Prepared for



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

Prepared by



engineers | scientists | innovators

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ASSESSMENT OF CORRECTIVE MEASURES REPORT

Plant Hammond Ash Pond 1

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LIST OF ACRONYMS

ACM Assessment of Corrective Measures

AP ash pond

CCR coal combustion residuals
CFR Code of Federal Regulations

cm/sec centimeters per second

EPD Environmental Protection Division

ft feet

ft bgs feet below ground surface

ft/day feet per day ft/ft feet per foot

GPC Georgia Power Company

GWPS Groundwater Protection Standard
HAR Hydrogeologic Assessment Report
ISS in-situ solidification/stabilization
Kh horizontal hydraulic conductivity
Kv vertical hydraulic conductivity
MNA monitored natural attenuation
O&M operations and maintenance

P&T pump and treat

PE professional engineer
PRB permeable reactive barriers

RCRA Resource Conservation and Recovery Act

SSL statistically significant level

US EPA United States Environmental Protection Agency

ZVI zero-valent iron

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1.0 INTRODUCTION

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

The ACM was initiated within 90 days of identifying the SSLs on January 13, 2019; and a 60-day extension until June 12, 2019, for completion of the ACM was documented on April 12, 2019. Eleven delineation groundwater monitoring wells, installed to assess the extent of arsenic and molybdenum in groundwater at AP-1, show that arsenic and molybdenum are horizontally delineated and contained within the property boundary. This ACM is the first step in identifying viable corrective measures to address SSLs in groundwater at the Site. Based on the results of the ACM, further evaluation may be performed, site-specific studies completed, and a corrective action plan developed and implemented pursuant to 40 CFR 257.97 and 257.98 and Georgia Rule 391-3-4-.10(6)(a).

1.1 Purpose

The purpose of this ACM is to begin the process of selecting corrective measure(s) for groundwater. This process is typically iterative and may be composed of multiple steps to analyze the effectiveness of corrective measures to address the potential migration of CCR constituents in groundwater at AP-1.

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

- Performance;
- Reliability;
- Ease of implementation;

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

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

1.2 Site Location and Description

Plant Hammond is located in Floyd County, Georgia, approximately 10 miles west of Rome and is bordered by Georgia Highway 20 (GA-20) on the north, the Coosa River on the south, Cabin Creek and industrial land on the east, and sparsely populated, forested, rural and industrial land on the west (**Figure 1**). The physical address of the plant is 5963 Alabama Highway, Rome, Georgia, 30165.

Plant Hammond is a four-unit, coal-fired electric generating facility. Georgia Power has submitted a new Integrated Resource Plan to the Georgia Public Service Commission in January 2019 which calls for the decertification of Plant Hammond. All four units are included in the decertification.

AP-1 is a 35-acre surface impoundment that received CCR materials from its commission in 1952 until 1969. Between 1969 and early 2019, AP-1 was utilized as a co-treatment pond to handle return water flows from the other ponds and for recycling of process water for plant operations.

1.3 Pond Closure

GPC will close AP-1 through removal of the CCR material from the CCR unit. The Closure Plan submitted to Georgia EPD as part of the closure permit application package describes the closure activities and requirements in accordance with 40 CFR 257.102 and corresponding Rule 391-3-4-.10(7)(b). The Closure Plan has been summarized in the Initial Written Closure Plan and published in 2016 to GPC's webpage.

Per the Closure Plan, the sequence of closing AP-1 via removal of the CCR material generally includes: (i) dewatering the surface water contained within the impoundment; (ii) sufficient dewatering and stabilization of the CCR material to facilitate its excavation and removal; (iii) removal of the CCR material and a minimum 6 inches of the residual



soils underlying the CCR material in AP-1; (iv) transportation and disposal of the removed material into the Plant Hammond Huffaker Road private industrial solid waste permitted landfill or in another permitted solid waste disposal facility, or sold to an ash marketer for beneficial re-use; and (v) final grading and backfilling with approved on-site/off-site borrow soil to promote positive drainage of stormwater from the stabilized area.

The closure of AP-1 in the manner described above provides a source control measure that reduces the potential for migration of CCR constituents to groundwater. Corrective measures discussed in this ACM are being evaluated to address SSLs in groundwater at the compliance boundary. The compliance boundary is the unit boundary where the detection morning network is installed.

2.0 CONCEPTUAL SITE MODEL

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

2.1 Geology

AP-1 is located in the Valley and Ridge Physiographic Province of northwest Georgia which is characterized by Paleozoic sedimentary rocks that have been folded and faulted into the ridges and valleys that gave this region its name. Geologic mapping performed at the Site by Petrologic Solutions, Inc. (Golder, 2018) indicates that the Site is underlain by the middle units of the Cambrian age Conasauga Formation (Ccls), consisting of mostly shaley limestone. Subsurface investigations at the Site describe the bedrock as limestone or shaley limestone. AP-1 is underlain primarily by five lithologic units: (i) fill, (ii) terrace alluvium, (iii) residuum, (iv) highly weathered/fractured shaley limestone bedrock, and (v) competent shaley limestone bedrock.

Based on subsurface investigations the fill material is composed of lean clay or gravelly lean clay with sand from the construction of the pond. The terrace alluvium consists of unconsolidated sediments associated with deposition from the Coosa River and Cabin Creek. Alluvium was variously described as well sorted and poorly sorted sand, clayey sand, sandy gravel, clayey gravel, or gravelly clay. The residuum clay layer or native soils have been derived from the in-place weathering of the shaley limestone bedrock. The residuum is generally described as a lean to fat clay, sometimes silty with some sand, and rarely gravel. The subsurface investigation data suggests the residuum thins out in places and the alluvial deposits is in direct contact with the upper fractured or the unweathered limestone bedrock. Just below the residuum clay layer is a gradational zone of varying proportions of clayey residuum and sand, gravel, and cobble-sized angular pieces of partially weathered limestone, grading into a zone of fractured shaley limestone, before grading into unweathered, fresh shaley limestone bedrock. The upper highly weathered zone appears more as residuum with various sized rock fragments. The lower zone becomes less clayey with depth and is estimated to be approximately 10 feet thick. The limestone is described as medium to dark gray, very finely laminated with lighter and darker gray layers, and contains interbeds of calcareous shale.

2.2 Hydrology and Groundwater Flow

The uppermost aquifer at the Site is a regional groundwater aquifer that occurs in the residuum and the highly weathered and fractured bedrock. Based on observations of residuum soil types and horizontal conductivity values, the movement of groundwater in the residuum, and to a degree the highly weathered bedrock zone, can be characterized as low-permeability, porous media flow. The shallow bedrock groundwater flow in the underlying bedrock is characterized as fracture flow. The regional groundwater flow direction is expected to be from north to south; however, the constant head maintained in AP-1 influences the groundwater flow in the vicinity of AP-1. Groundwater level data are recorded during each groundwater sampling event from the AP-1 well network, depicted on **Figure 2** and discussed in detail in Section 3.1.1. The data are used to generate potentiometric surface maps that depict the groundwater flow direction or calculate flow gradients. The potentiometric surface map representing the April 2019 groundwater level data is provided on **Figure 3**.

Accounting for groundwater flow easterly towards Cabin Creek and southerly towards Coosa River, the representative groundwater hydraulic gradient for AP-1 is 0.048 feet per foot (ft/ft). The horizontal hydraulic conductivity (K_h) estimated by slug testing in wells screened in the alluvium/residuum was 8.26×10^{-4} to 2.35×10^{-2} centimeters per second (cm/sec), with a geometric mean of 4.11×10^{-3} cm/sec (11.82 feet per day [ft/day]). The K_h values across the residuum/bedrock interface ranged from 2.68×10^{-3} to 1.14×10^{-2} cm/sec, with a geometric mean of 5.24×10^{-3} cm/sec (14.85 ft/day). The range of vertical hydraulic conductivity (K_v) values for undisturbed soil samples collected from fill, alluvium, or residuum layers was from 1.50×10^{-8} to 8.63×10^{-7} cm/sec, with a geometric mean of 1.13×10^{-7} cm/sec (3.20×10^{-4} ft/day). A groundwater flow velocity calculation was performed using the geometric mean value for K_h 11.82 ft/day, a hydraulic gradient of 0.048 ft/ft, and an assumed effective porosity of 0.15, derived from review of available boring logs and professional judgement. This calculation yielded a groundwater flow velocity of approximately 3.8 ft/day for typical AP-1 conditions. Additional details regarding the hydrogeologic conditions in vicinity of AP-1 are provided in the HAR.

3.0 NATURE AND EXTENT DELINEATION

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

3.1 Groundwater Monitoring & Constituents of Concern

3.1.1 Groundwater Monitoring Program

In accordance with 40 CFR 257.91, a groundwater monitoring system was installed at AP-1 which (1) consists of a sufficient number of wells, (2) is installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer, and (3) represents the groundwater quality both upgradient of the units (i.e., background conditions) and passing the waste boundary of the units. The number, spacing, and depths of the groundwater monitoring wells were selected based on the characterization of site-specific hydrogeologic conditions. The well network was certified by a professional engineer (PE) on October 17, 2017, and the certification is maintained in the AP-1 Operating Record. The certified compliance monitoring well network for AP-1 consists of a total of 10 monitoring wells: 3 upgradient wells and 7 downgradient wells. The locations of the compliance monitoring wells are shown on **Figure 2**; well construction details are listed in **Table 1**. Groundwater is currently monitored in AP-1 wells under the assessment monitoring program pursuant to 40 CFR 257.95. Additional groundwater monitoring details are provided in the 2018 Annual Groundwater and Corrective Action Monitoring Report (Geosyntec, 2019).

3.1.2 SSLs for Appendix IV Constituents

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

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

AP-1 (Federal CCR Rule):

• Arsenic: HGWC-13; and

• Molybdenum: HGWC-8

AP-1 (Georgia EPD CCR Rule):

• Arsenic: HGWC-13; and

 Molybdenum: HGWC-7, HGWC-8, HGWC-9, HGWC-11, HGWC-12, and HGWC-13

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

3.2 Field Investigation Activities

Eight additional groundwater monitoring wells were installed in 2018 to provide additional data to characterize flow conditions downgradient of AP-1 and to horizontally and vertically delineate SSLs of arsenic and molybdenum in groundwater at AP-1. Wells MW-19, MW-20, and MW-29 were installed for horizontal delineation and wells MW-24D, MW-25D, MW-26D, MW-27D, and MW-28D were installed for vertical delineation. Detailed boring and well construction logs for these eight new wells are provided in **Appendix A**. The new delineation well network was augmented with piezometers MW-5, MW-6, and MW-7, which were installed in 2014 to gauge water levels downgradient of AP-1. The locations of these eleven delineation wells are shown on **Figure 2** and well construction details are also provided in **Table 1**.

Pursuant to 40 CFR 257.96, groundwater in the vicinity of AP-1 continues to be monitored during the ACM phase in accordance with the assessment monitoring program established for the CCR unit in 2018. Groundwater samples were collected from the compliance wells and eleven delineation wells in March 2019 and analyzed for all Appendix IV parameters per 40 CFR 257.95(b). The compliance and delineation wells were sampled again in April 2019 during the first semiannual monitoring event. The



groundwater analytical results from the March and April 2019 events are summarized in **Table 3**. Laboratory reports associated with the 2019 results are provided in **Appendix B**.

The 2019 analytical results reported for the horizontal delineation wells (MW-5, MW-6, MW-7, MW-20, MW-29) indicate that SSLs of arsenic and molybdenum are horizontally delineated and contained within the property boundary; for these wells, the arsenic and molybdenum concentrations are below their respective GWPS. The SSL of arsenic in well BGWC-13 has also been vertically delineated by well MW-24D. Similarly, molybdenum has been vertically delineated in four of the five deeper delineation wells (MW-24D, MW-25D, MW-26D, and MW-27D). Vertical delineation of molybdenum in well MW-28D is currently in progress.

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

4.0 GROUNDWATER CORRECTIVE MEASURES

4.1 Objectives of the Corrective Measures

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

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

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

4.2 Summary of Corrective Measures

The closure of AP-1 as described in Section 1.3 is a source control measure that reduces the potential for migration of CCR constituents to groundwater. Corrective measures discussed in this ACM are being evaluated to address SSLs in groundwater at and downgradient of the compliance boundary.

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



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

The following potential corrective measures are considered in this ACM:

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

While in-situ solidification/stabilization (ISS) is generally considered a viable option for either small source areas or targeted zones within a larger footprint, this potential corrective measure is not a viable corrective measure at AP-1. The closure of AP-1 as previously described will remove CCR materials from the pond and place them into a permitted offsite landfill (i.e., the Huffaker Road Landfill). As such, the use of ISS for a fully excavated CCR pond is not an applicable corrective measure at AP-1 and no detailed evaluation is provided in **Table 4**.

4.2.1 Geochemical Approaches (In-Situ Injection)

Arsenic and molybdenum can be precipitated and/or immobilized under different combinations of pH and redox conditions. A variety of pH and/or redox-altering technologies are available which can incorporate biological processes, chemical oxidants and reductants, and/or mechanical processes such as air sparging. These processes can be used to decrease the mobility of these constituents.

For example, insoluble (or sparingly soluble) arsenic-containing minerals such as arsenopyrite (FeAsS), realgar (AsS), or orpiment (As₂S₃) can be formed under sulfate-reducing conditions by indigenous microbial populations (Onstott et al., 2011). These conditions can be induced by injecting electron donors such as emulsified vegetable oil (EVO), lactate, or ethanol into arsenic-impacted groundwater together with a sufficient supply of iron and sulfate. Furthermore, arsenic can be sorbed to iron and manganese oxides, while molybdenum can be sorbed to aluminum and iron oxides as well as clay minerals.



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

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

Furthermore, in-situ chemical oxidation (ISCO) or in-situ chemical reduction (ISCR) can be used to chemically alter the redox environment in the subsurface to affect the mobility and/or bioavailability of certain inorganic compounds.

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

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

4.2.2 Hydraulic Containment (Pump and Treat)

Generally, hydraulic containment (or control) refers to the use of groundwater extraction to artificially induce a hydraulic gradient and capture or control the migration of impacted groundwater. One example, groundwater pump and treat (P&T), is often considered to be a viable remedial technology at many sites (US EPA, 1996). This approach uses extraction wells or trenches to capture groundwater, which may subsequently require



above-ground treatment and permitted discharge to a receiving water body or sewer system, reinjection into the aquifer, or reuse at the generating station. Groundwater P&T is often relatively slow and costly as a means to restore groundwater quality over a long-term period, but can be effective as an interim measure, or combined with another measure, to provide hydraulic containment to limit constituent migration toward a potential receptor.

