**	EPA 9315	LAL	1	PASI-PA

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739014	**EB-4-3-6-19**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739015	**DUP-3**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739016	**DUP-4**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739017	**FB-3-3-5-19**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2615739018	**FB-4-3-6-19**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWA-4I **Lab ID: 2615739001** Collected: 03/04/19 14:35 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.593 ± 0.324 (0.460) C:88% T:NA**	pCi/L	03/20/19 08:33	13982-63-3	
Radium-228	EPA 9320	**0.620 ± 0.507 (1.03) C:77% T:87%**	pCi/L	03/27/19 16:12	15262-20-1	
Total Radium	Total Radium Calculation	**1.21 ± 0.831 (1.49)**	pCi/L	03/28/19 15:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWA-5I **Lab ID: 2615739002** Collected: 03/04/19 13:17 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.561 ± 0.328 (0.486) C:84% T:NA**	pCi/L	03/20/19 08:32	13982-63-3	
Radium-228	EPA 9320	**0.442 ± 0.359 (0.715) C:72% T:90%**	pCi/L	03/27/19 12:58	15262-20-1	
Total Radium	Total Radium Calculation	**1.00 ± 0.687 (1.20)**	pCi/L	03/28/19 15:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWA-5D **Lab ID: 2615739003** Collected: 03/04/19 12:03 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**3.08 ± 0.790 (0.590) C:87% T:NA**	pCi/L	03/20/19 08:32	13982-63-3	
Radium-228	EPA 9320	**1.35 ± 0.489 (0.716) C:72% T:91%**	pCi/L	03/27/19 12:58	15262-20-1	
Total Radium	Total Radium Calculation	**4.43 ± 1.28 (1.31)**	pCi/L	03/28/19 15:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWA-17S **Lab ID: 2615739004** Collected: 03/05/19 11:38 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.223 ± 0.235 (0.464) C:95% T:NA**	pCi/L	03/20/19 08:33	13982-63-3	
Radium-228	EPA 9320	**0.0490 ± 0.394 (0.897) C:76% T:91%**	pCi/L	03/27/19 16:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.272 ± 0.629 (1.36)**	pCi/L	03/28/19 15:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWA-18S **Lab ID: 2615739005** Collected: 03/05/19 16:53 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.264 ± 0.250 (0.483) C:97% T:NA**	pCi/L	03/20/19 08:33	13982-63-3	
Radium-228	EPA 9320	**0.210 ± 0.458 (1.01) C:75% T:82%**	pCi/L	03/27/19 16:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.474 ± 0.708 (1.49)**	pCi/L	03/28/19 15:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWA-18I **Lab ID: 2615739006** Collected: 03/06/19 11:25 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.502 ± 0.292 (0.403) C:90% T:NA**	pCi/L	03/20/19 08:33	13982-63-3	
Radium-228	EPA 9320	**0.212 ± 0.352 (0.767) C:74% T:91%**	pCi/L	03/27/19 16:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.714 ± 0.644 (1.17)**	pCi/L	03/28/19 15:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWA-20S **Lab ID: 2615739007** Collected: 03/05/19 13:40 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.424 ± 0.295 (0.489) C:88% T:NA**	pCi/L	03/20/19 08:33	13982-63-3	
Radium-228	EPA 9320	**0.416 ± 0.501 (1.06) C:73% T:82%**	pCi/L	03/27/19 16:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.840 ± 0.796 (1.55)**	pCi/L	03/28/19 15:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWA-21I **Lab ID: 2615739008** Collected: 03/05/19 12:05 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.985 ± 0.404 (0.437) C:89% T:NA**	pCi/L	03/20/19 08:33	13982-63-3	
Radium-228	EPA 9320	**-0.181 ± 0.459 (1.08) C:76% T:89%**	pCi/L	03/27/19 16:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.985 ± 0.863 (1.52)**	pCi/L	03/28/19 15:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWC-23S **Lab ID: 2615739009** Collected: 03/06/19 13:15 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.278 ± 0.229 (0.374) C:88% T:NA**	pCi/L	03/20/19 08:34	13982-63-3	
Radium-228	EPA 9320	**0.458 ± 0.403 (0.814) C:77% T:80%**	pCi/L	03/27/19 16:13	15262-20-1	
Total Radium	Total Radium Calculation	**0.736 ± 0.632 (1.19)**	pCi/L	03/28/19 15:38	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWC-24S **Lab ID: 2615739010** Collected: 03/05/19 14:55 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.229 ± 0.223 (0.406) C:89% T:NA**	pCi/L	03/20/19 08:31	13982-63-3	
Radium-228	EPA 9320	**0.608 ± 0.429 (0.838) C:76% T:87%**	pCi/L	03/27/19 16:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.837 ± 0.652 (1.24)**	pCi/L	03/28/19 15:38	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWC-33S **Lab ID: 2615739011** Collected: 03/06/19 13:00 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.939 ± 0.385 (0.403) C:94% T:NA**	pCi/L	03/20/19 08:32	13982-63-3	
Radium-228	EPA 9320	**0.0313 ± 0.370 (0.851) C:75% T:83%**	pCi/L	03/27/19 16:13	15262-20-1	
Total Radium	Total Radium Calculation	**0.970 ± 0.755 (1.25)**	pCi/L	03/28/19 15:38	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: YGWC-36 **Lab ID: 2615739012** Collected: 03/06/19 11:30 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.919 ± 0.425 (0.593) C:87% T:NA**	pCi/L	03/20/19 08:31	13982-63-3	
Radium-228	EPA 9320	**-0.178 ± 0.339 (0.830) C:75% T:83%**	pCi/L	03/27/19 16:13	15262-20-1	
Total Radium	Total Radium Calculation	**0.919 ± 0.764 (1.42)**	pCi/L	03/28/19 15:38	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: EB-3-3-5-19 **Lab ID: 2615739013** Collected: 03/05/19 11:00 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.0654 ± 0.159 (0.383) C:91% T:NA**	pCi/L	03/20/19 08:31	13982-63-3	
Radium-228	EPA 9320	**0.181 ± 0.337 (0.739) C:76% T:89%**	pCi/L	03/27/19 16:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.246 ± 0.496 (1.12)**	pCi/L	03/28/19 15:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: EB-4-3-6-19 **Lab ID: 2615739014** Collected: 03/06/19 10:45 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.471 ± 0.291 (0.425) C:91% T:NA**	pCi/L	03/20/19 08:32	13982-63-3	
Radium-228	EPA 9320	**0.157 ± 0.367 (0.815) C:76% T:89%**	pCi/L	03/27/19 16:13	15262-20-1	
Total Radium	Total Radium Calculation	**0.628 ± 0.658 (1.24)**	pCi/L	03/28/19 15:38	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: DUP-3 **Lab ID: 2615739015** Collected: 03/06/19 00:00 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.154 ± 0.238 (0.524) C:89% T:NA**	pCi/L	03/20/19 08:31	13982-63-3	
Radium-228	EPA 9320	**0.0842 ± 0.386 (0.876) C:73% T:85%**	pCi/L	03/27/19 16:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.238 ± 0.624 (1.40)**	pCi/L	03/28/19 15:38	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: DUP-4 **Lab ID: 2615739016** Collected: 03/06/19 00:00 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.936 ± 0.397 (0.479) C:95% T:NA**	pCi/L	03/20/19 08:31	13982-63-3	
Radium-228	EPA 9320	**0.718 ± 0.431 (0.804) C:73% T:86%**	pCi/L	03/27/19 16:13	15262-20-1	
Total Radium	Total Radium Calculation	**1.65 ± 0.828 (1.28)**	pCi/L	03/28/19 15:38	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: FB-3-3-5-19 **Lab ID: 2615739017** Collected: 03/05/19 13:30 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**-0.0550 ± 0.211 (0.598) C:92% T:NA**	pCi/L	03/20/19 08:31	13982-63-3	
Radium-228	EPA 9320	**0.510 ± 0.379 (0.740) C:76% T:87%**	pCi/L	03/27/19 16:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.510 ± 0.590 (1.34)**	pCi/L	03/28/19 15:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Sample: FB-4-3-6-19 **Lab ID: 2615739018** Collected: 03/06/19 13:45 Received: 03/06/19 16:13 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.322 ± 0.264 (0.478) C:93% T:NA**	pCi/L	03/20/19 08:34	13982-63-3	
Radium-228	EPA 9320	**-0.0367 ± 0.356 (0.835) C:73% T:85%**	pCi/L	03/27/19 16:13	15262-20-1	
Total Radium	Total Radium Calculation	**0.322 ± 0.620 (1.31)**	pCi/L	03/28/19 15:38	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

QC Batch: 333842 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2615739001, 2615739002, 2615739003, 2615739004, 2615739005, 2615739006, 2615739007, 2615739008, 2615739009, 2615739010, 2615739011, 2615739012, 2615739013, 2615739014, 2615739015, 2615739016, 2615739017, 2615739018

METHOD BLANK: 1624774 Matrix: Water
Associated Lab Samples: 2615739001, 2615739002, 2615739003, 2615739004, 2615739005, 2615739006, 2615739007, 2615739008, 2615739009, 2615739010, 2615739011, 2615739012, 2615739013, 2615739014, 2615739015, 2615739016, 2615739017, 2615739018

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0453 ± 0.182 (0.464) C:88% T:NA	pCi/L	03/20/19 08:32	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

QC Batch: 334689 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2615739001, 2615739002, 2615739003, 2615739004, 2615739005, 2615739006, 2615739007, 2615739008, 2615739009, 2615739010, 2615739011, 2615739012, 2615739013, 2615739014, 2615739015, 2615739016, 2615739017, 2615739018

METHOD BLANK: 1628695 Matrix: Water
Associated Lab Samples: 2615739001, 2615739002, 2615739003, 2615739004, 2615739005, 2615739006, 2615739007, 2615739008, 2615739009, 2615739010, 2615739011, 2615739012, 2615739013, 2615739014, 2615739015, 2615739016, 2615739017, 2615739018