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

Extracted groundwater may need to be treated prior to discharge (depending on discharge permit requirements) but does have the potential to be used for irrigation (e.g., of a cover system or other vegetated areas at the Site) or dust suppression purposes. It could also be used as moisture conditioning of dry ash that is being landfilled. Therefore, P&T is a potentially viable corrective measure for arsenic and molybdenum in groundwater at AP-1 and will be retained for further evaluation.

4.2.3 Monitored Natural Attenuation

The US EPA defines monitored natural attenuation (MNA) as the reliance on natural attenuation processes (within the context of a carefully controlled and monitored site cleanup approach) to achieve site-specific remediation objectives within a time frame that is reasonable compared to that offered by other more active methods. The natural attenuation processes that are at work in such a remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. These in-situ processes include biodegradation; dispersion; dilution; sorption; volatilization; radioactive decay; and chemical or biological stabilization, transformation, or destruction of contaminants (US EPA, 2015b).

Attenuation mechanisms for inorganic constituents, such as arsenic and molybdenum, are either physical or chemical. Physical attenuation mechanisms such as dilution and dispersion may be appropriate as a polishing step (e.g., at the boundaries of impacted



groundwater, when source control is complete, an active remedy is being used at AP-1, and appropriate land use and groundwater controls are in place). Chemical attenuation mechanisms through sorption or oxidation-reduction (redox) reactions discussed in more detail below may be viable as a stand-alone corrective measure.

"MNA may, under certain conditions (e.g., through sorption or oxidation-reduction reactions), effectively reduce the dissolved concentrations and/or toxic forms of inorganic contaminants in groundwater and soil. Both metals and non-metals (including radionuclides) may be attenuated by sorption reactions such as precipitation, adsorption on the surfaces of soil minerals, absorption into the matrix of soil minerals, or partitioning into organic matter. Oxidation-reduction (redox) reactions can transform the valence states of some inorganic contaminants to less soluble and thus less mobile forms (e.g., hexavalent uranium to tetravalent uranium) and/or to less toxic forms (e.g., hexavalent chromium to trivalent chromium)" (US EPA, 2015b). Both arsenic and molybdenum undergo sorption to iron and manganese oxides. Also, redox reactions, via abiotic or biotic processes, can transform arsenic into sparingly soluble sulfide minerals.

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

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

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

4.2.4 Permeable Reactive Barriers

Permeable reactive barriers (PRBs) can present a viable alternative for in-situ treatment of arsenic and molybdenum. The technology typically involves the installation of a subsurface wall constructed with reactive media such as zero-valent iron (ZVI), biologically active media (to induce oxidizing or reducing conditions), or clays, apatite, zeolites, and/or peat moss (to promote ionic exchange and/or sorption). PRBs have proven to be effective in passively treating several inorganic constituents found at CCR sites, including arsenic, selenium, and chromium (e.g. ITRC, 2011). The use of PRBs for molybdenum has been tested, but additional site-specific testing is needed to confirm the applicability of this technology to remove molybdenum from groundwater since it has shown early breakthrough with ZVI-type media (e.g., Morrison et al., 2006) and careful testing is required to select the appropriate treatment media.

PRBs can be installed in downgradient locations using conventional excavation methods or one-pass trenching method. Excavated trenches get back-filled with reactive media to create a barrier that treats dissolved constituents as they passively flow through the PRB with the groundwater (e.g., ITRC, 2011). These systems can either be constructed as continuous "walls" or as "funnel-and-gate" systems where (impermeable) slurry walls create a "funnel" that directs groundwater to permeable "treatment gates" filled with reactive materials. Since the costs for reactive materials (e.g., ZVI or similar) are generally higher than bentonite-based slurry wall construction, these configurations with a smaller treatment area help to lower construction and maintenance costs. Similar to slurry walls (see Section 4.2.6), PRBs are typically keyed into an underlying low-permeability unit such as a clay layer or bedrock.

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

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

4.2.5 Phytoremediation

Phytoremediation is the use of plants to degrade, immobilize, or contain constituents in soil, groundwater, surface water, and sediments. Over recent decades, phytoremediation has emerged as a viable alternative to more active and costly environmental cleanup technologies, especially for large areas with relatively low levels of constituents in shallow soils or groundwater. The effectiveness of groundwater remediation using traditional phytoremediation approaches may be limited by compacted soil conditions that impede root penetration, or target groundwater that is too deep for root access. Given that groundwater wells at AP-1 that exhibited SSLs for arsenic and molybdenum are screened to depths of no deeper than 46 ft bgs, traditional plantings for phytoremediation are not expected to be successful. However, more recently, an engineered approach to phytoremediation, the *TreeWell*[®] system (which is a proprietary system developed by Applied Natural Sciences [ANS]), has been shown to overcome these constraints by utilizing a specialized lined planting unit constructed with optimum planting media designed to promote downward root growth, encourage constituent treatment, and focus groundwater extraction from a targeted depth interval (e.g., Gatliff et al., 2016).

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

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



Based on the current understanding of groundwater flow velocities downgradient of AP-1, a phytoremediation approach does not appear to be viable. However, additional aquifer testing as site conditions change and AP-1 is dewatered may indicate different groundwater flow velocities potentially making phytoremediation a viable corrective measure for groundwater at AP-1. An engineered phytoremediation approach will be retained for further evaluation.

4.2.6 Subsurface Vertical Barrier Walls

Subsurface vertical barrier walls (sometimes referred to as slurry walls) have been used for seep control and groundwater cutoff at impoundments and waste disposal units for more than three decades. In general, barrier walls are designed to provide containment; localized treatment achieved through the sorption or chemical precipitation reactions from construction of the walls are incidental to the design objective.

This approach involves placing a barrier to groundwater flow in the subsurface, frequently around the source area (or the downgradient limits of the source area), to prevent future migration of dissolved constituents in groundwater from beneath the source to downgradient areas. Barrier walls can also be used in downgradient applications to limit discharge to a surface water feature or to reduce aquifer recharge from an adjacent surface water features when groundwater extraction wells are placed near a surface water feature. A variety of barrier materials can be used, including cement and/or bentonite slurries or various mixtures of soil with cement or bentonite, geomembrane composite materials, or driven materials such as steel or vinyl sheet pile.

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

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

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



will be retained for further evaluation. However, it is more likely to be a component of a potential PRB application rather than a stand-alone 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 and Georgia Rule 391-3-4-.10(6)(a). The following sections present the pond closure and site management strategy, additional data gathering, schedule, reporting, and next steps.

5.1 Pond Closure and Site Management Strategy

GPC plans to close AP-1 via removal of the CCR materials from the unit for off-site disposal at a permitted landfill or sold to an ash marketer for beneficial re-use. During the pond closure, temporary changes in site conditions may occur. Additionally, the site conceptual model may need to be refined and/or updated from the current understanding as more data are collected. GPC plans to proactively utilize adaptive site management to support the remedial strategy and address potential changes in site conditions as appropriate. Under an adaptive site management strategy, a remedial approach will be selected whereby: (1) a corrective measure will be installed or implemented to address current conditions; (2) the performance of the corrective measure will be monitored, evaluated, and reported semiannually; (3) the site conceptual model will be updated as more data are collected; and (4) adjustments and augmentations will be made to the corrective measure(s), as needed, to assure that performance criteria and site remedial goals are met.

5.2 Additional Data Gathering

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



5.3 Schedule, Reporting, and Next Steps

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

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

6.0 REFERENCES

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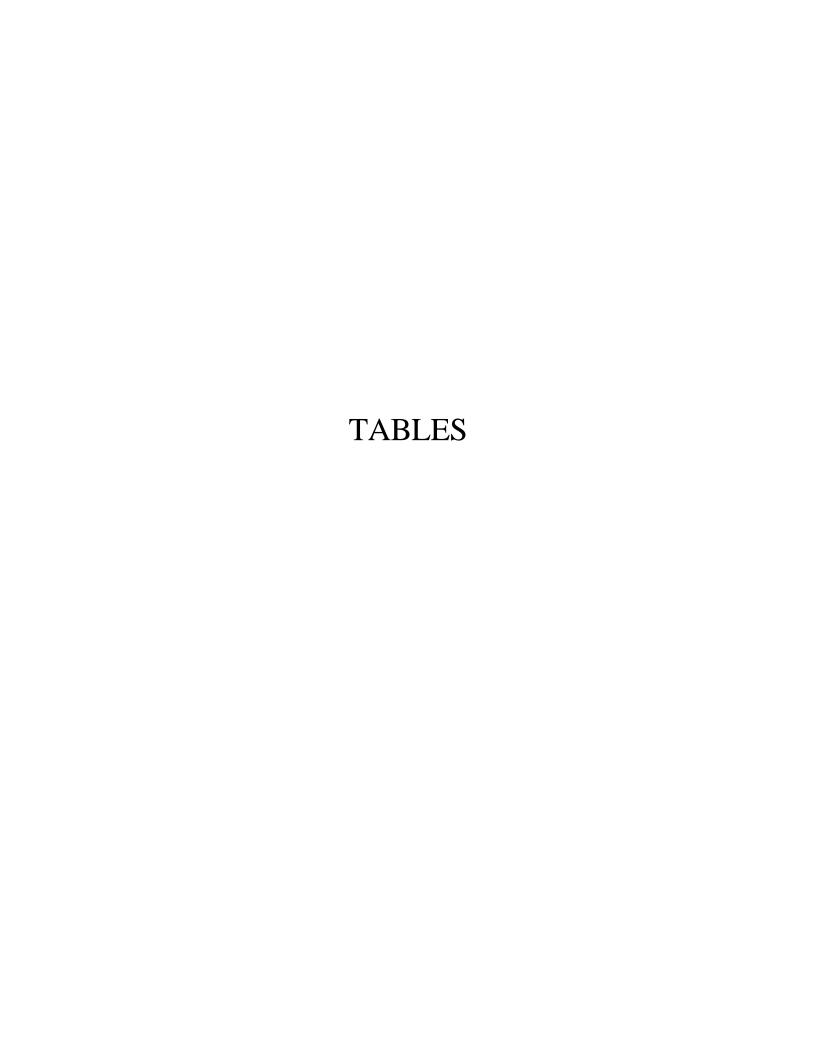


Table 1 Monitoring Well Network Summary Plant Hammond AP-1, Floyd County, Georgia



Well ID	Hydraulic Location	Installation Date	Northing (1)	Easting (1)	Top of Casing Elevation (ft AMSL)	Top of Screen Elevation (ft AMSL)	Bottom of Screen Elevation (ft AMSL)	Well Depth (ft bgs) (2)	Screen Interval Length
Compliance Monitoring Wo	ells								
HGWA-1	Upgradient	12/3/2014	1550423.69	1940773.31	595.50	573.40	563.40	32.50	10
HGWA-2	Upgradient	12/2/2015	1549796.40	1939845.20	588.18	570.23	560.23	27.95	10
HGWA-3	Upgradient	12/2/2015	1549793.93	1939833.46	588.06	553.19	543.19	44.87	10
HGWC-7	Downgradient	12/3/2015	1549520.39	1942319.97	579.49	561.32	551.32	28.17	10
HGWC-8	Downgradient	12/8/2015	1549114.34	1942392.75	580.08	563.43	553.43	26.65	10
HGWC-9	Downgradient	12/9/2015	1548692.82	1942215.01	580.60	543.62	533.62	46.98	10
HGWC-10	Downgradient	12/8/2015	1548469.50	1941644.41	579.66	566.66	556.66	23.00	10
HGWC-11	Downgradient	12/15/2015	1548477.54	1941146.65	580.96	565.48	555.48	25.78	10
HGWC-12	Downgradient	12/9/2015	1548475.82	1941152.08	581.01	555.33	545.33	35.68	10
HGWC-13	Downgradient	12/10/2015	1548628.52	1940900.41	594.83	559.76	549.76	45.07	10
Groundwater Level Monito	ring Piezometers								
AP1A-1	Upgradient	12/15/2015	1550080.50	1941613.87	587.72	576.17	566.17	21.85	10
MW-1	Upgradient	12/2/2014	1549936.35	1941590.63	588.82	568.10	558.10	31.12	10
MW-8	Downgradient	10/29/2014	1548174.39	1940014.36	587.37	565.50	555.50	32.27	10
Delineation Monitoring We	ells								
MW-5	Downgradient	11/4/2014	1548430.93	1942445.51	581.02	560.60	550.60	30.82	10
MW-6	Downgradient	11/4/2014	1548381.08	1941686.62	581.90	559.30	549.30	33.00	10
MW-7	Downgradient	10/30/2014	1548230.07	1941084.33	577.90	561.50	551.50	26.80	10
MW-19	Downgradient	9/26/2018	1548421.73	1940943.35	580.77	561.20	551.20	26.30	10
MW-20	Downgradient	9/27/2018	1549029.01	1942735.47	579.18	554.82	544.82	31.00	10
MW-24D	Downgradient	11/7/2018	1548637.48	1940900.52	594.67	531.56	521.56	70.00	10
MW-25D	Downgradient	11/6/2018	1548471.80	1941161.62	580.64	527.61	517.61	60.00	10
MW-26D	Downgradient	11/14/2018	1548699.09	1942223.22	580.48	512.57	502.57	75.00	10
MW-27D	Downgradient	11/8/2018	1549103.69	1942391.99	579.74	526.87	516.87	60.10	10
MW-28D	Downgradient	11/13/2018	1549511.13	1942322.32	579.20	531.06	521.06	55.00	10
MW-29	Downgradient	11/13/2018	1549437.24	1942632.41	575.00	556.89	546.89	25.10	10

Notes:

ft = feet

AMSL = above mean sea level

bgs = below ground surface

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

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

1 of 1 June 2019



Summary of Background Concentrations and Groundwater Protection Standards Plant Hammond AP-1, Floyd County, Georgia

Analyte	Units	Background ⁽¹⁾	Federal GWPS ⁽²⁾	State GWPS ⁽³⁾
Antimony	mg/L	0.003	0.006	0.006
Arsenic	mg/L	0.005	0.01	0.01
Barium	mg/L	0.13; 0.14	2	2
Beryllium	mg/L	0.003	0.004	0.004
Cadmium	mg/L	0.001	0.005	0.005
Chromium	mg/L	0.01	0.1	0.1
Cobalt	mg/L	0.029	0.029	0.029
Fluoride	mg/L	0.26; 0.36	4	4
Lead	mg/L	0.005	0.015 (4)	0.005
Lithium	mg/L	Federal 0.025 ⁽⁵⁾ State 0.05	0.04	0.05
Mercury	mg/L	0.0005	0.002	0.002
Molybdenum	mg/L	0.01	0.1	0.01
Selenium	mg/L	0.01	0.05	0.05
Thallium	mg/L	0.001	0.002	0.002
Combined Radium-226/228	pCi/L	1.40; 1.38	5	5

Notes:

"mg/L" = milligrams per liter

"pCi/L" = picocuries per liter

- 1. The background limits were used when determining the groundwater protection standard (GWPS) under 40 CFR \$257.95(h) and Georgia Environmental Protection Division (EPD) Rule 391-3-4-.10(6)(a). Where two numbers are present, they denote the different background levels for each of the two semiannual monitoring events in the order that they were determined.
- 2. Under 40 CFR §257.95(h)(1-3) the GWPS is: (i) the maximum contaminant level (MCL) established under §§141.62 and 141.66 of this title; (ii) where an MCL has not been established a rule-specific GWPS or regional screen level (RSL) is used; or (iii) background concentrations for constituents were the background level is higher than the MCL or rule-specified GWPS.
- 3. Under the existing Georgia EPD rules, the GWPS is: (i) the MCL, (ii) where the MCL is not established, the background concentration, or (iii) background levels for constituents were the background level is higher than the MCL.
- 4. Currently, there is no Environmental Protection Agency (EPA) MCL established for lead. The value listed as GWPS is the established EPA Action Level for drinking water.
- 5. The background tolerance limit (TL) used to evaluate GWPS for this analyte equals half the laboratory speified reporting limit (RL). Per the SAP, and in accordance with the Unified Guidance, a non-parametric tolerance limit approach was used since the data set contained greater than 50% non-detect (ND) results for this analyte. Under this approach, the TL equals the highest value reported, for which is the laboratory RL. Since a RL may be influenced due to sample matrix interference at the time of analysis, half the RL was applied in this select case.

1 of 1 June 2019

Table 3
Summary of Groundwater Analytical Data
Plant Hammond AP-1, Floyd County, Georgia



	Well ID:	HGWA-1	HGWA-1	HGWA-2	HGWA-2	HGWA-3	HGWA-3	HGWC-7	HGWC-7	HGWC-8	HGWC-8	HGWC-9	HGWC-9	HGWC-10	HGWC-10	HGWC-11	HGWC-11
	Sample Date:	3/12/2019	4/2/2019	3/12/2019	4/2/2019	3/12/2019	4/1/2019	3/13/2019	4/2/2019	3/12/2019	4/3/2019	3/13/2019	4/3/2019	3/13/2019	4/3/2019	3/13/2019	4/3/2019
	Parameter (1,2,3)																
	Boron*		ND (0.016 J)		ND (0.034 J)		ND (0.0066 J)		0.99		2.8		2.3		0.66		0.23
H	Calcium*		132		ND (22.5 J)		80.5		101		125		164		137		112
	Chloride*		20.3		5.8		6.5		55.5		91.6		130		49.3		4.6
APPENDIX	Fluoride*	ND (0.29 J)	ND (0.10 J)	ND (0.038 J)	ND (0.071 J)	ND (0.072 J)	ND (0.029 J)	ND (0.12 J)	ND (0.097 J)	0.58	0.63	ND (0.14 J)	ND (0.14 J)	ND (0.17 J)	ND (0.082 J)	0.51	0.43
PPE	рН	7.03	6.86	5.42	5.41	7.29	7.16	7.27	7.27	6.91	6.85	7.06	6.88	6.70	6.55	5.92	5.69
AI	Sulfate*		84.3		48.7		50.4		127		194		214		159		298
	TDS*		452		133		284		428		543		673		525		483
	Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Arsenic ⁺	ND	ND	ND (0.00069 J)	ND	ND (0.00063 J)	ND	ND	ND	ND	ND	ND (0.00075 J)	ND	ND	ND	ND (0.0024 J)	ND (0.00094 J)
	Barium	0.042	0.040	0.12	0.13	0.13	0.13	0.083	0.072	0.062	0.066	0.10	0.12	0.044	0.076	0.024	0.023
	Beryllium	ND	ND	ND (0.00017 J)	ND (0.00015 J)	ND	ND	ND	ND	ND	ND (0.000074 J)	ND	ND	ND	ND	ND (0.00010 J)	ND (0.00017 J)
	Cadmium	ND	ND	ND (0.00013 J)	ND (0.00015 J)	ND	ND	ND	ND	ND (0.00020 J)	ND (0.00032 J)	ND	ND	ND	ND (0.0001 J)	ND	ND (0.000096 J)
IX IX	Chromium	ND	ND	ND	ND (0.0079 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.020	ND	ND
IX	Cobalt	ND	ND	0.017	0.019	ND	ND	ND (0.00067 J)	ND (0.00069 J)	ND (0.002 J)	ND (0.0019 J)	ND (0.00065 J)	ND ((0.00069 J)	ND	ND	ND (0.00098 J)	ND (0.0018 J)
APPENDIX	Fluoride	ND (0.29 J)	ND (0.10 J)	ND (0.038 J)	ND (0.071 J)	ND (0.072 J)	ND (0.029 J)	ND (0.12 J)	ND (0.097 J)	0.58	0.63	ND (0.14 J)	ND (0.14 J)	ND (0.17 J)	ND (0.082 J)	0.51	0.43
PPE	Lead	ND	ND	ND	ND	ND	ND	ND		ND		ND		ND		ND	
AI	Lithium	ND (0.0010 J)	ND (0.0010 J)	ND (0.0018 J)	ND (0.0018 J)	ND (0.0032 J)	ND (0.0032 J)	ND (0.0024 J)	ND (0.0020 J)	ND (0.0025 J)	ND (0.0025 J)	ND (0.0040 J)	ND (0.0040 J)	ND	ND	ND	ND
	Mercury	ND		ND		ND		ND		ND		ND		ND		ND	
	$\mathbf{Molybdenum}^{^{+}}$	ND	ND	ND	ND	ND	ND	0.040	0.041	0.50	0.50	0.028	0.030	ND	ND (0.0021 J)	0.012	0.010
	Comb. Radium 226/228	0.327 U	0.739 U	0.454 U	0.651 U	1.01 U	0.760 U	0.403 U	0.865 U	0.544 U	0.885 U	1.00 U	0.156 U	1.19 U	1.82 U	0.584 U	0.360 U
	Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.0015 J)	ND	0.023	0.016
	Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

- -- = Parameter was not analyzed
- J = Indicates the parameter was estimated and detected between the method detection limit (MDL) and the reporting limit (RL)
- ND = Indicates the parameter was not detected above the analytical MDL

TDS = total dissolved solids

- U = Indicates the parameter was not detected above the analytical minimum detectable concentration (MDC) (Specific to combined radium 226/228)
- (1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units) and combined radium reported as picocuries per liter (pCi/L).
- (2) Metals were analyzed by EPA Method 6020B, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and total radium by
- EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.
- (3) Appendix III parameters with a "*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly,
- Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the June and October 2018 assessment monitoring events.
- (4) Well is designated a delineation monitoring well.

Table 3Summary of Groundwater Analytical Data
Plant Hammond AP-1, Floyd County, Georgia



	Well ID:	HGWC-12	HGWC-12	HGWC-13	HGWC-13	MW-5 ⁽⁴⁾	MW-5	MW-6 ⁽⁴⁾	MW-6	MW-7 ⁽⁴⁾	MW-7	MW-19 ⁽⁴⁾	MW-19	MW-20 ⁽⁴⁾	MW-20	MW-24D ⁽⁴⁾	MW-24D
	Sample Date:	3/14/2019	4/3/2019	3/13/2019	4/5/2019	3/13/2019	4/3/2019	3/13/2019	4/3/2019	3/13/2019	4/3/2019	3/14/2019	4/3/2019	3/13/2019	4/2/2019	3/13/2019	4/8/2019
	Parameter (1,2,3)																
	Boron*		1.8		ND (0.86 J)		ND (0.030 J)		0.67		0.094		0.63		0.11		ND (0.47 J)
Ħ	Calcium*		114		77.1		82		178		50.2		74.9		109		83.0
	Chloride*		62.8		36.4		1.8		60.9		5.6		19.5		27.5		43.3
APPENDIX	Fluoride*	1.1	ND (0.30 J)	0.78	0.83	ND (0.10 J)	ND (0.049 J)	ND (0.19 J)	ND (0.15 J)	ND (0.069 J)	ND	0.35	ND (0.19 J)	ND (0.072 J)	ND	ND (0.074 J)	ND (0.048 J)
PB	рН	7.09	6.96	7.24	7.24	6.16	5.96	6.86	6.77	6.37	6.19	6.48	6.14	6.75	6.70	7.58	7.47
AF	Sulfate*		176		105		218		228		75.3		105		122		97.3
	TDS*		462		331		396		437		213		310		435		323
	Antimony	ND	ND	ND	ND (0.00021 J)	ND	ND	ND	ND	ND (0.00086 J)	ND	ND	ND	ND	ND	ND	ND
	Arsenic ⁺	ND (0.0026 J)	ND (0.0022 J)	0.42	0.36	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.0023 J)	ND	ND	ND
	Barium	0.081	0.077	0.10	0.079	0.056	0.049	0.10	0.090	0.063	0.058	0.060	0.050	0.087	0.080	0.053	0.043
	Beryllium	ND	ND	ND (0.000062 J)	ND	ND	ND	ND	ND	ND	ND (0.000051 J)	ND	ND	ND	ND	ND	ND
	Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2	Chromium	ND (0.0025 J)	ND	ND	ND	ND (0.0030 J)	ND (0.0030 J)	ND	ND	ND	ND (0.0023 J)	ND	ND	ND	ND	ND	ND
	Cobalt	ND (0.0011 J)	ND (0.0011 J)	ND (0.0022 J)	ND (0.0017 J)	ND	ND	ND (0.00055 J)	ND	ND	ND	0.025	0.036	ND (0.0011 J)	ND	ND	ND (0.00025 J)
NDIX	Fluoride	1.1	ND (0.30 J)	0.78	0.83	ND (0.10 J)	ND (0.049 J)	ND (0.19 J)	ND (0.15 J)	ND (0.069 J)	ND	0.35	ND (0.19 J)	ND (0.072 J)	ND	ND (0.074 J)	ND (0.048 J)
APPE	Lead	ND		ND		ND		ND		ND		ND		ND		ND	
AP	Lithium	ND (0.0058 J)	ND (0.0066 J)	ND (0.029 J)	ND (0.023 J)	ND	ND	ND	ND	ND	ND	ND (0.0089 J)	ND (0.0061 J)	ND (0.0016 J)	ND (0.0015 J)	ND (0.0029 J)	ND (0.0027 J)
	Mercury	ND		ND		ND		ND		ND		ND		ND		ND	
	Molybdenum ⁺	0.046	0.049	0.033	0.030	ND	ND	ND (0.0021 J)	ND (0.0021 J)	ND	ND	0.057	0.040	ND	ND	ND	ND (0.00027 J)
	Comb. Radium 226/228	0.992 U	0.734 U	0.390 U	0.422 U	0.621 U	0.932 U	2.07	0.872 U	1.23	1.05 U	0.347 U	0.884 U	0.538 U	1.02 U	0.311 U	0.573 U
	Selenium	ND	ND	ND	ND (0.00018 J)	ND (0.0033 J)	ND (0.0027 J)	ND	ND	ND (0.0016 J)	ND	ND	ND (0.0070 J)	ND	ND	ND	ND
	Thallium	ND	ND	ND (0.00039 J)	ND (0.00034 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

2 of 3

Notes:

-- = Parameter was not analyzed

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

TDS = total dissolved solids

- (1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units) and combined radium reported as picocuries per liter (pCi/L).
- (2) Metals were analyzed by EPA Method 6020B, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and total radium by

EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.

(3) Appendix III parameters with a "*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly,

Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the June and October 2018 assessment monitoring events.

(4) Well is designated a delineation monitoring well.

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

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

Table 3
Summary of Groundwater Analytical Data
Plant Hammond AP-1, Floyd County, Georgia



	Well ID:	MW-25D ⁽⁴⁾	MW-25D	MW-26D ⁽⁴⁾	MW-26D	MW-27D ⁽⁴⁾	MW-27D	MW-28D ⁽⁴⁾	MW-28D	MW-29 ⁽⁴⁾	MW-29
Sample Date:		3/14/2019	4/3/2019	3/13/2019	4/3/2019	3/13/2019	4/42019	3/12/2019	4/2/2019	3/12/2019	4/2/2019
	Parameter (1,2,3)							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
	Boron*		0.37		1.5		ND (0.12 J)		0.17		1.2
Ħ	Calcium*		25.4		122	-	26.3		64.6		131
	Chloride*		32.0		90.6		26.9		44		80.9
APPENDIX	Fluoride*	2.2	1.6	ND (0.052 J)	ND (0.044 J)	ND (0.028 J)	ND (0.26 J)	ND (0.24 J)	ND (0.18 J)	ND (0.07 J)	ND (0.045 J)
	рН	7.67	7.56	7.40	7.25	7.78	7.63	7.46	7.40	7.20	6.91
AP	Sulfate*		53.0		131		11.8		67.7		151
	TDS*		ND (15 J)		493		203		350		548
	Antimony	ND	ND	ND	ND	ND	ND (0.00016 J)	ND	ND	ND	ND
	Arsenic ⁺	ND (0.0019 J)	ND	ND	ND	ND	ND (0.0002 J)	ND	ND	ND	ND
	Barium	0.44	0.38	0.099	0.12	1.5	1.2	0.82	0.37	0.089	0.078
	Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2	Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Cobalt	ND	ND	ND	ND	ND	ND (0.000091 J)	ND	ND	ND (0.00057 J)	ND (0.00084 J)
APPENDIX	Fluoride	2.2	1.6	ND (0.052 J)	ND (0.044 J)	ND (0.028 J)	ND (0.26 J)	ND (0.24 J)	ND (0.18 J)	ND (0.07 J)	ND (0.045 J)
PPB	Lead	ND		ND		ND		ND		ND	
AI	Lithium	0.050	ND (0.047 J)	ND (0.0033 J)	ND (0.0034 J)	ND (0.0097 J)	ND (0.0069 J)	ND (0.011 J)	ND (0.0052 J)	ND (0.0024 J)	ND (0.0021 J)
	Mercury	ND		ND		ND		ND		ND	
	Molybdenum ⁺	ND (0.0022 J)	ND	ND	ND (0.0083 J)	ND	ND (0.0018 J)	0.013	0.028	ND (0.0038 J)	ND (0.0028 J)
	Comb. Radium 226/228	1.28 U	0.662 U	0.627 U	0.205 U	1.81	1.33	0.926 U	0.479 U	1.37	0.620 U
	Selenium	ND	ND	ND	ND	ND	ND (0.00012 J)	ND	ND	ND	ND
	Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

TDS = total dissolved solids

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^{-- =} Parameter was not analyzed

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

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

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

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

⁽²⁾ Metals were analyzed by EPA Method 6020B, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and total radium by

EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.