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0633 ± 0.285 (0.651) C:77% T:86%	pCi/L	03/27/19 12:58	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615739001	YGWA-4I	EPA 9315	333842		
2615739002	YGWA-5I	EPA 9315	333842		
2615739003	YGWA-5D	EPA 9315	333842		
2615739004	YGWA-17S	EPA 9315	333842		
2615739005	YGWA-18S	EPA 9315	333842		
2615739006	YGWA-18I	EPA 9315	333842		
2615739007	YGWA-20S	EPA 9315	333842		
2615739008	YGWA-21I	EPA 9315	333842		
2615739009	YGWC-23S	EPA 9315	333842		
2615739010	YGWC-24S	EPA 9315	333842		
2615739011	YGWC-33S	EPA 9315	333842		
2615739012	YGWC-36	EPA 9315	333842		
2615739013	EB-3-3-5-19	EPA 9315	333842		
2615739014	EB-4-3-6-19	EPA 9315	333842		
2615739015	DUP-3	EPA 9315	333842		
2615739016	DUP-4	EPA 9315	333842		
2615739017	FB-3-3-5-19	EPA 9315	333842		
2615739018	FB-4-3-6-19	EPA 9315	333842		
2615739001	YGWA-4I	EPA 9320	334689		
2615739002	YGWA-5I	EPA 9320	334689		
2615739003	YGWA-5D	EPA 9320	334689		
2615739004	YGWA-17S	EPA 9320	334689		
2615739005	YGWA-18S	EPA 9320	334689		
2615739006	YGWA-18I	EPA 9320	334689		
2615739007	YGWA-20S	EPA 9320	334689		
2615739008	YGWA-21I	EPA 9320	334689		
2615739009	YGWC-23S	EPA 9320	334689		
2615739010	YGWC-24S	EPA 9320	334689		
2615739011	YGWC-33S	EPA 9320	334689		
2615739012	YGWC-36	EPA 9320	334689		
2615739013	EB-3-3-5-19	EPA 9320	334689		
2615739014	EB-4-3-6-19	EPA 9320	334689		
2615739015	DUP-3	EPA 9320	334689		
2615739016	DUP-4	EPA 9320	334689		
2615739017	FB-3-3-5-19	EPA 9320	334689		
2615739018	FB-4-3-6-19	EPA 9320	334689		
2615739001	YGWA-4I	Total Radium Calculation	335990		
2615739002	YGWA-5I	Total Radium Calculation	335990		
2615739003	YGWA-5D	Total Radium Calculation	335990		
2615739004	YGWA-17S	Total Radium Calculation	335990		
2615739005	YGWA-18S	Total Radium Calculation	335990		
2615739006	YGWA-18I	Total Radium Calculation	335990		
2615739007	YGWA-20S	Total Radium Calculation	335990		
2615739008	YGWA-21I	Total Radium Calculation	335990		
2615739009	YGWC-23S	Total Radium Calculation	335992		
2615739010	YGWC-24S	Total Radium Calculation	335992		
2615739011	YGWC-33S	Total Radium Calculation	335992		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Yates - Ash Pond 3
Pace Project No.: 2615739

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2615739012	**YGWC-36**	Total Radium Calculation	335992		
2615739013	**EB-3-3-5-19**	Total Radium Calculation	335990		
2615739014	**EB-4-3-6-19**	Total Radium Calculation	335992		
2615739015	**DUP-3**	Total Radium Calculation	335992		
2615739016	**DUP-4**	Total Radium Calculation	335992		
2615739017	**FB-3-3-5-19**	Total Radium Calculation	335990		
2615739018	**FB-4-3-6-19**	Total Radium Calculation	335992		

CHAIN OF CUSTODY RECORD

Pace Analytical®

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

CLIENT NAME: Georgia Power

CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:
241 Ralph McGill Blvd SE B10185
Atlanta, GA 30308
404-506-7239

REPORT TO: Joju Abraham

CC:

REQUESTED COMPLETION DATE:

PO #:

PROJECT NAME/STATE: Plant Yates - Ash Pond 3

PROJECT #:

ANALYSIS REQUESTED

Collection DATE	Collection TIME	MATRIX CODE*	COMP	GRAB	SAMPLE IDENTIFICATION	# of CONTAINERS	Metals App. IV (EPA 6020/7470)	Flouride	Radium 226 & 228 (SW-846 9315/9320)	LAB ID NUMBER	REMARKS/ADDITIONAL INFORMATION
CONTAINER TYPE:							P	P	P		
PRESERVATION:							3	7	3		
3-4-19	1435	GW		✓	YGWA-41	4	1	1	2	1	
3-4-19	1317	GW		✓	YGWA-5I	4	1	1	2	2	
3-4-19	1203	GW		✓	YGWA-5D	4	1	1	2	3	
3-5-19	1138	GW		✓	YGWA-17S	4	1	1	2	4	
3-5-19	1653	GW		✓	YGWA-18S	4	1	1	2	5	
3-6-19	1125	GW		✓	YGWA-18I	4	1	1	2	6	
3-5-19	1340	GW		✓	YGWA-20S	4	1	1	2	7	
3-5-19	1205	GW		✓	YGWA-21I	4	1	1	2	8	
3-6-19	1315	GW		✓	YGWC-23S	6	1	1	4	9	extra Rad here
3-5-19	1455	GW		✓	YGWC-24S	4	1	1	2	10	
3-6-19	1300	GW		✓	YGWC-33S	4	1	1	2	11	
3-6-19	1130	GW		✓	YGWC-36	4	1	1	2	12	

CONTAINER TYPE / PRESERVATION

CONTAINER TYPE	PRESERVATION
P - PLASTIC	1 - HCl, ≤6°C
A - AMBER GLASS	2 - H_2SO_4, ≤6°C
G - CLEAR GLASS	3 - HNO_3
V - VOA VIAL	4 - NaOH, ≤6°C
S - STERILE	5 - NaOH/ZnAc, ≤6°C
O - OTHER	6 - $Na_2S_2O_3$, ≤6°C
	7 - ≤6°C not frozen

*MATRIX CODES:

DW -	DRINKING WATER	S -	SOIL
WW -	WASTEWATER	SL -	SLUDGE
GW -	GROUNDWATER	SD -	SOLID
SW -	SURFACE WATER	A -	AIR
ST -	STORM WATER	L -	LIQUID
W -	WATER	P -	PRODUCT

SAMPLED BY AND TITLE: C. Parker, H. Auld ATC

DATE/TIME: See above

RELINQUISHED BY:

DATE/TIME: 3-6-19 1613

RECEIVED BY:

DATE/TIME:

RELINQUISHED BY:

DATE/TIME:

FOR LAB USE ONLY
LAB #: WO#: 2615739

RECEIVED BY LAB:

DATE/TIME: 3/6/19 1613

SAMPLE SHIPPED VIA: UPS FED-EX USPS COURIER CLIENT OTHER

pH checked: Yes No NA

Ice: Yes No NA

Temperature: Min 2 4°C Max

Custody Seal: Intact Broken Not Present

# of Coolers:

Cooler ID:

CHAIN OF CUSTODY RECORD

Pace Analytical®

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

CLIENT NAME: Georgia Power

CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:
241 Ralph McGill Blvd SE B10185
Atlanta, GA 30308
404-506-7239

REPORT TO: Joju Abraham

CC:

REQUESTED COMPLETION DATE:

PO #:

PROJECT NAME/STATE: Plant Yates - Ash Pond 3

PROJECT #:

ANALYSIS REQUESTED

Collection DATE	Collection TIME	MATRIX CODE*	COMP	GRAB	SAMPLE IDENTIFICATION	# of CONTAINERS	Metals App. IV (EPA 6020/7470)	Flouride	Radium 226 & 228 (SW-846 9315/9320)	LAB ID NUMBER
		CONTAINER TYPE:					P	P	P	
		PRESERVATION:					3	7	3	
3-5-19	1100	W		✓	EB-3-3-5-19	4	1	1	2	13
3-6-19	1045	W		✓	EB-4-3-6-19	4	1	1	2	14
3-6-19	—	GW		✓	DUP-3	4	1	1	2	15
3-6-19	—	GW		✓	DUP-4	4	1	1	2	16
3-5-19	1330	W		✓	FB-3-3-5-19	4	1	1	2	17
3-6-19	1345	W		✓	FB-4-3-6-19	4	1	1	2	18

CONTAINER TYPE / PRESERVATION

CONTAINER TYPE	PRESERVATION
P - PLASTIC	1 - HCl, ≤6°C
A - AMBER GLASS	2 - H_2SO_4, ≤6°C
G - CLEAR GLASS	3 - HNO_3
V - VOA VIAL	4 - NaOH, ≤6°C
S - STERILE	5 - NaOH/ZnAc, ≤6°C
O - OTHER	6 - $Na_2S_2O_3$, ≤6°C
	7 - ≤6°C not frozen

*MATRIX CODES:

DW -	DRINKING WATER	S -	SOIL
WW -	WASTEWATER	SL -	SLUDGE
GW -	GROUNDWATER	SD -	SOLID
SW -	SURFACE WATER	A -	AIR
ST -	STORM WATER	L -	LIQUID
W -	WATER	P -	PRODUCT

REMARKS/ADDITIONAL INFORMATION

SAMPLED BY AND TITLE: C. Parker, H. Auld / ACC — DATE/TIME: see above — RELINQUISHED BY: [signature] — DATE/TIME: 3-6-19 / 1613

RECEIVED BY: — DATE/TIME: — RELINQUISHED BY: — DATE/TIME:

RECEIVED BY LAB: [signature] — DATE/TIME: 3/6/19 1613

pH Checked: Yes No NA — Ice: Yes No NA — Temperature: Min: 2 Max: 4

SAMPLE SHIPPED VIA: UPS FED-EX USPS COURIER CLIENT OTHER

Custody Seal: Intact Broken Not Present — # of Coolers — Cooler ID:

FOR LAB USE ONLY

LAB #:

WO# : 2615739

PM: BM Due Date: 04/03/19

CLIENT: GAPower-CCR

Sample Condition Upon Receipt

WO# : 2615739

Pace Analytical

Client Name: Georgia Power - CCR

PM: BM Due Date: 04/03/19

CLIENT: GAPower-CCR

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

Tracking #: _____

Optional: Proj. Due Date: Proj. Name:

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

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

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

Cooler Temperature 2.4°c Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 3/7/19 jw

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: WT			
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

April 12, 2019

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

RE: Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on April 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Chris Parker, Atlantic Coast Consulting
Evan Perry, Atlantic Coast Consulting
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta

Pace Analytical Services, LLC
110 Technology Parkway
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CERTIFICATIONS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

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 Yates Ash Pond 3
Pace Project No.: 2617035

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617035001	**YGWA-4I**	Water	04/03/19 13:50	04/04/19 17:22
2617035002	**YGWA-5I**	Water	04/03/19 15:40	04/04/19 17:22
2617035003	**YGWA-5D**	Water	04/03/19 13:55	04/04/19 17:22
2617035004	**YGWA-17S**	Water	04/02/19 15:10	04/04/19 17:22
2617035005	**YGWA-18S**	Water	04/03/19 10:15	04/04/19 17:22
2617035006	**YGWA-18I**	Water	04/03/19 11:35	04/04/19 17:22
2617035007	**YGWA-20S**	Water	04/03/19 12:30	04/04/19 17:22
2617035008	**YGWA-21I**	Water	04/02/19 15:56	04/04/19 17:22
2617035009	**YGWC-23S**	Water	04/04/19 13:05	04/04/19 17:22
2617035010	**YGWC-24S**	Water	04/04/19 12:20	04/04/19 17:22
2617035011	**YGWC-33S**	Water	04/04/19 11:35	04/04/19 17:22
2617035012	**YGWC-36**	Water	04/04/19 14:35	04/04/19 17:22
2617035013	**EB-1-4-3-19**	Water	04/03/19 11:00	04/04/19 17:22
2617035014	**EB-2-4-4-19**	Water	04/04/19 11:25	04/04/19 17:22
2617035015	**Dup-1**	Water	04/03/19 00:00	04/04/19 17:22
2617035016	**Dup-2**	Water	04/04/19 00:00	04/04/19 17:22
2617035017	**FB-1-4-3-19**	Water	04/03/19 13:20	04/04/19 17:22
2617035018	**FB-2-4-4-19**	Water	04/04/19 13:25	04/04/19 17:22

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2617035001	YGWA-4I	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035002	YGWA-5I	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035003	YGWA-5D	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035004	YGWA-17S	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035005	YGWA-18S	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035006	YGWA-18I	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035007	YGWA-20S	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035008	YGWA-21I	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035009	YGWC-23S	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035010	YGWC-24S	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035011	YGWC-33S	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035012	YGWC-36	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035013	EB-1-4-3-19	EPA 6020B	CSW	12

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SAMPLE ANALYTE COUNT

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035014	**EB-2-4-4-19**	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035015	**Dup-1**	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035016	**Dup-2**	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035017	**FB-1-4-3-19**	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2617035018	**FB-2-4-4-19**	EPA 6020B	CSW	12
		SM 2540C	RLC	1
		EPA 300.0	RLC	3

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWA-4I **Lab ID: 2617035001** Collected: 04/03/19 13:50 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/10/19 21:44	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/10/19 21:44	7440-38-2	
Barium	**0.017**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/10/19 21:44	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/10/19 21:44	7440-41-7	
Boron	**0.0055J**	mg/L	0.040	0.0039	1	04/08/19 11:40	04/10/19 21:44	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/10/19 21:44	7440-43-9	
Calcium	**8.4**	mg/L	0.50	0.014	1	04/08/19 11:40	04/10/19 21:44	7440-70-2	M1
Cobalt	**0.00083J**	mg/L	0.010	0.00052	1	04/08/19 11:40	04/10/19 21:44	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/10/19 21:44	7439-92-1	
Lithium	**0.014J**	mg/L	0.050	0.00097	1	04/08/19 11:40	04/10/19 21:44	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/10/19 21:44	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/10/19 21:44	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**111**	mg/L	25.0	10.0	1		04/10/19 16:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.3**	mg/L	0.25	0.024	1		04/08/19 23:25	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/08/19 23:25	16984-48-8	
Sulfate	**8.5**	mg/L	1.0	0.017	1		04/08/19 23:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWA-5I **Lab ID: 2617035002** Collected: 04/03/19 15:40 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/10/19 22:35	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/10/19 22:35	7440-38-2	
Barium	**0.023**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/10/19 22:35	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/10/19 22:35	7440-41-7	
Boron	**0.0044J**	mg/L	0.040	0.0039	1	04/08/19 11:40	04/10/19 22:35	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/10/19 22:35	7440-43-9	
Calcium	**2.8**	mg/L	0.50	0.014	1	04/08/19 11:40	04/10/19 22:35	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/10/19 22:35	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/10/19 22:35	7439-92-1	
Lithium	**0.0035J**	mg/L	0.050	0.00097	1	04/08/19 11:40	04/10/19 22:35	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/10/19 22:35	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/10/19 22:35	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**83.0**	mg/L	25.0	10.0	1		04/10/19 16:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.2**	mg/L	0.25	0.024	1		04/09/19 00:27	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 00:27	16984-48-8	
Sulfate	**2.1**	mg/L	1.0	0.017	1		04/09/19 00:27	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWA-5D **Lab ID: 2617035003** Collected: 04/03/19 13:55 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/10/19 22:47	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/10/19 22:47	7440-38-2	
Barium	**0.0087J**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/10/19 22:47	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/10/19 22:47	7440-41-7	
Boron	**0.0076J**	mg/L	0.040	0.0039	1	04/08/19 11:40	04/10/19 22:47	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/10/19 22:47	7440-43-9	
Calcium	**24.7J**	mg/L	25.0	0.69	50	04/08/19 11:40	04/10/19 22:52	7440-70-2	D3
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/10/19 22:47	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/10/19 22:47	7439-92-1	
Lithium	**0.0070J**	mg/L	0.050	0.00097	1	04/08/19 11:40	04/10/19 22:47	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/10/19 22:47	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/10/19 22:47	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**142**	mg/L	25.0	10.0	1		04/10/19 16:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.0**	mg/L	0.25	0.024	1		04/09/19 00:48	16887-00-6	
Fluoride	**0.047J**	mg/L	0.30	0.029	1		04/09/19 00:48	16984-48-8	
Sulfate	**7.0**	mg/L	1.0	0.017	1		04/09/19 00:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWA-17S **Lab ID: 2617035004** Collected: 04/02/19 15:10 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/10/19 22:58	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/10/19 22:58	7440-38-2	
Barium	**0.016**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/10/19 22:58	7440-39-3	
Beryllium	**0.000090J**	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/10/19 22:58	7440-41-7	
Boron	**0.0066J**	mg/L	0.040	0.0039	1	04/08/19 11:40	04/10/19 22:58	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/10/19 22:58	7440-43-9	
Calcium	**2.5**	mg/L	0.50	0.014	1	04/08/19 11:40	04/10/19 22:58	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/10/19 22:58	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/10/19 22:58	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:40	04/10/19 22:58	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/10/19 22:58	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/10/19 22:58	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**72.0**	mg/L	25.0	10.0	1		04/09/19 18:50		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.8**	mg/L	0.25	0.024	1		04/09/19 01:09	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 01:09	16984-48-8	
Sulfate	**5.1**	mg/L	1.0	0.017	1		04/09/19 01:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWA-18S **Lab ID: 2617035005** Collected: 04/03/19 10:15 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/10/19 23:10	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/10/19 23:10	7440-38-2	
Barium	**0.017**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/10/19 23:10	7440-39-3	
Beryllium	**0.000075J**	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/10/19 23:10	7440-41-7	
Boron	**0.0053J**	mg/L	0.040	0.0039	1	04/08/19 11:40	04/10/19 23:10	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/10/19 23:10	7440-43-9	
Calcium	**1.2**	mg/L	0.50	0.014	1	04/08/19 11:40	04/10/19 23:10	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/10/19 23:10	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/10/19 23:10	7439-92-1	
Lithium	**0.0028J**	mg/L	0.050	0.00097	1	04/08/19 11:40	04/10/19 23:10	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/10/19 23:10	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/10/19 23:10	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**63.0**	mg/L	25.0	10.0	1		04/10/19 16:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.3**	mg/L	0.25	0.024	1		04/09/19 01:29	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 01:29	16984-48-8	
Sulfate	**1.3**	mg/L	1.0	0.017	1		04/09/19 01:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWA-18I **Lab ID: 2617035006** Collected: 04/03/19 11:35 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/10/19 23:21	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/10/19 23:21	7440-38-2	
Barium	**0.025**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/10/19 23:21	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/10/19 23:21	7440-41-7	
Boron	ND	mg/L	0.040	0.0039	1	04/08/19 11:40	04/10/19 23:21	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/10/19 23:21	7440-43-9	
Calcium	**5.3**	mg/L	0.50	0.014	1	04/08/19 11:40	04/10/19 23:21	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/10/19 23:21	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/10/19 23:21	7439-92-1	
Lithium	**0.0035J**	mg/L	0.050	0.00097	1	04/08/19 11:40	04/10/19 23:21	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/10/19 23:21	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/10/19 23:21	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**89.0**	mg/L	25.0	10.0	1		04/10/19 16:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.9**	mg/L	0.25	0.024	1		04/09/19 01:50	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 01:50	16984-48-8	
Sulfate	**0.82J**	mg/L	1.0	0.017	1		04/09/19 01:50	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWA-20S **Lab ID: 2617035007** Collected: 04/03/19 12:30 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/10/19 23:44	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/10/19 23:44	7440-38-2	
Barium	**0.018**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/10/19 23:44	7440-39-3	
Beryllium	**0.000064J**	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/10/19 23:44	7440-41-7	
Boron	ND	mg/L	0.040	0.0039	1	04/08/19 11:40	04/10/19 23:44	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/10/19 23:44	7440-43-9	
Calcium	**2.9**	mg/L	0.50	0.014	1	04/08/19 11:40	04/10/19 23:44	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/10/19 23:44	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/10/19 23:44	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:40	04/10/19 23:44	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/10/19 23:44	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/10/19 23:44	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**57.0**	mg/L	25.0	10.0	1		04/10/19 16:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.1**	mg/L	0.25	0.024	1		04/09/19 02:11	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 02:11	16984-48-8	
Sulfate	**0.12J**	mg/L	1.0	0.017	1		04/09/19 02:11	14808-79-8	B

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWA-21I **Lab ID: 2617035008** Collected: 04/02/19 15:56 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	**0.0011J**	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/10/19 23:55	7440-36-0	
Arsenic	**0.00096J**	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/10/19 23:55	7440-38-2	
Barium	**0.011**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/10/19 23:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/10/19 23:55	7440-41-7	
Boron	**0.011J**	mg/L	0.040	0.0039	1	04/08/19 11:40	04/10/19 23:55	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/10/19 23:55	7440-43-9	
Calcium	**8.8**	mg/L	0.50	0.014	1	04/08/19 11:40	04/10/19 23:55	7440-70-2	
Cobalt	**0.0039J**	mg/L	0.010	0.00052	1	04/08/19 11:40	04/10/19 23:55	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/10/19 23:55	7439-92-1	
Lithium	**0.0051J**	mg/L	0.050	0.00097	1	04/08/19 11:40	04/10/19 23:55	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/10/19 23:55	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/10/19 23:55	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**134**	mg/L	25.0	10.0	1		04/09/19 18:50		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**2.5**	mg/L	0.25	0.024	1		04/09/19 02:32	16887-00-6	
Fluoride	**0.12J**	mg/L	0.30	0.029	1		04/09/19 02:32	16984-48-8	
Sulfate	**3.8**	mg/L	1.0	0.017	1		04/09/19 02:32	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWC-23S **Lab ID: 2617035009** Collected: 04/04/19 13:05 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/11/19 00:07	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/11/19 00:07	7440-38-2	
Barium	**0.019**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/11/19 00:07	7440-39-3	
Beryllium	**0.000072J**	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/11/19 00:07	7440-41-7	
Boron	**0.60**	mg/L	0.040	0.0039	1	04/08/19 11:40	04/11/19 00:07	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/11/19 00:07	7440-43-9	
Calcium	**3.7**	mg/L	0.50	0.014	1	04/08/19 11:40	04/11/19 00:07	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/11/19 00:07	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/11/19 00:07	7439-92-1	
Lithium	**0.0018J**	mg/L	0.050	0.00097	1	04/08/19 11:40	04/11/19 00:07	7439-93-2	
Selenium	**0.017**	mg/L	0.010	0.0014	1	04/08/19 11:40	04/11/19 00:07	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/11/19 00:07	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**85.0**	mg/L	25.0	10.0	1		04/11/19 19:34		D6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**1.7**	mg/L	0.25	0.024	1		04/09/19 04:15	16887-00-6	
Fluoride	**0.049J**	mg/L	0.30	0.029	1		04/09/19 04:15	16984-48-8	
Sulfate	**27.9**	mg/L	1.0	0.017	1		04/09/19 04:15	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWC-24S **Lab ID: 2617035010** Collected: 04/04/19 12:20 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/11/19 00:18	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/11/19 00:18	7440-38-2	
Barium	**0.020**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/11/19 00:18	7440-39-3	
Beryllium	**0.00015J**	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/11/19 00:18	7440-41-7	
Boron	ND	mg/L	0.040	0.0039	1	04/08/19 11:40	04/11/19 00:18	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/11/19 00:18	7440-43-9	
Calcium	**1.9**	mg/L	0.50	0.014	1	04/08/19 11:40	04/11/19 00:18	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/11/19 00:18	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/11/19 00:18	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:40	04/11/19 00:18	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/11/19 00:18	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/11/19 00:18	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**63.0**	mg/L	25.0	10.0	1		04/11/19 19:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.9**	mg/L	0.25	0.024	1		04/09/19 04:36	16887-00-6	
Fluoride	**0.033J**	mg/L	0.30	0.029	1		04/09/19 04:36	16984-48-8	
Sulfate	**0.29J**	mg/L	1.0	0.017	1		04/09/19 04:36	14808-79-8	B