⁽³⁾ Appendix III parameters with a "*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly,

Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the June and October 2018 assessment monitoring event (4) Well is designated a delineation monitoring well.

Evaluation of Remedial Technologies Plant Hammond AP-1, Floyd County, Georgia



	Regulatory Citation for Criteria:		7.96(C)(1)		
Corrective Measure	Description	Performance	Reliability		
Geochemical Approaches (In-Situ Injection)	Use of an injection well network, or other means of introducing reagents or air into the subsurface, to provide suitable reagents for either anaerobic or aerobic attenuation of As and Mo. Under anaerobic conditions, As would be attenuated within sparingly soluble sulfide minerals; this approach might also increase the attenuation of Mo. Under aerobic conditions, soluble iron or manganese and oxygen (either via air sparging or through a chemical oxidant) would be injected to promote the formation of iron or manganese (oxy-) hydroxides for subsequent sorption of As (and potentially, Mo) onto these mineral phases. If sufficient iron is present in groundwater, the use of air sparging alone may be considered to precipitate iron (oxy-) hydroxides for sorption. In-situ chemical oxidation (ISCO) or in-situ chemical reduction (ISCR) can be used to chemically alter the redox environment in the subsurface to affect the mobility of certain inorganic compounds, including As.	The effective immobilization of As has been shown under aerobic and anaerobic conditions; however, the anaerobic approach (involving the injection of an electron donor together with iron or manganese and sulfur) requires careful study and testing. While aerobic approaches are somewhat less complex, additional aquifer characterization is needed to further evaluate these options. It is currently not well understood whether molybdenum can be efficiently attenuated using insitu redox manipulations due to slow reaction kinetics. Mo attenuation under both aerobic and anaerobic conditions needs to be further evaluated but is expected to occur. Mo is more strongly sorbed to aluminum oxides than other metal oxides, and it is generally less sorptive and more mobile compared to As.	Reliability dependent on permeability of the subsurface and the amount and distribution of secondary iron or manganese (oxy-) hydroxides (for aerobic approach), or electron donors and soluble iron or manganese and sulfur that can be consistently distributed (for anaerobic approach). Reliable technology if injected materials can be distributed throughout the impacted aquifer. Benchand/or pilot-scale treatability testing programs are needed to understand the biogeochemical processes that would effectively reduce migration of As and Mo in groundwater.		
Hydraulic Containment ("Pump and Treat")	Hydraulic containment refers to the use of groundwater extraction to induce a hydraulic gradient for hydraulic capture or control the migration of impacted groundwater. This approach uses extraction wells or trenches to capture groundwater, which may subsequently require above-ground treatment and permitted discharge to a receiving water feature, reinjection into the groundwater, or reuse (e.g., land application, CCR conditioning, etc.). It is applicable to a variable mix of inorganic constituents, including dissolved As and Mo.	Pump and treat (P&T) is effective at providing hydraulic control, but it is unclear whether full groundwater remediation can be achieved without further understanding attenuation mechanisms at the Site. At AP-1, implementation of the corrective measure is contingent on completing additional assessment activities (i.e. high-resolution site characterization, additional pump tests, flow modeling, and capture zone analysis). This is needed to refine the constituent distribution in the subsurface to target specific zones for pumping for improved mass recovery efficiency/ effectiveness and to further evaluate the potential remedy performance.	Generally reliable for hydraulic containment, but uncertainty exists whether groundwater remediation goals can be achieved within a reasonable time frame without further understanding attenuation mechanisms.		
Monitored Natural Attenuation (MNA)	MNA relies on natural attenuation processes to achieve site-specific remediation objectives within a reasonable time frame relative to more active methods. Under certain conditions (e.g., through sorption, mineral precipitation or oxidation-reduction reactions), MNA effectively reduces the dissolved concentrations of inorganic constituents in groundwater. Attenuation mechanisms for inorganic constituents at CCR sites, including arsenic (As) and molybdenum (Mo) at AP-1, are either physical (e.g. dilution, dispersion, flushing, and related processes) or chemical (sorption or oxidation reduction reactions). Chemical attenuation processes include precipitation, and sorption reactions such as adsorption on the surfaces of soil minerals, absorption into the matrix of soil minerals, or partitioning into organic matter. Further, oxidation-reduction (redox) reactions, via abiotic or biotic processes, can transform the valence states of some inorganic constituents to less soluble and thus less mobile forms. For As and Mo, the main attenuation processes include sorption to iron and manganese oxides (As and Mo), and formation of sparingly soluble sulfide minerals (As).	Physical and chemical MNA mechanisms for arsenic and molybdenum, including dilution, dispersion, sorption, and oxidation reduction reactions can be effective at achieving groundwater protection standards (GWPS) within a reasonable time frame. Attenuation processes for As and Mo are already occurring at the site as evidenced by groundwater data from the delineation wells. Source control will improve the mass balance such that the buffer capacity of the aquifer is unlikely to be exhausted, and the attenuation processes already at work for As and Mo at AP-1 will further enhance ongoing MNA.	Reliable as long as the aquifer conditions that result in As and Mo attenuation remain favorable and/or are being enhanced and sufficient attenuation capacity is present. MNA is reliable and can either be used as a stand-alone corrective measure for groundwater impacted by dissolved As and/or Mo, or in combination with a second technology.		
Permeable Reactive Barrier	Permeable reactive barrier (PRB) technology typically involves the installation of a permeable subsurface wall constructed with reactive media for the removal of constituents as groundwater passes through. Either ZVI-Carbon matrix or solid carbon (bio-barrier) are currently proposed for the concurrent removal of As and Mo. The carbon could be composed of peat moss, mulch or another carbon source. Exact placement of the PRB is contingent on finalization of the nature and extent characterization. PRB walls are typically keyed into the bedrock. While the shallow groundwater in the residuum and fractured bedrock is connected to the groundwater in more competent bedrock, the higher permeability/conductivity of the PRB is not expected to impede groundwater flow. PRBs can also be constructed as "funnel and gate" systems, where a barrier wall directs groundwater to a smaller "treatment gate" filled with reactive media.	PRBs have been shown to effectively address As in groundwater, but additional testing is required for Mo to select the appropriate reactive media. The approach is expected to achieve GWPS for both constituents as impacted groundwater passes through the reactive barrier. Mo redox kinetics may be slow and hence a thicker wall might be needed relative to solely treating for As. Furthermore, additional testing is required to select the appropriate sorptive media mix, especially related to Mo.	Reliable groundwater corrective measure technology, but loss of reactivity over time may require re-installation depending on the duration of the remedy. Additional data collection, including conducting a bench and/or pilot study, is needed to better characterize current attenuation mechanisms and/or select the appropriate reactive media mix for a PRB wall.		
Phytoremediation / TreeWells	Phytoremediation uses trees and other plants to degrade or immobilize constituents or achieve hydraulic control without the need for an above-ground water treatment system and infrastructure. Within the context of AP-1, this corrective measure would likely use an engineered (proprietary) TreeWell® phytoremediation system along the point of compliance or downgradient edge of the impacted groundwater for hydraulic control. The system promotes root development to the targeted groundwater zone (depth), allowing for hydraulic control of impacted groundwater. In addition, immobilization of As and Mo within the root zone as well as incidental uptake of dissolved As and Mo with groundwater is expected to occur concurrent with hydraulic control.	Once established (typically at the end of the third growing season), a TreeWell system is effective for providing hydraulic containment of groundwater, and potential reduction of As and Mo concentrations through immobilization and/or uptake and sequestration in the tree biomass; however, the main purpose is to provide hydraulic control. Given the current groundwater flow velocities, the approach is currently not considered viable. However, changing site conditions may make the corrective measure viable for the area downgradient of AP-1. Additional aquifer testing and/or groundwater flow modeling may be needed to confirm the suitability at that time.	Engineered phytoremediation is a proven technology where hydrogeologic factors are taken into account (e.g., hydraulic conductivity, flow velocity, depth to impacted groundwater zone, etc.). This is considered an active remedial approach through the use of trees as the "pumps" driving the system. Careful design will be needed to select the proper species, which will include consideration of groundwater chemistry, plant uptake of constituents, and groundwater flow modeling to evaluate the required number and placement of TreeWell units.		
Subsurface Vertical Barrier Walls	This approach involves placing a barrier to groundwater flow in the subsurface, frequently around a source area, to prevent future migration of dissolved constituents in groundwater from beneath the source to downgradient areas. In general, barrier walls are designed to provide containment; localized treatment achieved through the sorption or chemical precipitation reactions from construction of the walls are incidental to the design objective. Barrier walls can also be used in downgradient applications to limit discharge to a surface water feature or to reduce aquifer recharge from an adjacent surface water feature when groundwater extraction wells are placed near one. A variety of barrier materials can be used, including cement and/or bentonite slurries, geomembrane composite materials, or driven materials such as steel or vinyl sheet pile. Groundwater extraction from upgradient of the barrier is required to avoid groundwater mounding behind the barrier.	Barrier walls are a proven technology for seepage control and/or groundwater cutoff at impoundments. Slurry walls are limited by the depth of installation, which is approximately 90 ft bgs. However, site-specific geologic and technology-specific considerations may limit this depth to shallower installations. Within the context of AP-1, a barrier wall might be used in conjunction with a "funnel and gate" system for a PRB rather than a stand-alone technology. As such, groundwater with As and Mo above GWPS could either be directed to "treatment gates" for passive treatment (in a PRB) or migration of impacted groundwater could be minimized via barrier wall installation. Additional subsurface investigations, aquifer testing, and compatibility testing with site-specific groundwater will be needed.	Generally reliable as a barrier to groundwater flow; however, treatment of downgradient groundwater is incidental and not the primary objective.		

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Evaluation of Remedial Technologies Plant Hammond AP-1, Floyd County, Georgia



	40 CFR 257.96(C)(1)	40 CFR 257.96(C)(1)	40 CFR 257.96(C)(2)
Corrective Measure	Ease of Implementation	Potential Impacts	Time Requirement to Begin/Complete
Geochemical Approaches (In-Situ Injection)	Moderate. Installation of injection well network or other injection infrastructure would be required. Alternative installation approaches may be considered, such as along the downgradient edge of impacted groundwater, which would function similar to a PRB application. Potential for clogging of aquifer matrix and/or injection well infrastructure. Chemical distribution during injections (i.e., radius of influence) needs to be evaluated.	Minimal impacts are expected if remedy works as designed, based on a thorough pre-design investigation, geochemical modeling, and bench/pilot study results. Redox-altering processes have the potential to mobilize naturally-occurring constituents as an unintended consequence if not properly studied and implemented.	Installation of the injection network can be accomplished relatively quickly (1 to 2 months). However, a thorough pre-design investigation, geochemical modeling, and/or bench- and/or pilot-testing will be required to obtain design parameters prior to design and construction of the corrective measure, which may take up to 24 months. Once installed, the time required to achieve GWPS within the treatment area may be relatively quick but depends on the attenuation process kinetics of each targeted constituent. The time for complete distribution of the injected materials throughout the treatment area is also variable.
Hydraulic Containment ("Pump and Treat")	Moderate. Proven approach, and supplemental installation of extraction wells/trenches is fairly straightforward. The extracted groundwater may potentially require an above-ground treatment system. A variety of sorption and precipitation approaches exist for ex-situ treatment of As and Mo. Operation and maintenance (O&M) requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.	Moderate. The main potential impacts are related to the presence and operation of an on-site above-ground water treatment facility and related infrastructure to convey and treat extracted groundwater. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone.	Installation of extraction wells and/or trenches can be accomplished relatively quickly (1 to 2 months). However, additional aquifer testing, system design and installation, and permit approval may be required, which may take up to 24 months. The initiation of the approach would be contingent on the start-up of the wastewater treatment infrastructure. Hydraulic containment can be achieved relatively quickly after startup of the extraction system, but uncertainty exists with respect to the time to achieve GWPS without additional data collection to better understand attenuation mechanisms for As and Mo.
Monitored Natural Attenuation (MNA)	Reasonably implementable with respect to infrastructure, but moderate to complex with respect to documentation. Proven approach, but additional data are needed to show that the existing attenuation capacity is sufficient to meet site objectives within a reasonable timeframe. A monitoring well network already exists to implement future groundwater monitoring efforts.	None. MNA relies on the natural processes active in the aquifer matrix to reduce constituent concentrations without disturbing the surface or the subsurface.	The infrastructure to initiate MNA is already in place. Demonstrating attenuation mechanisms and capacity can be time-consuming and can take up to 24 months. MNA is expected to be successful within a reasonable time frame following pond closure. Engineering measures will be implemented during closure of AP-1 to minimize potential impacts to the subsurface during closure activities and routine groundwater monitoring will be used to verify that groundwater impacts remain stable or decrease over time.
Permeable Reactive Barrier	Moderate to difficult. Trenching would be required to install a mix of reactive materials in the subsurface. Continuous trenching may be the most feasible construction method. Installation methods and materials are readily available. Once installed, treatment will be passive and O&M requirements are minimal if replacement of the PRB is not necessary.	Minimal impacts are expected following the construction of the remedy. However, ZVI has the potential to create anaerobic conditions downgradient of the PRB wall that may mobilize redox-sensitive naturally-occurring constituents. These conditions need to be carefully monitored. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures.	Installation of a PRB can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, bench- and/or pilottesting would be required to obtain design parameters prior to design and construction of the remedy, which may take up to 24 months. Once installed, the time to achieve GWPS downgradient of the PRB is anticipated to be relatively quick.
Phytoremediation / TreeWells	Reasonably implementable to moderate. Engineered approach has been proven effective, and specific depth zones can be targeted. Trees are installed as "tree wells" in a large diameter boring to get the roots deep enough to intercept impacted groundwater flow paths. Area must be clear of above and belowground structures (i.e., power lines). The system, once established (approximately three growing seasons), is a self-maintaining, sustainable remedial system that has no external energy requirements and little maintenance (i.e., efforts normally associated with landscaping).	Minimal impacts are expected. In fact, there are several positive impacts expected, including enhanced aesthetics, wildlife habitat, and limited energy consumption.	The design phase will require some groundwater modeling for optimal placement of the TreeWell units, which may take up to 6 months. Depending on the number of required units, the installation effort is expected to last several weeks. Hydraulic capture/control is expected approximately three years after planting and system performance is expected to further improve over time.
Subsurface Vertical Barrier Walls	Moderate to difficult. Trenching will be required to fill in the various slurry mixes; alternatively, sheet pile installations can be accomplished without excavation of trenches. The application of barrier walls is limited by the depth of installation, which similar to PRBs, should be keyed into a low permeability layer such as a thick clay layer or bedrock. Installation methods and materials are readily available. Once installed, above-ground infrastructure to pump and treat groundwater will be required. O&M requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.	Minimal impacts are expected following the construction of the remedy. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures. Changes to groundwater flow patterns due to installation of the barrier wall are expected, which can affect other aspects of groundwater corrective action. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone that may result in the mobilization of other constituents that may require treatment.	Installation of a barrier wall can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, some design phase and additional aquifer and compatibility testing will be required, which may take up to 24 months. Once installed, preventing migration of constituents dissolved in groundwater is anticipated to be relatively quick. Since this approach does not treat the downgradient area of impacted groundwater but prevents migration from a source area, it will likely have to be maintained long-term and coupled with other approaches.