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWC-33S **Lab ID: 2617035011** Collected: 04/04/19 11:35 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/11/19 00:30	7440-36-0	
Arsenic	**0.0024J**	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/11/19 00:30	7440-38-2	
Barium	**0.014**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/11/19 00:30	7440-39-3	
Beryllium	**0.025**	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/11/19 00:30	7440-41-7	
Boron	**15.4**	mg/L	2.0	0.20	50	04/08/19 11:40	04/11/19 00:36	7440-42-8	
Cadmium	**0.0035**	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/11/19 00:30	7440-43-9	
Calcium	**163**	mg/L	25.0	0.69	50	04/08/19 11:40	04/11/19 00:36	7440-70-2	
Cobalt	**0.031**	mg/L	0.010	0.00052	1	04/08/19 11:40	04/11/19 00:30	7440-48-4	
Lead	**0.0014J**	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/11/19 00:30	7439-92-1	
Lithium	**0.035J**	mg/L	0.050	0.00097	1	04/08/19 11:40	04/11/19 00:30	7439-93-2	
Selenium	**0.012**	mg/L	0.010	0.0014	1	04/08/19 11:40	04/11/19 00:30	7782-49-2	
Thallium	**0.00018J**	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/11/19 00:30	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1260**	mg/L	25.0	10.0	1		04/11/19 19:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.8**	mg/L	0.25	0.024	1		04/09/19 05:18	16887-00-6	
Fluoride	**0.57**	mg/L	0.30	0.029	1		04/09/19 05:18	16984-48-8	
Sulfate	**847**	mg/L	50.0	0.85	50		04/09/19 10:08	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: YGWC-36 **Lab ID: 2617035012** Collected: 04/04/19 14:35 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	**0.0041**	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/11/19 00:53	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/11/19 00:53	7440-38-2	
Barium	**0.042**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/11/19 00:53	7440-39-3	
Beryllium	**0.00033J**	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/11/19 00:53	7440-41-7	
Boron	**0.22**	mg/L	0.040	0.0039	1	04/08/19 11:40	04/11/19 00:53	7440-42-8	
Cadmium	**0.00019J**	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/11/19 00:53	7440-43-9	
Calcium	**16.9J**	mg/L	25.0	0.69	50	04/08/19 11:40	04/11/19 00:58	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/11/19 00:53	7440-48-4	
Lead	**0.00037J**	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/11/19 00:53	7439-92-1	
Lithium	**0.0058J**	mg/L	0.050	0.00097	1	04/08/19 11:40	04/11/19 00:53	7439-93-2	
Selenium	**0.0029J**	mg/L	0.010	0.0014	1	04/08/19 11:40	04/11/19 00:53	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/11/19 00:53	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**240**	mg/L	25.0	10.0	1		04/11/19 19:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.4**	mg/L	0.25	0.024	1		04/09/19 05:38	16887-00-6	
Fluoride	**0.043J**	mg/L	0.30	0.029	1		04/09/19 05:38	16984-48-8	
Sulfate	**119**	mg/L	10.0	0.17	10		04/09/19 10:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: EB-1-4-3-19 **Lab ID: 2617035013** Collected: 04/03/19 11:00 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/11/19 01:04	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/11/19 01:04	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	04/08/19 11:40	04/11/19 01:04	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/11/19 01:04	7440-41-7	
Boron	ND	mg/L	0.040	0.0039	1	04/08/19 11:40	04/11/19 01:04	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/11/19 01:04	7440-43-9	
Calcium	ND	mg/L	0.50	0.014	1	04/08/19 11:40	04/11/19 01:04	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/11/19 01:04	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/11/19 01:04	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:40	04/11/19 01:04	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/11/19 01:04	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/11/19 01:04	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	25.0	10.0	1		04/10/19 16:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**0.27**	mg/L	0.25	0.024	1		04/09/19 05:59	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 05:59	16984-48-8	
Sulfate	**0.14J**	mg/L	1.0	0.017	1		04/09/19 05:59	14808-79-8	B

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: EB-2-4-4-19 **Lab ID: 2617035014** Collected: 04/04/19 11:25 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/11/19 01:10	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/11/19 01:10	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	04/08/19 11:40	04/11/19 01:10	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/11/19 01:10	7440-41-7	
Boron	ND	mg/L	0.040	0.0039	1	04/08/19 11:40	04/11/19 01:10	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/11/19 01:10	7440-43-9	
Calcium	ND	mg/L	0.50	0.014	1	04/08/19 11:40	04/11/19 01:10	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/11/19 01:10	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/11/19 01:10	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:40	04/11/19 01:10	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/11/19 01:10	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/11/19 01:10	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	25.0	10.0	1		04/11/19 19:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**0.23J**	mg/L	0.25	0.024	1		04/09/19 06:20	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 06:20	16984-48-8	
Sulfate	**0.069J**	mg/L	1.0	0.017	1		04/09/19 06:20	14808-79-8	B

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: Dup-1 **Lab ID: 2617035015** Collected: 04/03/19 00:00 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/11/19 01:16	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/11/19 01:16	7440-38-2	
Barium	**0.016**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/11/19 01:16	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/11/19 01:16	7440-41-7	
Boron	ND	mg/L	0.040	0.0039	1	04/08/19 11:40	04/11/19 01:16	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/11/19 01:16	7440-43-9	
Calcium	**8.5**	mg/L	0.50	0.014	1	04/08/19 11:40	04/11/19 01:16	7440-70-2	
Cobalt	**0.00078J**	mg/L	0.010	0.00052	1	04/08/19 11:40	04/11/19 01:16	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/11/19 01:16	7439-92-1	
Lithium	**0.014J**	mg/L	0.050	0.00097	1	04/08/19 11:40	04/11/19 01:16	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/11/19 01:16	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/11/19 01:16	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**81.0**	mg/L	25.0	10.0	1		04/10/19 16:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.6**	mg/L	0.25	0.024	1		04/09/19 06:41	16887-00-6	
Fluoride	**0.030J**	mg/L	0.30	0.029	1		04/09/19 06:41	16984-48-8	
Sulfate	**8.5**	mg/L	1.0	0.017	1		04/09/19 06:41	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: Dup-2 **Lab ID: 2617035016** Collected: 04/04/19 00:00 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/11/19 01:27	7440-36-0	
Arsenic	**0.0022J**	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/11/19 01:27	7440-38-2	
Barium	**0.012**	mg/L	0.010	0.00078	1	04/08/19 11:40	04/11/19 01:27	7440-39-3	
Beryllium	**0.023**	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/11/19 01:27	7440-41-7	
Boron	**9.0**	mg/L	0.040	0.0039	1	04/08/19 11:40	04/11/19 01:27	7440-42-8	
Cadmium	**0.0032**	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/11/19 01:27	7440-43-9	
Calcium	**145**	mg/L	25.0	0.69	50	04/08/19 11:40	04/11/19 01:33	7440-70-2	
Cobalt	**0.029**	mg/L	0.010	0.00052	1	04/08/19 11:40	04/11/19 01:27	7440-48-4	
Lead	**0.0013J**	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/11/19 01:27	7439-92-1	
Lithium	**0.033J**	mg/L	0.050	0.00097	1	04/08/19 11:40	04/11/19 01:27	7439-93-2	
Selenium	**0.011**	mg/L	0.010	0.0014	1	04/08/19 11:40	04/11/19 01:27	7782-49-2	
Thallium	**0.00017J**	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/11/19 01:27	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1320**	mg/L	25.0	10.0	1		04/11/19 19:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.8**	mg/L	0.25	0.024	1		04/09/19 07:02	16887-00-6	
Fluoride	**0.56**	mg/L	0.30	0.029	1		04/09/19 07:02	16984-48-8	
Sulfate	**735**	mg/L	50.0	0.85	50		04/12/19 05:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: FB-1-4-3-19 **Lab ID: 2617035017** Collected: 04/03/19 13:20 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/11/19 01:56	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/11/19 01:56	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	04/08/19 11:40	04/11/19 01:56	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/11/19 01:56	7440-41-7	
Boron	ND	mg/L	0.040	0.0039	1	04/08/19 11:40	04/11/19 01:56	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/11/19 01:56	7440-43-9	
Calcium	**0.016J**	mg/L	0.50	0.014	1	04/08/19 11:40	04/11/19 01:56	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/11/19 01:56	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/11/19 01:56	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:40	04/11/19 01:56	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/11/19 01:56	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/11/19 01:56	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	25.0	10.0	1		04/10/19 16:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**0.31**	mg/L	0.25	0.024	1		04/09/19 07:22	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 07:22	16984-48-8	
Sulfate	**3.5**	mg/L	1.0	0.017	1		04/09/19 07:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Sample: FB-2-4-4-19 **Lab ID: 2617035018** Collected: 04/04/19 13:25 Received: 04/04/19 17:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:40	04/11/19 02:01	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:40	04/11/19 02:01	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	04/08/19 11:40	04/11/19 02:01	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:40	04/11/19 02:01	7440-41-7	
Boron	ND	mg/L	0.040	0.0039	1	04/08/19 11:40	04/11/19 02:01	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:40	04/11/19 02:01	7440-43-9	
Calcium	ND	mg/L	0.50	0.014	1	04/08/19 11:40	04/11/19 02:01	7440-70-2	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:40	04/11/19 02:01	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/08/19 11:40	04/11/19 02:01	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:40	04/11/19 02:01	7439-93-2	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:40	04/11/19 02:01	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:40	04/11/19 02:01	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	25.0	10.0	1		04/11/19 19:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**0.10J**	mg/L	0.25	0.024	1		04/09/19 09:06	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 09:06	16984-48-8	
Sulfate	**0.033J**	mg/L	1.0	0.017	1		04/09/19 09:06	14808-79-8	B

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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QUALITY CONTROL DATA

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

QC Batch: 25995 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2617035001, 2617035002, 2617035003, 2617035004, 2617035005, 2617035006, 2617035007, 2617035008, 2617035009, 2617035010, 2617035011, 2617035012, 2617035013, 2617035014, 2617035015, 2617035016, 2617035017, 2617035018

METHOD BLANK: 117356 Matrix: Water
Associated Lab Samples: 2617035001, 2617035002, 2617035003, 2617035004, 2617035005, 2617035006, 2617035007, 2617035008, 2617035009, 2617035010, 2617035011, 2617035012, 2617035013, 2617035014, 2617035015, 2617035016, 2617035017, 2617035018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	04/10/19 21:32	
Arsenic	mg/L	ND	0.0050	0.00057	04/10/19 21:32	
Barium	mg/L	ND	0.010	0.00078	04/10/19 21:32	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 21:32	
Boron	mg/L	ND	0.040	0.0039	04/10/19 21:32	
Cadmium	mg/L	ND	0.0010	0.000093	04/10/19 21:32	
Calcium	mg/L	ND	0.50	0.014	04/10/19 21:32	
Cobalt	mg/L	ND	0.010	0.00052	04/10/19 21:32	
Lead	mg/L	ND	0.0050	0.00027	04/10/19 21:32	
Lithium	mg/L	ND	0.050	0.00097	04/10/19 21:32	
Selenium	mg/L	ND	0.010	0.0014	04/10/19 21:32	
Thallium	mg/L	ND	0.0010	0.00014	04/10/19 21:32	