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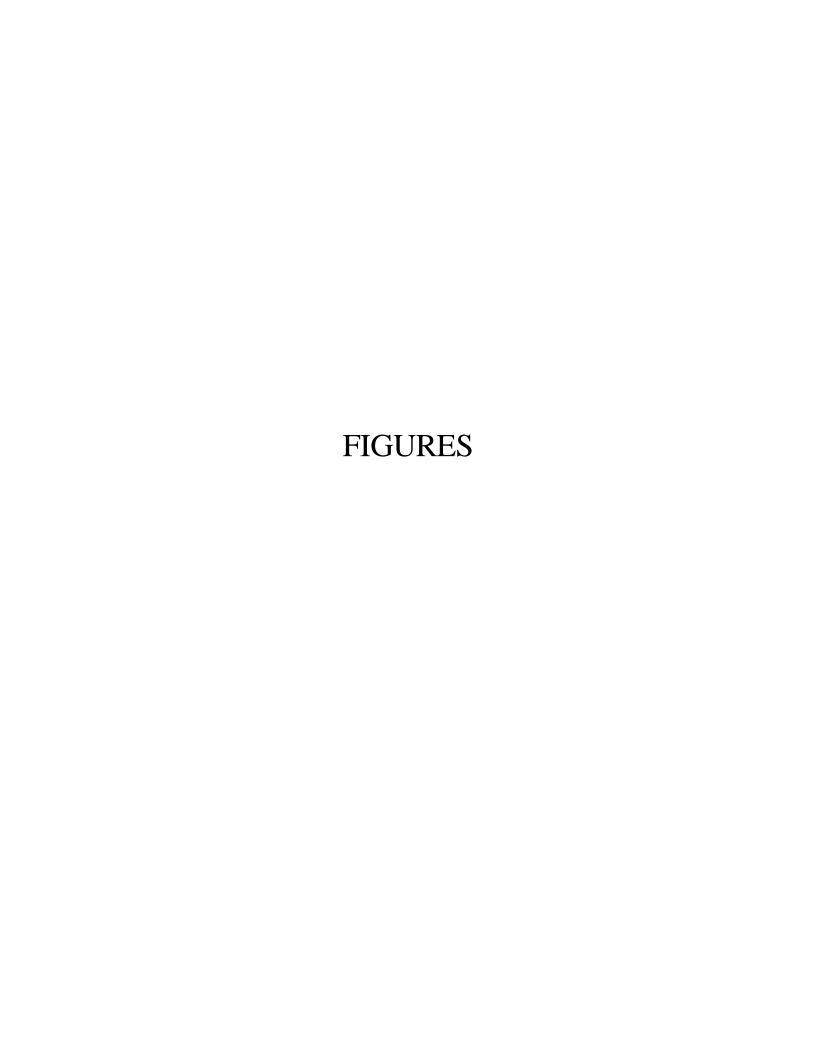
Evaluation of Remedial Technologies Plant Hammond AP-1, Floyd County, Georgia