LABORATORY CONTROL SAMPLE: 117357

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	110	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.11	106	80-120	
Beryllium	mg/L	0.1	0.11	110	80-120	
Boron	mg/L	1	1.1	109	80-120	
Cadmium	mg/L	0.1	0.11	108	80-120	
Calcium	mg/L	1	1.0	102	80-120	
Cobalt	mg/L	0.1	0.10	105	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.11	109	80-120	
Selenium	mg/L	0.1	0.099	99	80-120	
Thallium	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE SAMPLE: 117359

Parameter	Units	2617035001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	ND	0.1	0.11	110	75-125	
Arsenic	mg/L	ND	0.1	0.10	101	75-125	
Barium	mg/L	0.017	0.1	0.12	106	75-125	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

MATRIX SPIKE SAMPLE: 117359

Parameter	Units	2617035001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Beryllium	mg/L	ND	0.1	0.098	98	75-125	
Boron	mg/L	0.0055J	1	0.99	98	75-125	
Cadmium	mg/L	ND	0.1	0.11	106	75-125	
Calcium	mg/L	8.4	1	9.4	107	75-125	
Cobalt	mg/L	0.00083J	0.1	0.10	103	75-125	
Lead	mg/L	ND	0.1	0.10	102	75-125	
Lithium	mg/L	0.014J	0.1	0.11	100	75-125	
Selenium	mg/L	ND	0.1	0.10	101	75-125	
Thallium	mg/L	ND	0.1	0.10	101	75-125	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

QC Batch: 26059 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617035004, 2617035008

LABORATORY CONTROL SAMPLE: 117667

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	407	102	84-108	

SAMPLE DUPLICATE: 117668

Parameter	Units	2616931001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	540	670	21	10	D6

SAMPLE DUPLICATE: 117669

Parameter	Units	2617082006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	728	766	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

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QUALITY CONTROL DATA

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

QC Batch: 26131 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617035001, 2617035002, 2617035003, 2617035005, 2617035006, 2617035007, 2617035013, 2617035015, 2617035017

LABORATORY CONTROL SAMPLE: 117963

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

SAMPLE DUPLICATE: 117964

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

SAMPLE DUPLICATE: 117965

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

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

QC Batch: 26251 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617035009, 2617035010, 2617035011, 2617035012, 2617035014, 2617035016, 2617035018

LABORATORY CONTROL SAMPLE: 118507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	404	101	84-108	

SAMPLE DUPLICATE: 118508

Parameter	Units	2617035009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	85.0	50.0	52	10	D6

SAMPLE DUPLICATE: 118509

Parameter	Units	2617069003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	340	341	0	10	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

QC Batch: 25956 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2617035001, 2617035002, 2617035003, 2617035004, 2617035005, 2617035006, 2617035007, 2617035008, 2617035009, 2617035010, 2617035011, 2617035012, 2617035013, 2617035014, 2617035015, 2617035016, 2617035017, 2617035018

METHOD BLANK: 117263 Matrix: Water
Associated Lab Samples: 2617035001, 2617035002, 2617035003, 2617035004, 2617035005, 2617035006, 2617035007, 2617035008, 2617035009, 2617035010, 2617035011, 2617035012, 2617035013, 2617035014, 2617035015, 2617035016, 2617035017, 2617035018

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

LABORATORY CONTROL SAMPLE: 117264

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117265 117266

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

MATRIX SPIKE SAMPLE: 117267

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

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 Yates Ash Pond 3
Pace Project No.: 2617035

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617035

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617035001	YGWA-4I	EPA 3005A	25995	EPA 6020B	26012
2617035002	YGWA-5I	EPA 3005A	25995	EPA 6020B	26012
2617035003	YGWA-5D	EPA 3005A	25995	EPA 6020B	26012
2617035004	YGWA-17S	EPA 3005A	25995	EPA 6020B	26012
2617035005	YGWA-18S	EPA 3005A	25995	EPA 6020B	26012
2617035006	YGWA-18I	EPA 3005A	25995	EPA 6020B	26012
2617035007	YGWA-20S	EPA 3005A	25995	EPA 6020B	26012
2617035008	YGWA-21I	EPA 3005A	25995	EPA 6020B	26012
2617035009	YGWC-23S	EPA 3005A	25995	EPA 6020B	26012
2617035010	YGWC-24S	EPA 3005A	25995	EPA 6020B	26012
2617035011	YGWC-33S	EPA 3005A	25995	EPA 6020B	26012
2617035012	YGWC-36	EPA 3005A	25995	EPA 6020B	26012
2617035013	EB-1-4-3-19	EPA 3005A	25995	EPA 6020B	26012
2617035014	EB-2-4-4-19	EPA 3005A	25995	EPA 6020B	26012
2617035015	Dup-1	EPA 3005A	25995	EPA 6020B	26012
2617035016	Dup-2	EPA 3005A	25995	EPA 6020B	26012
2617035017	FB-1-4-3-19	EPA 3005A	25995	EPA 6020B	26012
2617035018	FB-2-4-4-19	EPA 3005A	25995	EPA 6020B	26012
2617035001	YGWA-4I	SM 2540C	26131		
2617035002	YGWA-5I	SM 2540C	26131		
2617035003	YGWA-5D	SM 2540C	26131		
2617035004	YGWA-17S	SM 2540C	26059		
2617035005	YGWA-18S	SM 2540C	26131		
2617035006	YGWA-18I	SM 2540C	26131		
2617035007	YGWA-20S	SM 2540C	26131		
2617035008	YGWA-21I	SM 2540C	26059		
2617035009	YGWC-23S	SM 2540C	26251		
2617035010	YGWC-24S	SM 2540C	26251		
2617035011	YGWC-33S	SM 2540C	26251		
2617035012	YGWC-36	SM 2540C	26251		
2617035013	EB-1-4-3-19	SM 2540C	26131		
2617035014	EB-2-4-4-19	SM 2540C	26251		
2617035015	Dup-1	SM 2540C	26131		
2617035016	Dup-2	SM 2540C	26251		
2617035017	FB-1-4-3-19	SM 2540C	26131		
2617035018	FB-2-4-4-19	SM 2540C	26251		
2617035001	YGWA-4I	EPA 300.0	25956		
2617035002	YGWA-5I	EPA 300.0	25956		
2617035003	YGWA-5D	EPA 300.0	25956		
2617035004	YGWA-17S	EPA 300.0	25956		
2617035005	YGWA-18S	EPA 300.0	25956		
2617035006	YGWA-18I	EPA 300.0	25956		
2617035007	YGWA-20S	EPA 300.0	25956		

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 Yates Ash Pond 3
Pace Project No.: 2617035

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617035008	**YGWA-21I**	EPA 300.0	25956		
2617035009	**YGWC-23S**	EPA 300.0	25956		
2617035010	**YGWC-24S**	EPA 300.0	25956		
2617035011	**YGWC-33S**	EPA 300.0	25956		
2617035012	**YGWC-36**	EPA 300.0	25956		
2617035013	**EB-1-4-3-19**	EPA 300.0	25956		
2617035014	**EB-2-4-4-19**	EPA 300.0	25956		
2617035015	**Dup-1**	EPA 300.0	25956		
2617035016	**Dup-2**	EPA 300.0	25956		
2617035017	**FB-1-4-3-19**	EPA 300.0	25956		
2617035018	**FB-2-4-4-19**	EPA 300.0	25956		

CHAIN OF CUSTODY RECORD

Pace Analytical®

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

CLIENT NAME: Georgia Power

CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:
241 Ralph McGill Blvd SE B10185
~~Atlanta, GA 30308~~
404-506-7239

REPORT TO: Joju Abraham | CC:

REQUESTED COMPLETION DATE: | PO #:

PROJECT NAME/STATE: Plant Yates - Ash Pond 3

PROJECT #:

ANALYSIS REQUESTED

Collection DATE	Collection TIME	MATRIX CODE*	COMP	GRAB	SAMPLE IDENTIFICATION	# of CONTAINERS	Metals App. III (EPA 6020/7470) Boron, Calcium (P, 3)	Cl, F, SO_4 & TDS (EPA 300.0 & SM 2540C) (P, 7)	Detected App IV (See List below)	Det. App. IV Radium 226 & 228 (SW-846 9315/9320) (P, 3)	LAB ID NUMBER
4-3-19	1350	GW		✓	YGWA-4I	4	✓	✓	✓	✓	
4-3-19	1540	GW		✓	YGWA-5I	4	✓	✓	✓	✓	
4-3-19	1355	GW		✓	YGWA-5D	4	✓	✓	✓	✓	
4-2-19	1510	GW		✓	YGWA-17S	4	✓	✓	✓	✓	
4-3-19	1015	GW		✓	YGWA-18S	4	✓	✓	✓	✓	
4-3-19	1135	GW		✓	YGWA-18I	4	✓	✓	✓	✓	
4-3-19	1230	GW		✓	YGWA-20S	4	✓	✓	✓	✓	
4-2-19	1556	GW		✓	YGWA-21I	4	✓	✓	✓	✓	
4-4-19	1305	GW		✓	YGWC-23S	4	✓	✓	✓	✓	
4-4-19	1220	GW		✓	YGWC-24S	4	✓	✓	✓	✓	
4-4-19	1135	GW		✓	YGWC-33S	4	✓	✓	✓	✓	
4-4-19	1435	GW		✓	YGWC-36	6	✓	✓	✓	✓	

CONTAINER TYPE: P - PLASTIC; A - AMBER GLASS; G - CLEAR GLASS; V - VOA VIAL; S - STERILE; O - OTHER

PRESERVATION: 1 - HCl, ≤6°C; 2 - H_2SO_4, ≤6°C; 3 - HNO_3; 4 - NaOH, ≤6°C; 5 - NaOH/ZnAc, ≤6°C; 6 - $Na_2S_2O_3$, ≤6°C; 7 - ≤6°C not frozen

*MATRIX CODES: DW - DRINKING WATER; WW - WASTEWATER; GW - GROUNDWATER; SW - SURFACE WATER; ST - STORM WATER; W - WATER; S - SOIL; SL - SLUDGE; SD - SOLID; A - AIR; L - LIQUID; P - PRODUCT

REMARKS/ADDITIONAL INFORMATION: APP III plus detected APP IV

WO#: 2617035

2617035

Extra Rad here

SAMPLED BY AND TITLE: C. Parker, H. Auld | DATE/TIME: See above

RELINQUISHED BY: | DATE/TIME: 4-4-19 / 1722

RECEIVED BY: | DATE/TIME:

RELINQUISHED BY: | DATE/TIME:

RECEIVED BY/LAB: M Zalman | DATE/TIME: 04/04/19 1722

SAMPLE SHIPPED VIA: UPS FED-EX USPS COURIER CLIENT OTHER FS

pH Checked: Yes No NA | Ice: Yes No NA | Temperature: Min: 0.5 Max:

Custody Seal: Intact Broken Not Present | # of Coolers | Cooler ID:

FOR LAB USE ONLY
LAB #:
Entered into LIMS:
Tracking #:

APP III, plus Detected APP IV

Detected APP IV: Antimony, Arsenic, Barium, Beryllium, Cadmium, Cobalt, **Fluoride**, Lead, Lithium, Selenium, Thallium, **Radium**

Bolded Detections: Listed above or included with App III

CHAIN OF CUSTODY RECORD

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

CLIENT NAME: Georgia Power

CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:
241 Ralph McGill Blvd SE B10185
Atlanta, GA 30308
404-508-7239

REPORT TO: Joju Abraham
CC:

REQUESTED COMPLETION DATE:
PO #:

PROJECT NAME/STATE: Plant Yates - Ash Pond 3

PROJECT #:

ANALYSIS REQUESTED

Collection DATE	Collection TIME	MATRIX CODE*	COMP	GRAB	SAMPLE IDENTIFICATION	# of CONTAINERS	Metals App. III (EPA 6020/7470) Boron, Calcium	Cl, F, SO4 & TDS (EPA 300.0 & SM 2540C)	Detected App IV (See List below)	Det. App. IV Radium 226 & 228 (SW-846 9315/9320)
					CONTAINER TYPE:		P	P		P
					PRESERVATION		3	7		3
4-3-19	1100	W		✓	EB-1-4-3-19	4	✓	✓	✓	✓
4-4-19	1125	W		✓	EB-2-4-4-19	4	✓	✓	✓	✓
4-3-19	—	GW		✓	Dup-1	4	✓	✓	✓	✓
4-4-19	—	GW		✓	Dup-2	4	✓	✓	✓	✓
4-3-19	1320	W		✓	FB-1-4-3-19	4	✓	✓	✓	✓
4-4-19	1325	W		✓	FB-2-4-4-19	4	✓	✓	✓	✓

LAB ID NUMBER

CONTAINER TYPE / PRESERVATION

CONTAINER TYPE	PRESERVATION
P - PLASTIC	1 - HCl, ≤6°C
A - AMBER GLASS	2 - H_2SO_4, ≤6°C
G - CLEAR GLASS	3 - HNO_3
V - VOA VIAL	4 - NaOH, ≤6°C
S - STERILE	5 - NaOH/ZnAc, ≤6°C
O - OTHER	6 - $Na_2S_2O_3$, ≤6°C
	7 - ≤6°C not frozen

*MATRIX CODES:

DW - DRINKING WATER	S - SOIL
WW - WASTEWATER	SL - SLUDGE
GW - GROUNDWATER	SD - SOLID
SW - SURFACE WATER	A - AIR
ST - STORM WATER	L - LIQUID
W - WATER	P - PRODUCT

REMARKS/ADDITIONAL INFORMATION

APP III plus detected APP IV

WO#: 2617035

PM: BM Due Date: 04/12/19

CLIENT: GAPower-CCR

SAMPLED BY AND TITLE: C. Parker, H. Auld
DATE/TIME: see above

RELINQUISHED BY:
DATE/TIME: 4-4-19 1722

RECEIVED BY:
DATE/TIME:

RELINQUISHED BY:
DATE/TIME:

RECEIVED BY LAB: M Zalman
DATE/TIME: 04/04/19 1722

SAMPLE SHIPPED VIA: UPS FED-EX USPS COURIER CLIENT OTHER FS

pH checked: Yes No NA
Ice: Yes No NA
Temperature: Min: 0.5 Max:
Custody Seal: Intact Broken Not Present
# of Coolers:
Cooler ID:

FOR LAB USE ONLY
LAB #:
Entered into LIMS:
Tracking #:

APP III, plus Detected APP IV

Detected APP IV: Antimony, Arsenic, Barium, Beryllium, Cadmium, Cobalt, **Fluoride**, Lead, Lithium, Selenium, Thallium, **Radium**

Bolded Detections: Listed above or included with App III

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO# : 2617035

PM: BM Due Date: 04/12/19

CLIENT: GAPower-CCR

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

Tracking #:

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

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

Thermometer Used 83 Type of Ice: Wet Blue None

Cooler Temperature 0.5 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

☐ Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/4/19 MR

			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.	See comment
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.	
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: W	☑Yes ☐No ☐N/A	12.	
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. exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No ☐N/A ☐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: 1 Radium container for YGWC-24S arrived to the lab with a very limited sample vol. secondary to lid not being closed tight.

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

April 29, 2019

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

RE: Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on April 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Chris Parker, Atlantic Coast Consulting
Evan Perry, Atlantic Coast Consulting
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta

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

CERTIFICATIONS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Pennsylvania Certification IDs

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

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

SAMPLE SUMMARY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617037001	**YGWA-4I**	Water	04/03/19 13:50	04/04/19 17:22
2617037002	**YGWA-5I**	Water	04/03/19 15:40	04/04/19 17:22
2617037003	**YGWA-5D**	Water	04/03/19 13:55	04/04/19 17:22
2617037004	**YGWA-17S**	Water	04/02/19 15:10	04/04/19 17:22
2617037005	**YGWA-18S**	Water	04/03/19 10:15	04/04/19 17:22
2617037006	**YGWA-18I**	Water	04/03/19 11:35	04/04/19 17:22
2617037007	**YGWA-20S**	Water	04/03/19 12:30	04/04/19 17:22
2617037008	**YGWA-21I**	Water	04/02/19 15:56	04/04/19 17:22
2617037009	**YGWC-23S**	Water	04/04/19 13:05	04/04/19 17:22
2617037011	**YGWC-33S**	Water	04/04/19 11:35	04/04/19 17:22
2617037012	**YGWC-36**	Water	04/04/19 14:35	04/04/19 17:22
2617037013	**EB-1-4-3-19**	Water	04/03/19 11:00	04/04/19 17:22
2617037014	**EB-2-4-4-19**	Water	04/04/19 11:25	04/04/19 17:22
2617037015	**Dup-1**	Water	04/03/19 00:00	04/04/19 17:22
2617037016	**Dup-2**	Water	04/04/19 00:00	04/04/19 17:22
2617037017	**FB-1-4-3-19**	Water	04/03/19 13:20	04/04/19 17:22
2617037018	**FB-2-4-4-19**	Water	04/04/19 13:25	04/04/19 17:22

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

SAMPLE ANALYTE COUNT

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617037001	**YGWA-4I**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037002	**YGWA-5I**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037003	**YGWA-5D**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037004	**YGWA-17S**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037005	**YGWA-18S**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037006	**YGWA-18I**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037007	**YGWA-20S**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037008	**YGWA-21I**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037009	**YGWC-23S**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037011	**YGWC-33S**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037012	**YGWC-36**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037013	**EB-1-4-3-19**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037014	**EB-2-4-4-19**	EPA 9315	LAL	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037015	**Dup-1**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037016	**Dup-2**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037017	**FB-1-4-3-19**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617037018	**FB-2-4-4-19**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: YGWA-4I **Lab ID: 2617037001** Collected: 04/03/19 13:50 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.956 ± 0.433 (0.582) C:96% T:NA**	pCi/L	04/17/19 09:02	13982-63-3	
Radium-228	EPA 9320	**0.111 ± 0.339 (0.762) C:85% T:80%**	pCi/L	04/18/19 15:36	15262-20-1	
Total Radium	Total Radium Calculation	**1.07 ± 0.772 (1.34)**	pCi/L	04/22/19 11:21	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: YGWA-5I **Lab ID: 2617037002** Collected: 04/03/19 15:40 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.294 ± 0.225 (0.342) C:102% T:NA**	pCi/L	04/17/19 08:08	13982-63-3	
Radium-228	EPA 9320	**0.136 ± 0.397 (0.886) C:86% T:78%**	pCi/L	04/18/19 15:36	15262-20-1	
Total Radium	Total Radium Calculation	**0.430 ± 0.622 (1.23)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: YGWA-5D **Lab ID: 2617037003** Collected: 04/03/19 13:55 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**3.23 ± 0.801 (0.382) C:97% T:NA**	pCi/L	04/17/19 08:08	13982-63-3	
Radium-228	EPA 9320	**1.56 ± 0.525 (0.732) C:84% T:82%**	pCi/L	04/18/19 15:36	15262-20-1	
Total Radium	Total Radium Calculation	**4.79 ± 1.33 (1.11)**	pCi/L	04/22/19 11:21	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: YGWA-17S **Lab ID: 2617037004** Collected: 04/02/19 15:10 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.306 ± 0.213 (0.295) C:102% T:NA**	pCi/L	04/17/19 08:08	13982-63-3	
Radium-228	EPA 9320	**0.541 ± 0.415 (0.820) C:72% T:81%**	pCi/L	04/18/19 14:52	15262-20-1	
Total Radium	Total Radium Calculation	**0.847 ± 0.628 (1.12)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: YGWA-18S **Lab ID: 2617037005** Collected: 04/03/19 10:15 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.182 ± 0.200 (0.386) C:97% T:NA**	pCi/L	04/17/19 08:08	13982-63-3	
Radium-228	EPA 9320	**0.247 ± 0.296 (0.626) C:81% T:92%**	pCi/L	04/18/19 14:52	15262-20-1	
Total Radium	Total Radium Calculation	**0.429 ± 0.496 (1.01)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: YGWA-18I **Lab ID: 2617037006** Collected: 04/03/19 11:35 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.385 ± 0.266 (0.419) C:98% T:NA**	pCi/L	04/17/19 08:08	13982-63-3	
Radium-228	EPA 9320	**-0.0186 ± 0.267 (0.636) C:80% T:76%**	pCi/L	04/18/19 14:53	15262-20-1	
Total Radium	Total Radium Calculation	**0.385 ± 0.533 (1.06)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: YGWA-20S **Lab ID: 2617037007** Collected: 04/03/19 12:30 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.320 ± 0.218 (0.305) C:112% T:NA**	pCi/L	04/17/19 08:08	13982-63-3	
Radium-228	EPA 9320	**0.685 ± 0.361 (0.625) C:76% T:82%**	pCi/L	04/18/19 14:53	15262-20-1	
Total Radium	Total Radium Calculation	**1.01 ± 0.579 (0.930)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: YGWA-21I **Lab ID: 2617037008** Collected: 04/02/19 15:56 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.670 ± 0.333 (0.396) C:91% T:NA**	pCi/L	04/17/19 08:08	13982-63-3	
Radium-228	EPA 9320	**0.752 ± 0.391 (0.687) C:80% T:79%**	pCi/L	04/18/19 14:52	15262-20-1	
Total Radium	Total Radium Calculation	**1.42 ± 0.724 (1.08)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: YGWC-23S **Lab ID: 2617037009** Collected: 04/04/19 13:05 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.0780 ± 0.159 (0.370) C:91% T:NA**	pCi/L	04/18/19 09:01	13982-63-3	
Radium-228	EPA 9320	**0.396 ± 0.357 (0.723) C:87% T:74%**	pCi/L	04/18/19 15:38	15262-20-1	
Total Radium	Total Radium Calculation	**0.474 ± 0.516 (1.09)**	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: YGWC-33S **Lab ID: 2617037011** Collected: 04/04/19 11:35 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.558 ± 0.231 (0.255) C:100% T:NA**	pCi/L	04/16/19 21:13	13982-63-3	
Radium-228	EPA 9320	**0.578 ± 0.372 (0.704) C:85% T:81%**	pCi/L	04/18/19 15:36	15262-20-1	
Total Radium	Total Radium Calculation	**1.14 ± 0.603 (0.959)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: YGWC-36 **Lab ID: 2617037012** Collected: 04/04/19 14:35 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.484 ± 0.287 (0.376) C:91% T:NA**	pCi/L	04/18/19 09:01	13982-63-3	
Radium-228	EPA 9320	**0.569 ± 0.439 (0.878) C:83% T:81%**	pCi/L	04/18/19 15:36	15262-20-1	
Total Radium	Total Radium Calculation	**1.05 ± 0.726 (1.25)**	pCi/L	04/22/19 11:25	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: EB-1-4-3-19 **Lab ID: 2617037013** Collected: 04/03/19 11:00 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.280 ± 0.225 (0.349) C:84% T:NA**	pCi/L	04/17/19 08:08	13982-63-3	
Radium-228	EPA 9320	**-0.0998 ± 0.290 (0.703) C:78% T:79%**	pCi/L	04/18/19 14:52	15262-20-1	
Total Radium	Total Radium Calculation	**0.280 ± 0.515 (1.05)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: EB-2-4-4-19 **Lab ID: 2617037014** Collected: 04/04/19 11:25 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.240 ± 0.170 (0.276) C:97% T:NA**	pCi/L	04/16/19 21:13	13982-63-3	
Radium-228	EPA 9320	**0.461 ± 0.372 (0.743) C:88% T:78%**	pCi/L	04/18/19 15:36	15262-20-1	
Total Radium	Total Radium Calculation	**0.701 ± 0.542 (1.02)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: Dup-1 **Lab ID: 2617037015** Collected: 04/03/19 00:00 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.899 ± 0.397 (0.447) C:88% T:NA**	pCi/L	04/17/19 08:08	13982-63-3	
Radium-228	EPA 9320	**0.358 ± 0.307 (0.614) C:81% T:83%**	pCi/L	04/18/19 14:52	15262-20-1	
Total Radium	Total Radium Calculation	**1.26 ± 0.704 (1.06)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: Dup-2 **Lab ID: 2617037016** Collected: 04/04/19 00:00 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.753 ± 0.334 (0.332) C:101% T:NA**	pCi/L	04/17/19 08:23	13982-63-3	
Radium-228	EPA 9320	**0.278 ± 0.368 (0.785) C:86% T:80%**	pCi/L	04/18/19 15:36	15262-20-1	
Total Radium	Total Radium Calculation	**1.03 ± 0.702 (1.12)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: FB-1-4-3-19 **Lab ID: 2617037017** Collected: 04/03/19 13:20 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.138 ± 0.190 (0.398) C:96% T:NA**	pCi/L	04/17/19 08:08	13982-63-3	
Radium-228	EPA 9320	**0.366 ± 0.336 (0.680) C:80% T:77%**	pCi/L	04/18/19 14:53	15262-20-1	
Total Radium	Total Radium Calculation	**0.504 ± 0.526 (1.08)**	pCi/L	04/22/19 11:21	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Sample: FB-2-4-4-19 **Lab ID: 2617037018** Collected: 04/04/19 13:25 Received: 04/04/19 17:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.288 ± 0.236 (0.391) C:87% T:NA**	pCi/L	04/18/19 09:01	13982-63-3	
Radium-228	EPA 9320	**0.0312 ± 0.316 (0.727) C:86% T:81%**	pCi/L	04/18/19 15:36	15262-20-1	
Total Radium	Total Radium Calculation	**0.319 ± 0.552 (1.12)**	pCi/L	04/22/19 11:25	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