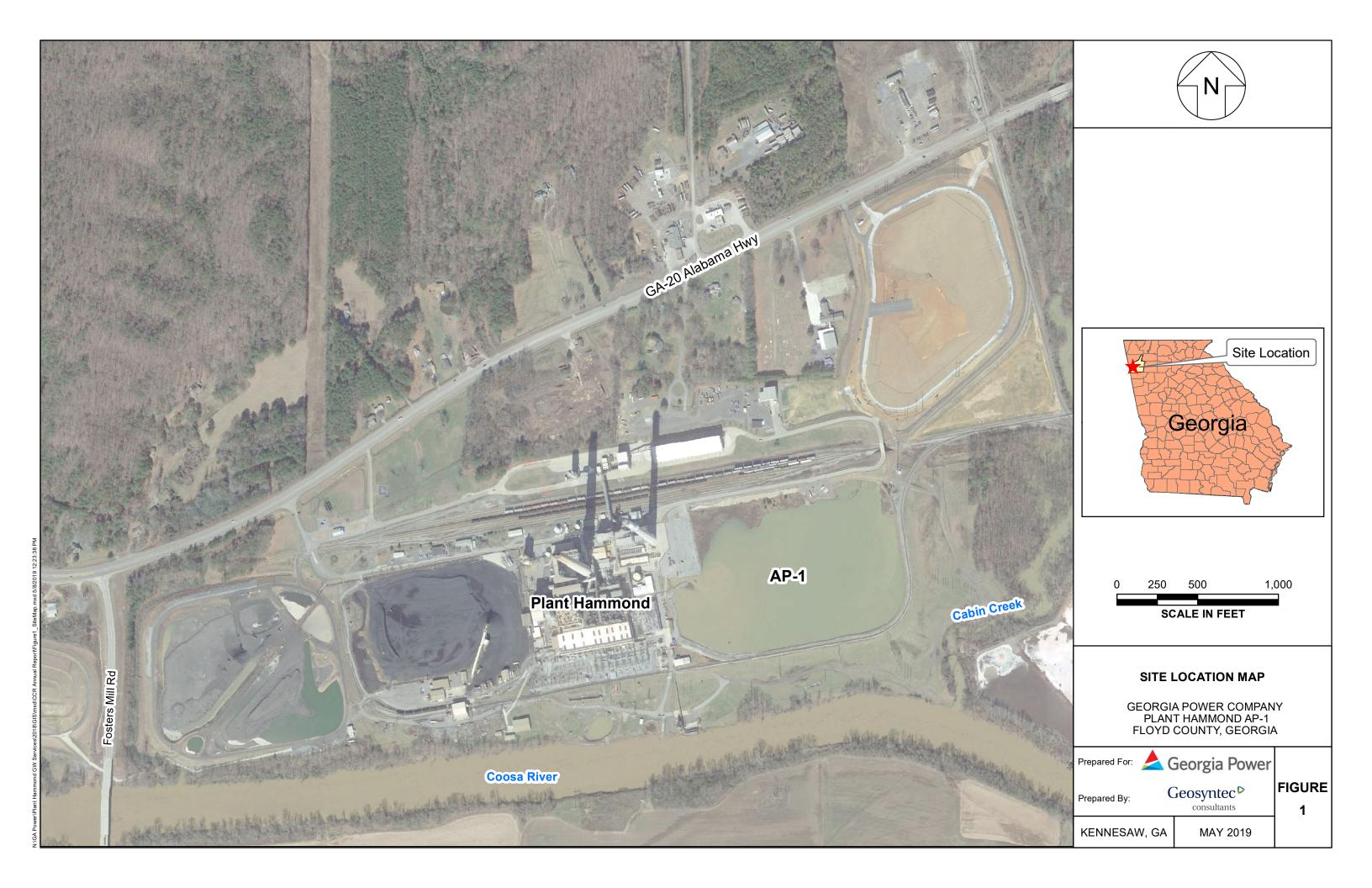


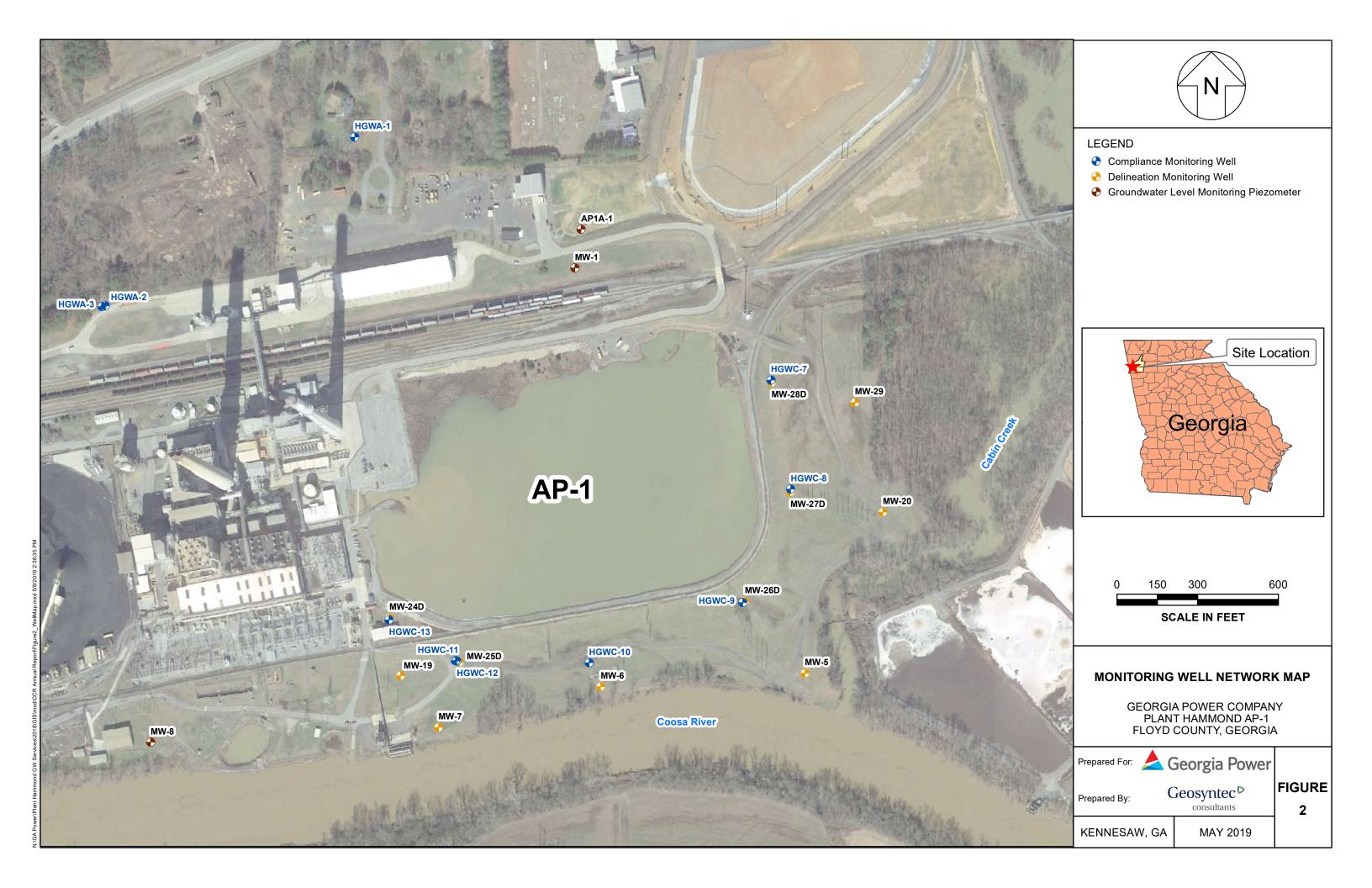
June 2019

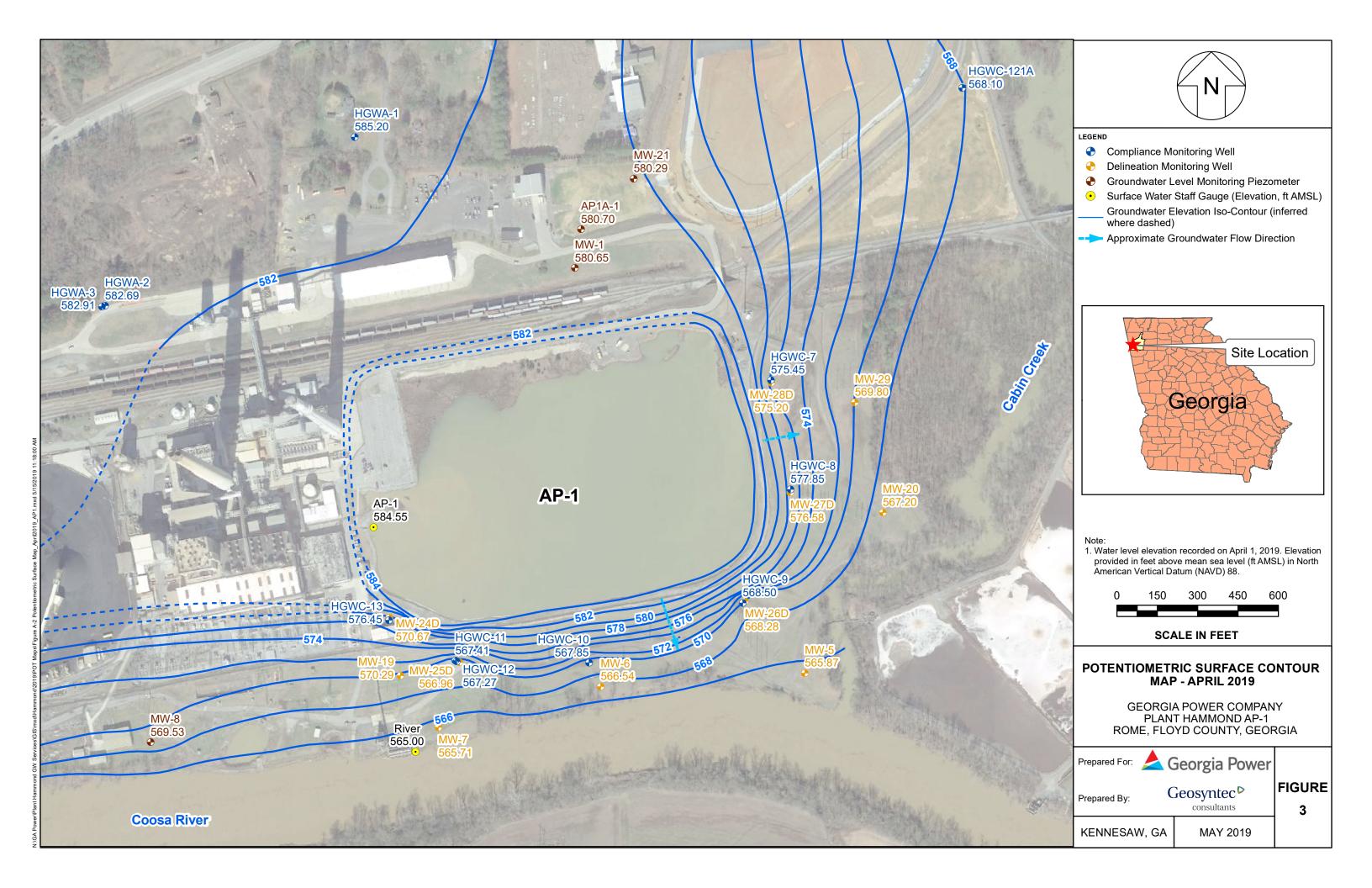
		57.96(C)(3)	
Corrective Measure	Institutional Requirements	Other Env or Public Health Requirements	Relative Costs
Geochemical Approaches (In-Situ Injection)	Deed restrictions may be necessary until in-situ treatment has achieved GWPS. A new UIC permit (for in-situ injections) would be required to implement this corrective measure. No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Potential for mobilization of redox-sensitive constituents exists during implementation of an anerobic attenuation approach. Following installation, the remedy is passive.	Medium (depending on expanse of injection network required and injectate volume required per derived design parameters)
Hydraulic Containment ("Pump and Treat")	Depending on the effluent management strategy, modifications to the existing NPDES permit may be required, or obtaining a new underground injection control (UIC) permit may be needed if groundwater reinjection is chosen. In addition, deed restrictions may be required as long as groundwater conditions are above regulatory standards for unrestricted use.	Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on remedy duration, complexity of above-ground treatment system, and volume of water processed)
Monitored Natural Attenuation (MNA)	MNA may require the implementation of institutional controls, such as deed restrictions, to preclude potential exposure to groundwater within the footprint of impacted groundwater until GWPS are achieved.	Little to no physical disruption to remediation areas and no adverse construction-related impacts are expected on the surrounding community. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1.	Low to medium
Permeable Reactive Barrier	Deed restrictions may be necessary for groundwater areas upgradient of the PRB (if not installed along the waste boundary). No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Following installation, the remedy is passive. However, certain treatment media (such as ZVI) have the potential to mobilize naturally-occurring constituents downgradient of the PRB.	Medium to high (for installation) - minimal O&M requirements if replacement is not necessary
Phytoremediation / TreeWells	Deed restrictions may be necessary for groundwater areas upgradient of the TreeWell system. No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Following installation, the remedy is passive and does not require external energy.	Medium (for installation) - minimal O&M requirements
Subsurface Vertical Barrier Walls	Deed restrictions may be necessary for groundwater areas downgradient of the barrier wall until remedial goals are met. No other institutional requirements are expected at this time.	Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Due to the need for groundwater extraction associated with barrier walls, above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on length and depth of wall, remedy duration and complexity of above-ground treatment system)

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APPENDIX A

Boring and Well Construction Logs

PLANT HAMMOND DPT 2018 AS AND MO.GPJ ACP GINT LIBRARY.GLB 1/4/19

ASHWINS LOG

PLANT HAMMOND DPT 2018 AS AND MO.GPJ ACP GINT LIBRARY.GLB 1/4/19

MONITORING WELL MW-24D Geosyntec D PAGE 1 OF 3 Geosyntec Consultants 1255 Roberts Boulevard Kennesaw, GA 30144 CLIENT Southern Company Services **PROJECT NAME** Plant Hammond Well Installation PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond DATE STARTED _11/7/18 COMPLETED 11/7/18 NORTHING _ 1548637.48 ft **EASTING** 1940900.52 ft **DRILLER** Cascade Drilling **GROUND ELEVATION** 591.56 ft **BORING DIAMETER** 6 in DRILLING METHOD Sonic TOP OF CASING ELEVATION 594.67 ft SAMPLING METHOD 4" core 6" overide GEOPHYSICAL CONTRACTOR Geosyntec Consultants RIG TYPE Geoprobe 8140LC CHECKED BY J. Ivanowski LOGGED BY C. Hug CONSTRUCTION ELEVATION (ft msl) GRAPHIC LOG DIAGRAM DEPTH (ft) RUN **GAMMA REMARKS** MATERIAL DESCRIPTION (cps) 100 Hydro excavation (0-10') - No sample 590 5 5 585 Schedule 40 PVC 2" 10 **Bentonite** 10 10-14': No recovery arout 580 GRAVEL, Dark grey, fine to coarse, angular, 10-20', Recovery = limestone. Potential fall back 15 15 From 15.5': With SILT. SILT, Dark brown and grey, low plasticity, soft, wet, with some fine sand and trace of fine roots. SANDY GRAVEL, Dark grey, fine to coarse, angular, limestone, trace of silt. CLAY, Orange, yellow, minor pale grey mottling, 20 medium to high plasticity, firm to stiff, trace fine From 20': Red orange and grey mottled, moist, medium to high plasticity, fat clay. From 23.5': With fine sand. 20-30', Recovery = 25 10' SANDY CLAY, Red brown, orange, medium plasticity, sand is fine to coarse, with some fine, angular quartz gravel. 565 From 29': Less sandy. 30-40', Recovery =

(Continued Next Page)

ACP GINT LIBRARY.GLB

HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ

MONITORING WELL MW-24D Geosyntec D PAGE 2 OF 3 Geosyntec Consultants 1255 Roberts Boulevard Kennesaw, GA 30144 **CLIENT** Southern Company Services PROJECT NAME Plant Hammond Well Installation PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond CONSTRUCTION LEVATION (ft msl) DIAGRAM DEPTH (ft) GRAPHII LOG RUN **GAMMA REMARKS** MATERIAL DESCRIPTION (cps) 30-31': No recovery SANDY CLAY, Grey, orange, medium plasticity, 560 sand is fine to medium grained. CLAYEY SAND, Grey, orange, brown, fine to medium, subrounded, quartz, with some clay lenses. 35 33.75' 34.0': Clay band. 35 SANDY GRAVEL / GRAVELLY SAND, Brown, grey, fine to coarse, subrounded to rounded, quartz. 555 35': SANDY GRAVEL, Gravel are fine to coarse subrounded to rounded, quartz. CLAY, Orange, medium to high plasticity, stiff to soft, with some fine to medium sand. Bordering SANDY CLAY' from 38', trace of fine, angular 40 Bentonite uncoated 3/8" chips 550 SAND / CLAYEY SAND, Dark brown, fine, subrounded, quartz. SILT, Orange, dark brown, low to medium plasticity, soft, trace fine sand, with some clay. 40-50', Recovery = SANDY CLAY, Dark brown, low to medium 45 45 plasticity, soft, sand is fine to medium, bordering From 45': Driller clayey sand. reports softeer and LIMESTONE, Dark grey, recovered as silty powder harder layers and angular gravel and cobble sized limestone throughout drilling. fragments, with calcite veins throughout. From 50': Larger fragments of limestone, up to 4" 50 50 length, dark grey with calcite veins. Driller reports approx 50% returns of added water and layers of softer and harder drilling. No voids reported. 50-60', Recovery = 55 55 Bentonite 3/8" chips 535 60 60 From 60: Dark grey, calcite veins and calcite healed fractures throughout. Driller reports 530 about 40% returns of added water. 20/40 Silica

(Continued Next Page)

Sand

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HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ

MONITORING WELL MW-25D Geosyntec D PAGE 1 OF 2 Geosyntec Consultants 1255 Roberts Boulevard Kennesaw, GA 30144 **CLIENT** Southern Company Services **PROJECT NAME** Plant Hammond Well Installation PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond DATE STARTED _11/6/18 COMPLETED 11/6/18 **EASTING** 1941161.62 ft **NORTHING** __1548471.8 ft BORING DIAMETER 6 in **DRILLER** Cascade Drilling **GROUND ELEVATION** 577.61 ft DRILLING METHOD Sonic TOP OF CASING ELEVATION 580.64 ft SAMPLING METHOD 4" core 6" overide GEOPHYSICAL CONTRACTOR Geosyntec Consultants RIG TYPE Geoprobe 8140LC CHECKED BY J. Ivanowski LOGGED BY C. Hug CONSTRUCTION ELEVATION (ft msl) GRAPHIC LOG DIAGRAM DEPTH (ft) RUN **GAMMA REMARKS** MATERIAL DESCRIPTION (cps) 100 Hydro excavation (0-10') - No sample 5 Schedule 40 PVC 2" 10 **Bentonite** 10 10-11.5': - No recovery arout GRAVELLY SAND, Brown, pale brown, fine to coarse grained, subangular to subrounded, 565 quartz. Gravel is subrounded, fine to coarse, quartz, wet. With some clay and silt. CLAY/SANDY CLAY, Orange and brown 10-20', Recovery = 15 mottled, medium to high plasticity, wet, firm. 15 8.5' Sand is fine to medium grained, subrounded. SANDY GRAVEL, Brown, yellow, grey, fine to coarse, rounded to subrounded, quartz. 560 14-14.25': With some sandy clay and rounded quartz cobbles up to 3" length. SILT / CLAYEY SILT, Orange, yellow, some red mottling, low plasticity, with fine grained sand, and some dark brown lamination. 20 20 CLAY, Grey and orange mottled, high plasticity, trace of fine sand. 555 CLAYEY GRAVEL, Brown, fine to coarse grained, rounded to subrounded, quartz. 20-25': No recovery 20-30', Recovery = 25 25 LIMESTONE, Extremely to highly weathered, recovered as rock fragments up to 0.5' long. From 28': More competent rock. 550 30-40', Recovery = 2.5'

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HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ

MONITORING WELL MW-25D Geosyntec[▶] PAGE 2 OF 2 Geosyntec Consultants 1255 Roberts Boulevard Kennesaw, GA 30144 **CLIENT** Southern Company Services **PROJECT NAME** Plant Hammond Well Installation PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond CONSTRUCTION ELEVATION (ft msl) DIAGRAM DEPTH (ft) GRAPHII LOG RUN **GAMMA REMARKS** MATERIAL DESCRIPTION (cps) LIMESTONE, Grey, white, abundance of white Driller reports 1' calcite veins, brown to red brown iron staining, recovered as angular fragments of rock. 0.5 - 1' drill resistance, 1' dropping rods, 1-2' wide voids througout run, potential void filling drill resistance, 0.5' dropping rods, 1' drill resistance, washed away. 545 1' dropping rods, etc. throughout run. Water was added by driller, no Bentonite 35 35 uncoated 3/8" returns. chips 540 Driller reports 'soft' 40 and low resistance LIMESTONE, Dark grey, grey, with white calcite drilling between veining throughout, massive, recovered as angular fragments of rock and fine to coarse gravel sized 40' and 50', slightly more pieces. Fines washed away. With voids up to 1' competent rock throughout. 535 than previous run. . Increased ACP GINT LIBRARY.GLB competence of rock with depth. 40-50', Recovery = 45 Bentonite 3/8" chips 530 PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ 50 50 Driller reports 'soft LIMESTONE, As before, recovered as fine to spots' and low coarse, angular gravel and cobbles, slightly more resistance competent with depth, fines washed away. throughout run indicating potential 525 void filling. Water added by driller, 20/40 Silica minimal returns. Sand 50-60', Recovery = 0.010 slot size 55 -55 2" Pre Pack, U-Pack Screen 60 60 Bottom of borehole at 60.0 feet.