QC Batch: 337921 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2617037009, 2617037012, 2617037018

METHOD BLANK: 1644534 Matrix: Water
Associated Lab Samples: 2617037009, 2617037012, 2617037018

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.156 ± 0.184 (0.361) C:97% T:NA	pCi/L	04/18/19 09:01	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

QC Batch: 337919 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2617037001, 2617037002, 2617037003, 2617037004, 2617037005, 2617037006, 2617037007, 2617037008, 2617037011, 2617037013, 2617037014, 2617037015, 2617037016, 2617037017

METHOD BLANK: 1644532 Matrix: Water
Associated Lab Samples: 2617037001, 2617037002, 2617037003, 2617037004, 2617037005, 2617037006, 2617037007, 2617037008, 2617037011, 2617037013, 2617037014, 2617037015, 2617037016, 2617037017

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

QC Batch: 337912 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2617037001, 2617037002, 2617037003, 2617037004, 2617037005, 2617037006, 2617037007, 2617037008, 2617037011, 2617037013, 2617037014, 2617037015, 2617037016, 2617037017

METHOD BLANK: 1644522 Matrix: Water
Associated Lab Samples: 2617037001, 2617037002, 2617037003, 2617037004, 2617037005, 2617037006, 2617037007, 2617037008, 2617037011, 2617037013, 2617037014, 2617037015, 2617037016, 2617037017

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

QC Batch: 337913 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2617037009, 2617037012, 2617037018

METHOD BLANK: 1644523 Matrix: Water
Associated Lab Samples: 2617037009, 2617037012, 2617037018

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.226 ± 0.293 (0.621) C:88% T:75%	pCi/L	04/18/19 15:38	

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QUALIFIERS

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Yates Ash Pond 3
Pace Project No.: 2617037

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617037001	**YGWA-4I**	EPA 9315	337919		
2617037002	**YGWA-5I**	EPA 9315	337919		
2617037003	**YGWA-5D**	EPA 9315	337919		
2617037004	**YGWA-17S**	EPA 9315	337919		
2617037005	**YGWA-18S**	EPA 9315	337919		
2617037006	**YGWA-18I**	EPA 9315	337919		
2617037007	**YGWA-20S**	EPA 9315	337919		
2617037008	**YGWA-21I**	EPA 9315	337919		
2617037009	**YGWC-23S**	EPA 9315	337921		
2617037011	**YGWC-33S**	EPA 9315	337919		
2617037012	**YGWC-36**	EPA 9315	337921		
2617037013	**EB-1-4-3-19**	EPA 9315	337919		
2617037014	**EB-2-4-4-19**	EPA 9315	337919		
2617037015	**Dup-1**	EPA 9315	337919		
2617037016	**Dup-2**	EPA 9315	337919		
2617037017	**FB-1-4-3-19**	EPA 9315	337919		
2617037018	**FB-2-4-4-19**	EPA 9315	337921		
2617037001	**YGWA-4I**	EPA 9320	337912		
2617037002	**YGWA-5I**	EPA 9320	337912		
2617037003	**YGWA-5D**	EPA 9320	337912		
2617037004	**YGWA-17S**	EPA 9320	337912		
2617037005	**YGWA-18S**	EPA 9320	337912		
2617037006	**YGWA-18I**	EPA 9320	337912		
2617037007	**YGWA-20S**	EPA 9320	337912		
2617037008	**YGWA-21I**	EPA 9320	337912		
2617037009	**YGWC-23S**	EPA 9320	337913		
2617037011	**YGWC-33S**	EPA 9320	337912		
2617037012	**YGWC-36**	EPA 9320	337913		
2617037013	**EB-1-4-3-19**	EPA 9320	337912		
2617037014	**EB-2-4-4-19**	EPA 9320	337912		
2617037015	**Dup-1**	EPA 9320	337912		
2617037016	**Dup-2**	EPA 9320	337912		
2617037017	**FB-1-4-3-19**	EPA 9320	337912		
2617037018	**FB-2-4-4-19**	EPA 9320	337913		
2617037001	**YGWA-4I**	Total Radium Calculation	339291		
2617037002	**YGWA-5I**	Total Radium Calculation	339291		
2617037003	**YGWA-5D**	Total Radium Calculation	339291		
2617037004	**YGWA-17S**	Total Radium Calculation	339291		
2617037005	**YGWA-18S**	Total Radium Calculation	339291		
2617037006	**YGWA-18I**	Total Radium Calculation	339291		
2617037007	**YGWA-20S**	Total Radium Calculation	339291		
2617037008	**YGWA-21I**	Total Radium Calculation	339291		

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 Yates Ash Pond 3
Pace Project No.: 2617037

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617037009	**YGWC-23S**	Total Radium Calculation	339292		
2617037011	**YGWC-33S**	Total Radium Calculation	339291		
2617037012	**YGWC-36**	Total Radium Calculation	339292		
2617037013	**EB-1-4-3-19**	Total Radium Calculation	339291		
2617037014	**EB-2-4-4-19**	Total Radium Calculation	339291		
2617037015	**Dup-1**	Total Radium Calculation	339291		
2617037016	**Dup-2**	Total Radium Calculation	339291		
2617037017	**FB-1-4-3-19**	Total Radium Calculation	339291		
2617037018	**FB-2-4-4-19**	Total Radium Calculation	339292		

CHAIN OF CUSTODY RECORD

Pace Analytical®

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

CLIENT NAME: Georgia Power

CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:
241 Ralph McGill Blvd SE B10185
Atlanta, GA 30308
404-506-7239

REPORT TO: Joju Abraham

CC:

REQUESTED COMPLETION DATE:

PO #:

PROJECT NAME/STATE: Plant Yates - Ash Pond 3

PROJECT #:

ANALYSIS REQUESTED

Collection DATE	Collection TIME	MATRIX CODE*	COMP	GRAB	SAMPLE IDENTIFICATION	# of CONTAINERS	Metals App. III (EPA 6020/7470) Boron, Calcium	Cl, F, SO_4 & TDS (EPA 300.0 & SM 2540C)	Detected App IV (See List below)	Det. App. IV Radium 226 & 228 (SW-846 9315/9320)	LAB ID NUMBER
CONTAINER TYPE:							P	P		P	
PRESERVATION:							3	7		3	
4-3-19	1350	GW		✓	YGWA-4I	4	✓	✓	✓	✓	
4-3-19	1540	GW		✓	YGWA-5I	4	✓	✓	✓	✓	
4-3-19	1355	GW		✓	YGWA-5D	4	✓	✓	✓	✓	
4-2-19	1510	GW		✓	YGWA-17S	4	✓	✓	✓	✓	
4-3-19	1015	GW		✓	YGWA-18S	4	✓	✓	✓	✓	
4-3-19	1135	GW		✓	YGWA-18I	4	✓	✓	✓	✓	
4-3-19	1230	GW		✓	YGWA-20S	4	✓	✓	✓	✓	
4-2-19	1556	GW		✓	YGWA-21I	4	✓	✓	✓	✓	
4-4-19	1305	GW		✓	YGWC-23S	4	✓	✓	✓	✓	
4-4-19	1220	GW		✓	YGWC-24S	4	✓	✓	✓	✓	
4-4-19	1135	GW		✓	YGWC-33S	4	✓	✓	✓	✓	
4-4-19	1435	GW		✓	YGWC-36	6	✓	✓	✓	✓	

SAMPLED BY AND TITLE: C. Parker, H. Auld

DATE/TIME: See above

RELINQUISHED BY:

DATE/TIME: 4-4-19 / 1722

RECEIVED BY:

DATE/TIME:

RELINQUISHED BY:

DATE/TIME:

RECEIVED BY/LAB: M Adkinson

DATE/TIME: 04/04/19 1722

SAMPLE SHIPPED VIA: UPS FED-EX USPS COURIER CLIENT OTHER FS

pH checked: Yes No NA

Ice: Yes No NA

Temperature: Min: 0.5 Max:

Custody Seal: Intact Broken Not Present

# of Coolers

Cooler ID:

CONTAINER TYPE	PRESERVATION
P - PLASTIC	1 - HCl, ≤6°C
A - AMBER GLASS	2 - H_2SO_4, ≤6°C
G - CLEAR GLASS	3 - HNO_3
V - VOA VIAL	4 - NaOH, ≤6°C
S - STERILE	5 - NaOH/ZnAc, ≤6°C
O - OTHER	6 - $Na_2S_2O_3$, ≤6°C
	7 - ≤6°C not frozen

*MATRIX CODES:

DW - DRINKING WATER	S - SOIL
WW - WASTEWATER	SL - SLUDGE
GW - GROUNDWATER	SD - SOLID
SW - SURFACE WATER	A - AIR
ST - STORM WATER	L - LIQUID
W - WATER	P - PRODUCT

REMARKS/ADDITIONAL INFORMATION

APP III plus detected APP IV

WO#: 2617037

2617037

Extra Rad here

FOR LAB USE ONLY

LAB #:

Entered into LIMS:

Tracking #:

APP III, plus Detected APP IV

Detected APP IV: Antimony, Arsenic, Barium, Beryllium, Cadmium, Cobalt, **Fluoride**, Lead, Lithium, Selenium, Thallium, **Radium**

Bolded Detections: Listed above or included with App III

Yates Ash Pond 3 - Blank COCs.xlsx

CHAIN OF CUSTODY RECORD

Pace Analytical®

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

CLIENT NAME: Georgia Power

CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:
241 Ralph McGill Blvd SE B10185
Atlanta, GA 30308
404-506-7239

REPORT TO: Joju Abraham

CC:

REQUESTED COMPLETION DATE:

PO #:

PROJECT NAME/STATE: Plant Yates - Ash Pond 3

PROJECT #:

ANALYSIS REQUESTED

Collection DATE	Collection TIME	MATRIX CODE*	COMP	GRAB	SAMPLE IDENTIFICATION	# of CONTAINERS	Metals App. III (EPA 6020/7470) Boron, Calcium	Cl, F, SO_4, & TDS (EPA 300.0 & SM 2540C)	Detected App IV (See List below)	Det. App. IV Radium 226 & 228 (SW-846 9315/9320)
	CONTAINER TYPE:						P	P		P
	PRESERVATION:						3	7		3
4-3-19	1100	W		✓	EB-1-4-3-19	4	✓	✓	✓	✓
4-4-19	1125	W		✓	EB-2-4.4-19	4	✓	✓	✓	✓
4-3-19	—	GW		✓	DUP-1	4	✓	✓	✓	✓
4-4-19	—	GW		✓	DUP-2	4	✓	✓	✓	✓
4-3-19	1320	W		✓	FB-1-4-3-19	4	✓	✓	✓	✓
4-4-19	1325	W		✓	FB-2-4-4-19	4	✓	✓	✓	✓

LAB ID NUMBER

CONTAINER TYPE	PRESERVATION
P - PLASTIC	1 - HCl, ≤6°C
A - AMBER GLASS	2 - H_2SO_4, ≤6°C
G - CLEAR GLASS	3 - HNO_3
V - VOA VIAL	4 - NaOH, ≤6°C
S - STERILE	5 - NaOH/ZnAc, ≤6°C
O - OTHER	6 - $Na_2S_2O_3$, ≤6°C
	7 - ≤6°C not frozen

*MATRIX CODES:

DW - DRINKING WATER	S - SOIL
WW - WASTEWATER	SL - SLUDGE
GW - GROUNDWATER	SD - SOLID
SW - SURFACE WATER	A - AIR
ST - STORM WATER	L - LIQUID
W - WATER	P - PRODUCT

REMARKS/ADDITIONAL INFORMATION

APP III plus detected APP IV

WO#: 2617037

PM: BM Due Date: 05/03/19

CLIENT: GAPower-CCR

SAMPLED BY AND TITLE: C. Parker, M. Auld — DATE/TIME: see above

RELINQUISHED BY: — DATE/TIME: 4-4-19 1722

RECEIVED BY: — DATE/TIME:

RELINQUISHED BY: — DATE/TIME:

RECEIVED BY LAB: Zalman — DATE/TIME: 04/04/19 1722

SAMPLE SHIPPED VIA: UPS FED-EX USPS COURIER CLIENT OTHER FS

pH checked: Yes No NA — Ice: Yes No NA — Temperature: Min: 0.5 Max:

Custody Seal: Intact Broken Not Present — # of Coolers — Cooler ID:

FOR LAB USE ONLY

LAB #:

Entered into LIMS:

Tracking #:

APP III, plus Detected APP IV

Detected APP IV: Antimony, Arsenic, Barium, Beryllium, Cadmium, Cobalt, **Fluoride**, Lead, Lithium, Selenium, Thallium, **Radium**

Bolded Detections: Listed above or included with App III

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power Project #

WO#: 2617037

PM: BM Due Date: 05/03/19

CLIENT: GAPower-CCR

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

Tracking #:

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

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

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

Cooler Temperature 0.5 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/4/19 MA

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. see comment
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: Evan Perry Date/Time: 4/5/2019 12:58

Comments/ Resolution: 1 Radium container for YGWC-24S arrived to the lab with a very limited sample vol. secondary to lid not being closed tight.

Per consultant, cancel YGWC-24S. It will be resampled.

Project Manager Review: BMcD **Date:** 4/5/2019

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

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

May 01, 2019

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

RE: Project: Plant Yates-Ash Pond 3
Pace Project No.: 2617220

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on April 10, 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: Chris Parker, Atlantic Coast Consulting
Evan Perry, Atlantic Coast Consulting
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta

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

CERTIFICATIONS

Project: Plant Yates-Ash Pond 3
Pace Project No.: 2617220

Pennsylvania Certification IDs

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

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

SAMPLE SUMMARY

Project: Plant Yates-Ash Pond 3
Pace Project No.: 2617220

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617220001	**YGWC-24S**	Water	04/09/19 12:05	04/10/19 08:40

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

SAMPLE ANALYTE COUNT

Project: Plant Yates-Ash Pond 3
Pace Project No.: 2617220

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617220001	**YGWC-24S**	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Yates-Ash Pond 3
Pace Project No.: 2617220

Sample: YGWC-24S **Lab ID: 2617220001** Collected: 04/09/19 12:05 Received: 04/10/19 08:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.282 ± 0.130 (0.193) C:91% T:NA**	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	**0.220 ± 0.301 (0.643) C:80% T:82%**	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	**0.502 ± 0.431 (0.836)**	pCi/L	04/26/19 09:32	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Yates-Ash Pond 3
Pace Project No.: 2617220

QC Batch: 338631 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2617220001

METHOD BLANK: 1648339 Matrix: Water
Associated Lab Samples: 2617220001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.146 ± 0.0893 (0.139) C:90% T:NA	pCi/L	04/22/19 21:19	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Yates-Ash Pond 3
Pace Project No.: 2617220

QC Batch: 338745 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2617220001

METHOD BLANK: 1648702 Matrix: Water
Associated Lab Samples: 2617220001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.552 ± 0.362 (0.681) C:81% T:74%	pCi/L	04/25/19 11:04	

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

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

QUALIFIERS

Project: Plant Yates-Ash Pond 3
Pace Project No.: 2617220

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

Pace Analytical Services, LLC
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Peachtree Corners, GA 30092
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Yates-Ash Pond 3
Pace Project No.: 2617220

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617220001	**YGWC-24S**	EPA 9315	338631		
2617220001	**YGWC-24S**	EPA 9320	338745		
2617220001	**YGWC-24S**	Total Radium Calculation	340066		

CHAIN OF CUSTODY RECORD

Pace Analytical®

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

PAGE: _____ OF _____

CLIENT NAME: Georgia Power

CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:
241 Ralph McGill Blvd SE B10185
Atlanta, GA 30308
404-506-7239

REPORT TO: Joju Abraham

CC:

REQUESTED COMPLETION DATE:

PO #:

PROJECT NAME/STATE: Plant Yates - Ash Pond 3

PROJECT #:

ANALYSIS REQUESTED

Collection DATE	Collection TIME	MATRIX CODE*	COMP	GRAB	SAMPLE IDENTIFICATION	# of CONTAINERS	Metals App. III (EPA 6020/7470) Boron, Calcium	Cl, F, SO_4 & TDS (EPA 300.0 & SM 2540C)	Detected App IV (See List below)	Det. App. IV Radium 226 & 228 (SW-846 9315/9320)	LAB ID NUMBER
					CONTAINER TYPE:		P	P		P	
					PRESERVATION:		3	7		3	
4-9-19	1205	GW		✓	YGWC-24S	2				2	

CONTAINER TYPE / PRESERVATION

CONTAINER TYPE	PRESERVATION
P - PLASTIC	1 - HCl, ≤6°C
A - AMBER GLASS	2 - H_2SO_4, ≤6°C
G - CLEAR GLASS	3 - HNO_3
V - VOA VIAL	4 - NaOH, ≤6°C
S - STERILE	5 - NaOH/ZnAc, ≤6°C
O - OTHER	6 - $Na_2S_2O_3$, ≤6°C
	7 - ≤6°C not frozen

*MATRIX CODES:

DW - DRINKING WATER	S - SOIL
WW - WASTEWATER	SL - SLUDGE
GW - GROUNDWATER	SD - SOLID
SW - SURFACE WATER	A - AIR
ST - STORM WATER	L - LIQUID
W - WATER	P - PRODUCT

REMARKS/ADDITIONAL INFORMATION

APP III plus detected APP IV

WO# : 2617220

2617220

SAMPLED BY AND TITLE: ALC — DATE/TIME: 4-9-19 1205

RECEIVED BY: — DATE/TIME:

RELINQUISHED BY: — DATE/TIME: 4-10-19 0840

RELINQUISHED BY: — DATE/TIME:

RECEIVED BY/LAB: M Dalman — DATE/TIME: 04/10/19 0840

SAMPLE SHIPPED VIA: UPS FED-EX USPS COURIER CLIENT OTHER FS

pH checked: Yes No NA — Ice: Yes No NA — Temperature: Min: 1.0 Max:

Custody Seal: Intact Broken Not Present — # of Coolers: — Cooler ID:

FOR LAB USE ONLY
LAB #:
Entered into LIMS:
Tracking #:

APP III, plus Detected APP IV

Detected APP IV: Antimony, Arsenic, Barium, Beryllium, Cadmium, Cobalt, **Fluoride**, Lead, Lithium, Selenium, Thallium, **Radium**

Bolded Detections: Listed above or included with App III

Yates Ash Pond 3 - Blank COCs

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2617220

PM: BM Due Date: 05/08/19

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 1.0 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/10/19 MK

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)

F-ALLC003rev.3, 11September2006