515

MONITORING WELL MW-26D Geosyntec[▶] PAGE 1 OF 3 consultants Geosyntec Consultants 1255 Roberts Boulevard Kennesaw, GA 30144 PROJECT NAME Plant Hammond Well Installation CLIENT Southern Company Services PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond **COMPLETED** _11/14/17 **EASTING** 1942223.22 ft DATE STARTED 11/14/18 NORTHING _ 1548699.09 ft **DRILLER** Cascade Drilling **GROUND ELEVATION** 577.57 ft **BORING DIAMETER** 6 in DRILLING METHOD Sonic TOP OF CASING ELEVATION 580.48 ft SAMPLING METHOD 4" core 6" overide GEOPHYSICAL CONTRACTOR Geosyntec Consultants RIG TYPE Geoprobe 8140LC LOGGED BY N.Tilahun CHECKED BY J. Ivanowski CONSTRUCTION ELEVATION (ft msl) GRAPHIC LOG DIAGRAM DEPTH (ft) RUN **GAMMA REMARKS** MATERIAL DESCRIPTION (cps) 100 Hydro excavation (0-10') - No sample 5 5 10 10 CLAY, Yellowish brown, medium to high plasticity, trace silt and fine sand, hard, moist. 565 15 Bentonite 15 CLAY, Yellowish brown, medium to high grout plasticity, trace silt and fine sand, hard, moist. 560 20 Schedule 40 -20 GRAVELLY SAND, Pale grey to reddish brown PVC 2" some clay to 1', trace silt, well graded, fine to coarse sand, subangular to rounded gravel, wet, loose. 20-21': Hard, moist to wet. 555 25 550

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PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ

Geosyntec[▶]

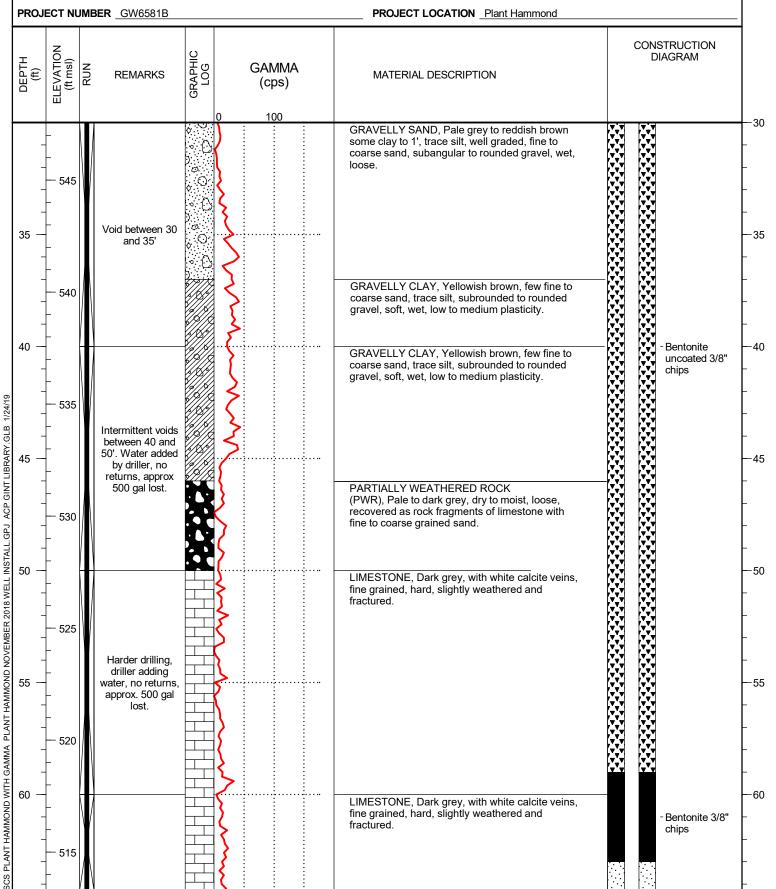
Geosyntec Consultants
1255 Roberts Boulevard
Kennesaw, GA 30144

MONITORING WELL MW-26D

PAGE 2 OF 3

CLIENT Southern Company Services

PROJECT NAME Plant Hammond Well Installation



MONITORING WELL MW-27D Geosyntec^D PAGE 1 OF 3 Geosyntec Consultants 1255 Roberts Boulevard Kennesaw, GA 30144 **CLIENT** Southern Company Services **PROJECT NAME** Plant Hammond Well Installation PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond DATE STARTED _11/8/18 COMPLETED 11/8/18 NORTHING _ 1549103.69 ft **EASTING** 1942391.99 ft BORING DIAMETER 6 in **DRILLER** Cascade Drilling **GROUND ELEVATION** 576.87 ft DRILLING METHOD Sonic TOP OF CASING ELEVATION 579.74 ft SAMPLING METHOD 4" core 6" overide GEOPHYSICAL CONTRACTOR Geosyntec Consultants CHECKED BY J. Ivanowski RIG TYPE Geoprobe 8140LC LOGGED BY C. Hug CONSTRUCTION ELEVATION (ft msl) GRAPHIC LOG DIAGRAM DEPTH (ft) RUN **GAMMA REMARKS** MATERIAL DESCRIPTION (cps) 100 Hydro excavation (0-10') - No sample 5 570 Schedule 40 PVC 2" **Bentonite** 10 GRAVEL, Dark grey, fine to coarse arout grained, angular, limestone. CLAY, Orange, with some ple grey mottling, medium to high plasticity. With fine to coarse angular limestone gravel embedded in clay matrix From 12.5': With occasional rounded, fine to coarse grained quartz gravel. Gravel content 10-20', Recovery = 15 increasing with depth. 10' GRAVELLY CLAY, Grey, some orange, medium plasticity. Gravel is fine to coarse grained, rounded to subrounded, quartz. With some fine to medium grained sand. From 17': Increasing sand content, slight grey blue color towards 18'. GRAVELLY SAND, Bown to grey, with some clay, Bentonite 20 fine to coarse grained, gravel is fine to coarse, uncoated 3/8" rounded to subrounded, quartz. chips 555 Sand with GRAVEL, Orange, fine to doarse sand and gravel, subrounded to sounded, quartz. 20-30', Recovery = SAND/GRAVELLY SAND, Brown, orange, 10' Driller reports medium to coarse grained, subrounded, quartz. top of rock at 24', Gravel is dark grey, subangular, limestone. 25 good drilling to 30' , NO voids SILTY SAND/CLAYEY SAND with GRAVEL, Brown, encountered. fine to medium grained, subrounded, quartz. Fines 550 are of low plasticity, gravel is dark grey, subangular, 30-40', Recovery = limestone. 7' Driller reports voids between 30 and 35', largest up LIMESTONE, Dark grey, with white calcite veins, to 1.5' (rods recovered as discs of rock up to 2" length and clayey ropped). No voi gravel (Continued Next Page)

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PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ

HAMMOND WITH GAMMA

Geosyntec[▶] Geosyntec Consultants 1255 Roberts Boulevard Kennesaw, GA 30144 **CLIENT** Southern Company Services PROJECT NUMBER GW6581B ELEVATION (ft msl) DEPTH (ft)

RUN

545

530

525

520

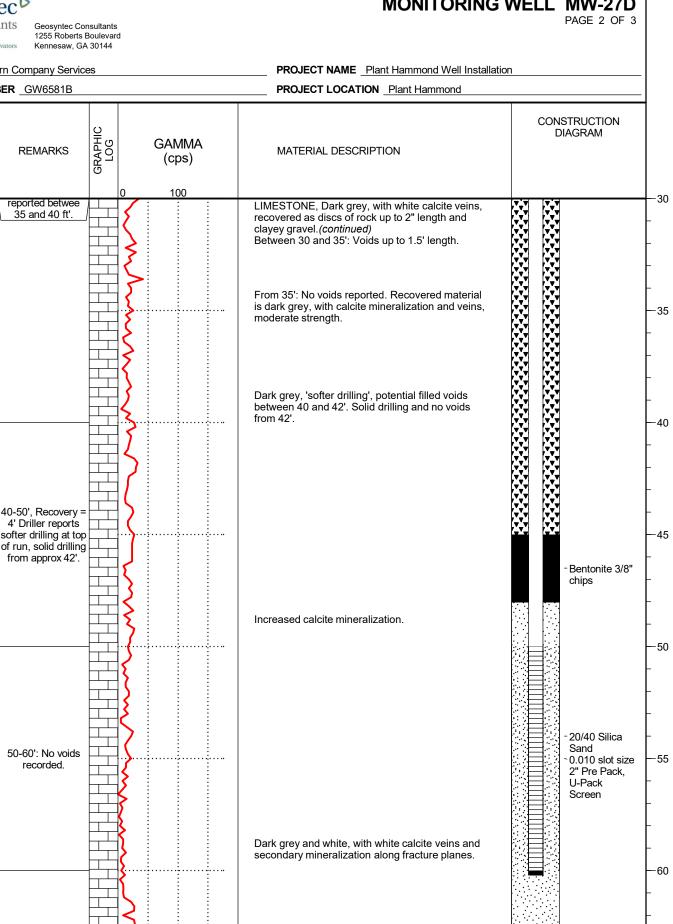
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PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ

55

MONITORING WELL MW-27D



MONITORING WELL MW-28D Geosyntec D PAGE 1 OF 2 consultants Geosyntec Consultants 1255 Roberts Boulevard Kennesaw, GA 30144 CLIENT Southern Company Services **PROJECT NAME** Plant Hammond Well Installation PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond **COMPLETED** 11/13/18 DATE STARTED 11/13/18 NORTHING 1549511.13 ft **EASTING** 1942322.32 ft **DRILLER** Cascade Drilling **GROUND ELEVATION** 576.06 ft **BORING DIAMETER** 6 in DRILLING METHOD Sonic TOP OF CASING ELEVATION 579.2 ft **SAMPLING METHOD** 4" core 6" overide GEOPHYSICAL CONTRACTOR Geosyntec Consultants RIG TYPE Geoprobe 8140LC LOGGED BY N.Tilahun CHECKED BY J. Ivanowski CONSTRUCTION ELEVATION (ft msl) GRAPHIC LOG DIAGRAM DEPTH (ft) RUN **GAMMA REMARKS** MATERIAL DESCRIPTION (cps) 100 Hydro excavation (0-10') - No sample 5 Bentonite grout 10 GRAVELLY CLAY, Yellowish brown to dark brown, trace silt and sand, angular to subrounded gravel, hard, non plastic to low plasticity, wet. Schedule 40 PVC 2" 560 CLAY, Pale to dark brown, with parially weathered rock, low to medium plasticity, with rock fragments of limestone, wet, soft. Bentonite CLAY, Pale to dark brown, with parially uncoated 3/8" weathered rock, low to medium plasticity, with chips rock fragments of limestone, wet, soft. Void between 23 and 24'. Some drilling water came out of HGWC-7 well (PVC) casing. Stopped using water. PARTIALLY WEATHERED ROCK (PWR), Pale grey to white limestone with white layers of 550 calcite, dry to moist, weathered and fractured, fine grained.

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PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ

MONITORING WELL MW-29 Geosyntec D PAGE 1 OF 1 Geosyntec Consultants 1255 Roberts Boulevard Kennesaw, GA 30144 CLIENT Southern Company Services **PROJECT NAME** Plant Hammond Well Installation PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond **COMPLETED** _11/13/18 DATE STARTED 11/13/18 NORTHING _ 1549437.24 ft **EASTING** 1942632.41 ft **DRILLER** Cascade Drilling **GROUND ELEVATION** 571.89 ft **BORING DIAMETER** 6 in DRILLING METHOD Sonic TOP OF CASING ELEVATION 575 ft SAMPLING METHOD 4" core 6" overide GEOPHYSICAL CONTRACTOR Geosyntec Consultants RIG TYPE Geoprobe 8140LC LOGGED BY N.Tilahun CHECKED BY J. Ivanowski CONSTRUCTION ELEVATION (ft msl) GRAPHIC LOG DIAGRAM DEPTH (ft) RUN **GAMMA REMARKS** MATERIAL DESCRIPTION (cps) 100 Hydro excavation (0-10') - No sample Bentonite 5 grout 565 10 10-15.5': No recovery Bentonite 3/8" 560 chips Schedule 40 PVC 2" 15 CLAYEY GRVAVEL, Yellowish to reddish brown, some clay, trace silt, few fine to coarse sand, non plastic, angular to subrounded rock fragments, 20/40 Silica PARTIALLY WEATHERED ROCK Sand (PWR), Pale grey limestone, highly weathered 20 and fractured, dry to moist, trace clay and fine to coarse sand. 0.010 slot size 25 to 30': Hard 2" Pre Pack, drilling, water U-Pack added by driller, Screen 25 driller indicates LIMESTONE, Pale to dark grey, some white competent rock layers of calcite veins, rock fragments of up to 4 based on drilling inch in size, slightly weathered, mostly rate. mechanical breaks. Bentonite 3/8" chips backfill Bottom of borehole at 30.0 feet.

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PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ

APPENDIX B

Laboratory Analytical Reports

Full Appendix IV Scan Sampling Event March 2019





March 20, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616036

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta







CERTIFICATIONS

Project: Plant Hammond Pace Project No.: 2616036

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616036

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616036001	HGWA-1	Water	03/12/19 14:31	03/13/19 14:00	
2616036002	HGWA-2	Water	03/12/19 10:45	03/13/19 14:00	
2616036003	HGWA-3	Water	03/12/19 10:00	03/13/19 14:00	
2616036004	FB-01	Water	03/12/19 19:15	03/13/19 14:00	
2616036005	EB-01	Water	03/12/19 19:50	03/13/19 14:00	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616036

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616036001	HGWA-1	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616036002	HGWA-2	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616036003	HGWA-3	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616036004	FB-01	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616036005	EB-01	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

Sample: HGWA-1	Lab ID:	2616036001	Collecte	ed: 03/12/19	14:31	Received: 03/	13/19 14:00 Ma	atrix: Water	•
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/14/19 14:26	03/15/19 23:24	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/14/19 14:26	03/15/19 23:24	7440-38-2	
Barium	0.042	mg/L	0.010	0.00078	1	03/14/19 14:26	03/15/19 23:24	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/14/19 14:26	03/15/19 23:24	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/14/19 14:26	03/15/19 23:24	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/14/19 14:26	03/15/19 23:24	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/14/19 14:26	03/15/19 23:24	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/14/19 14:26	03/15/19 23:24	7439-92-1	
Lithium	0.0010J	mg/L	0.050	0.00097	1	03/14/19 14:26	03/15/19 23:24	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/14/19 14:26	03/15/19 23:24	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/14/19 14:26	03/15/19 23:24	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/14/19 14:26	03/15/19 23:24	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:10	03/15/19 17:47	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.29J	mg/L	0.30	0.029	1		03/16/19 05:19	16984-48-8	



Project: Plant Hammond Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

Sample: HGWA-2	Lab ID:	2616036002	Collecte	ed: 03/12/19	10:45	Received: 03/	/13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 17:46	7440-36-0	
Arsenic	0.00069J	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 17:46	7440-38-2	В
Barium	0.12	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 17:46	7440-39-3	
Beryllium	0.00017J	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 17:46	7440-41-7	
Cadmium	0.00013J	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 17:46	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 17:46	7440-47-3	
Cobalt	0.017	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 17:46	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 17:46	7439-92-1	
Lithium	0.0018J	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 17:46	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 17:46	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 17:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 17:46	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:10	03/15/19 17:50	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.038J	mg/L	0.30	0.029	1		03/16/19 05:42	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

Sample: HGWA-3	Lab ID:	2616036003	Collecte	ed: 03/12/19	10:00	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 17:51	7440-36-0	
Arsenic	0.00063J	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 17:51	7440-38-2	В
Barium	0.13	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 17:51	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 17:51	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 17:51	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 17:51	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 17:51	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 17:51	7439-92-1	
Lithium	0.0032J	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 17:51	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 17:51	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 17:51	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 17:51	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:10	03/15/19 17:52	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.072J	mg/L	0.30	0.029	1		03/16/19 07:36	16984-48-8	



Date: 03/20/2019 03:29 PM

ANALYTICAL RESULTS

Project: Plant Hammond Pace Project No.: 2616036

Sample: FB-01	Lab ID:	2616036004	Collecte	ed: 03/12/19	19:15	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 17:57	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 17:57	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 17:57	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 17:57	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 17:57	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 17:57	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 17:57	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 17:57	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 17:57	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 17:57	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 17:57	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 17:57	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:10	03/15/19 17:59	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		03/16/19 07:59	16984-48-8	



Project: Plant Hammond Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

Sample: EB-01	Lab ID:	2616036005	Collecte	ed: 03/12/19	9 19:50	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: Ef	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 18:03	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 18:03	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 18:03	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 18:03	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 18:03	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 18:03	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 18:03	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 18:03	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 18:03	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 18:03	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 18:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 18:03	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:10	03/15/19 18:02	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		03/16/19 08:22	16984-48-8	



Plant Hammond Project:

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

QC Batch: 24380 Analysis Method: EPA 7470A QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

METHOD BLANK: 109357 Matrix: Water

Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

> Blank Reporting

Parameter MDL Qualifiers Units Result Limit Analyzed ND 0.00050 03/15/19 17:12

Mercury 0.000036 mg/L

LABORATORY CONTROL SAMPLE: 109358

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Mercury mg/L 0.0025 0.0025 100 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109378 109379

MS MSD 2615967001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual 0.0025 0.0026 75-125 3 20 Mercury mg/L ND 0.0025 0.0025 100 102

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.



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

QC Batch: 24312 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616036001

METHOD BLANK: 108896 Matrix: Water

Associated Lab Samples: 2616036001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/15/19 18:30	
Arsenic	mg/L	ND	0.0050	0.00057	03/15/19 18:30	
Barium	mg/L	ND	0.010	0.00078	03/15/19 18:30	
Beryllium	mg/L	ND	0.0030	0.000050	03/15/19 18:30	
Cadmium	mg/L	ND	0.0010	0.000093	03/15/19 18:30	
Chromium	mg/L	ND	0.010	0.0016	03/15/19 18:30	
Cobalt	mg/L	ND	0.010	0.00052	03/15/19 18:30	
Lead	mg/L	ND	0.0050	0.00027	03/15/19 18:30	
Lithium	mg/L	ND	0.050	0.00097	03/15/19 18:30	
Molybdenum	mg/L	ND	0.010	0.0019	03/15/19 18:30	
Selenium	mg/L	ND	0.010	0.0014	03/15/19 18:30	
Thallium	mg/L	ND	0.0010	0.00014	03/15/19 18:30	

LABORATORY CONTROL SAMPLE:	108897					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.11	110	80-120	
Arsenic	mg/L	0.1	0.10	102	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.099	99	80-120	
Cadmium	mg/L	0.1	0.10	102	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	102	80-120	
Lithium	mg/L	0.1	0.10	100	80-120	
Molybdenum	mg/L	0.1	0.10	105	80-120	
Selenium	mg/L	0.1	0.11	107	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SI	PIKE DUPLIC	CATE: 10889	8		108899							
			MS	MSD								
		2616034004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	112	109	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20	
Barium	mg/L	0.029	0.1	0.1	0.13	0.13	106	102	75-125	3	20	
Beryllium	mg/L	0.0024J	0.1	0.1	0.098	0.098	95	95	75-125	0	20	
Cadmium	mg/L	0.0024	0.1	0.1	0.10	0.11	102	103	75-125	1	20	

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



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	ATE: 108898	B MS	MSD	108899							
Parameter	Units	2616034004 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	ND	0.1	0.1	0.095	0.097	95	97	75-125	2	20	
Cobalt	mg/L	0.062	0.1	0.1	0.16	0.16	99	95	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	2	20	
Lithium	mg/L	0.0053J	0.1	0.1	0.099	0.10	93	95	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	106	106	75-125	0	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	104	102	75-125	2	20	
Thallium	mg/L	0.00025J	0.1	0.1	0.098	0.098	98	98	75-125	0	20	

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



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

QC Batch: 24384 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616036002, 2616036003, 2616036004, 2616036005

METHOD BLANK: 109374 Matrix: Water
Associated Lab Samples: 2616036002, 2616036003, 2616036004, 2616036005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
				IVIDL	Allalyzeu	
Antimony	mg/L	ND	0.0030	0.00078	03/18/19 17:34	
Arsenic	mg/L	0.00071J	0.0050	0.00057	03/18/19 17:34	
Barium	mg/L	ND	0.010	0.00078	03/18/19 17:34	
Beryllium	mg/L	ND	0.0030	0.000050	03/18/19 17:34	
Cadmium	mg/L	ND	0.0010	0.000093	03/18/19 17:34	
Chromium	mg/L	ND	0.010	0.0016	03/18/19 17:34	
Cobalt	mg/L	ND	0.010	0.00052	03/18/19 17:34	
Lead	mg/L	ND	0.0050	0.00027	03/18/19 17:34	
Lithium	mg/L	ND	0.050	0.00097	03/18/19 17:34	
Molybdenum	mg/L	ND	0.010	0.0019	03/18/19 17:34	
Selenium	mg/L	ND	0.010	0.0014	03/18/19 17:34	
Thallium	mg/L	ND	0.0010	0.00014	03/18/19 17:34	

LABORATORY CONTROL SAMPLE:	109375					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.11	109	80-120	
Arsenic	mg/L	0.1	0.10	104	80-120	
Barium	mg/L	0.1	0.10	102	80-120	
Beryllium	mg/L	0.1	0.11	108	80-120	
Cadmium	mg/L	0.1	0.11	105	80-120	
Chromium	mg/L	0.1	0.11	107	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	104	80-120	
Lithium	mg/L	0.1	0.11	107	80-120	
Molybdenum	mg/L	0.1	0.10	104	80-120	
Selenium	mg/L	0.1	0.10	105	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPLIC	CATE: 10937		109377								
Darameter	Lloito	2616039003	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec	DDD	Max	Ougl
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	KPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	106	107	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.11	0.10	106	103	75-125	3	20	
Barium	mg/L	0.20	0.1	0.1	0.29	0.30	95	103	75-125	2	20	
Beryllium	mg/L	ND	0.1	0.1	0.097	0.094	97	94	75-125	3	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20	

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



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	ATE: 109370	109377 MSD									
Parameter	Units	2616039003 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L		0.1	0.1	0.10	0.10	104	103	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.098	101	98	75-125	3	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.096	101	95	75-125	5	20	
Lithium	mg/L	0.011J	0.1	0.1	0.11	0.10	97	91	75-125	5	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	103	104	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	106	102	75-125	4	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20	

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



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

QC Batch: 24402 Analysis Method: EPA 300.0 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions

2616036001, 2616036002, 2616036003, 2616036004, 2616036005 Associated Lab Samples:

METHOD BLANK: 109496 Matrix: Water

Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

> Blank Reporting

Limit MDL Parameter Units Result Analyzed Qualifiers Fluoride ND 0.30 0.029 03/15/19 20:10

mg/L

LABORATORY CONTROL SAMPLE: 109497

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Fluoride mg/L 10 10.4 104 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109498 109499

MS MSD 2616034001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual Fluoride mg/L 0.052J 10 10 10.4 10.4 103 103 90-110 0 15

MATRIX SPIKE SAMPLE: 109500

MS 2616034002 Spike MS % Rec Parameter Units Result Conc. Result % Rec Limits Qualifiers 0.082J Fluoride mg/L 10 10.1 100 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.



QUALIFIERS

Project: Plant Hammond Pace Project No.: 2616036

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

Date: 03/20/2019 03:29 PM

B Analyte was detected in the associated method blank.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2616036001	HGWA-1	EPA 3005A	24312	EPA 6020B	24340
2616036002	HGWA-2	EPA 3005A	24384	EPA 6020B	24419
2616036003	HGWA-3	EPA 3005A	24384	EPA 6020B	24419
2616036004	FB-01	EPA 3005A	24384	EPA 6020B	24419
2616036005	EB-01	EPA 3005A	24384	EPA 6020B	24419
2616036001	HGWA-1	EPA 7470A	24380	EPA 7470A	24416
2616036002	HGWA-2	EPA 7470A	24380	EPA 7470A	24416
2616036003	HGWA-3	EPA 7470A	24380	EPA 7470A	24416
2616036004	FB-01	EPA 7470A	24380	EPA 7470A	24416
2616036005	EB-01	EPA 7470A	24380	EPA 7470A	24416
2616036001	HGWA-1	EPA 300.0	24402		
2616036002	HGWA-2	EPA 300.0	24402		
2616036003	HGWA-3	EPA 300.0	24402		
2616036004	FB-01	EPA 300.0	24402		
2616036005	EB-01	EPA 300.0	24402		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

占

(N/A) Intact Samples (N/A) SAMPLE CONDITIONS Cooler palee State / Location Custody 10#:2616036 (N/A) 90| Received on ð Residual Chlorine (Y/N) Page: TEMP in C 11/2/14 14do 3/12/19/2205 7,13, PO 1944 1 TIME DATE DATE Signed: 3/12 2 2 0.005 yd etsilu2 Metals (As, B. Co, Mo) **822/922** muiba**9** belsy.mcdaniel@pacelabs.com. mon ACCEPTED BY / AFFILIATION Fluorida by 300.0 scsinvoices@southernco.com App. IV Metals 180T seavibnA Ñ٨ 327.4 (AP) or 328.5 (Huff) A SSEVS Muston Ne2S2O3 Preservatives HOBN Pace Quote:
Pace Project Manager:
Pace Profile #: 327.4 (нсі Invoice Information: PRINT Name of SAMPLER: NOOLIA EONH Company Name SIGNATURE OF SAMPLER: NOULLA 3/17/19/19/505 H2804 Section C 943 Unpreserved SAMPLER NAME AND SIGNATURE # OF CONTAINERS 3/13/19 DATE SAMPLE TEMP AT COLLECTION किसियान १५१० अयान १५३१ ह Ę 8 DATE gas, the COLLECTED RELINDUSHED BY / AFFILIATION Joju Abraham / Lauren Petty ij. SCS10348606 Plant Hammond START Required Project Information: Mostia Off Geosyntec SAMPLE TYPE (G=GRAB C=COMP) Purchase Order #: MATRIX CODE (see valid codes to left) Project Name: Project #: Report To: Copy To: Section B MATRIX
Drinking Water
Water
Water
Water
Product
SolidSolid
Oli
Wipe
Alt
Chhor
Fissue Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax: Requested Due Date: Standouck THT ADDITIONAL COMMENTS One Character per box. (A-2, 0-9 / , -) Sample Ids must be unique Email: jabraham@southemco.com SAMPLE ID 2480 Maner Road Allanta, GA 30339 十つですー equired Client Information: -(e, Page 18 of 2 .6 'e| + ILEW #

Pace Analytical

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Z

(N/A) Due Date: 03/20/19 ntact SAUPLE CONDITIONS (N/A) Cooler Sealed Custody MO#:2616036 State / Location Regulation Agency (N/Y) 80 Received on প্ত CLIENT: GAPower-CCR Residual Chlorine (Y/N) D rii GMBT 3/h | 1950 2/15/19/4 12 A TAKE 3/12/19 2005 Requested Analysis Filtered (Y/N) DATE Signed: 08/12/19 5,15,19 PATE Suffate by 300.0 Metals (As, B, Co, Mo) 3 betsy.modaniel@pacelabs.com, Radium 226/228 ACCEPTED BY JAFFILLATION Maclia Mushu <u>ス</u>マ man Fluoride by 300.0 ices@southemco.com alsteM VI .qqA Parce ŇĀ daoT seavionA Pace Project Manager. betsy modaniel@ Pace Profile #: 327.4 (AP) or 328.5 (Huff) Other Methanol Preservatives Ressos <u>ج</u> HOBN нсі Invoice Information EONH Company Name: 037DM 1950 Pace Quote: #OSZH 3/12/14 2205 5 943 Unpreserved SAMPLER NAME AND SIGNATURE # OF CONTAINERS PRINT Name of SAMPLER: 16/51/5 SIGNATURE of SAMPLER: DATE SAMPLE TEMP AT COLLECTION G-BOARM DOLD BRAND 10:45 1 TIME. S authorizatec DATE Small Valles/Georganies COLLECTED RELINGUISHED BY / AFFILIATION Report To: Joju Abraham / Lauren Petty Γ TIME Marian SCS10348606 START Plant Hammond DATE Required Project Information: Geosyntec (G=GRAB C=COMP) **34YT 3J4MA2** Medla Purchase Order #: Project Name: (see valid codes to left) **BCOD XINTAM** Copy To: Section B MATRIX
Distring Water
Water
Waste Woter
Wasse Woter
Product
Product
Qu
Wipe
Aur
Coher
Tissuo Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax: Requested Due Date: Standard TRT One Character per box. (A-Z, 0-9 /, -) Sample kds must be unique ADDITIONAL COMMENTS Atlanta, GA 30339
Email: jabraham@southemco.com SAMPLE ID 2480 Maner Road HCWA-2 Required Client Information: ompany. Page 19 of 2 9 9 . 10 # M3TI

CHAIN-OF-CUSTODY / Analytical Request Document

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

Due Date: 03/20/19 (N/A) ntact SAMPLE CONDITIONS (N/A) 4000 Cooler peleas WO# : 2616036 State / Location Cnarogy Regulatory Agency (N/Y) 60 Received on CLIENT: GAPower-CCR Residual Chlorine (Y/N) 7 Page: Dig 9MBT TIME 5460 13/19/1400 3/12/10 1950 5/12/19 5205 ** Requested Analysis Filtered (Y/N) 13,13,19 12 DATE 内屋している人工な 1 Sulfate by 300.0 03/ Metals (As, B, Co, Mo) DATE Signed: Z Radium 226/228 betsy.mcdaniel@pacelabs.com. Z ACCEPTED BY / AFFILIATION 0.00€ yd ebiroul∓ scsinvoices@southernco.com て App. IV Metals NΆ JeeT sesyland Pace Quote:
Pace Project Manager. betsy.modaniel@g.
Pace Profile #: 327.4 (AP) or 328.5 (Huff) Methanol N92S2O3 Preservatives 各ちらみはい HOBN нсі Involce Information: Br S EONH стралу Nате: 3/14/5 1980 3/14/9/2/05 POSZH SAWPLER NAME AND SIGNATURE 943 Address: Unpreserved OF CONTAINERS 25 3/13/19 PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION DATE SIGNATURE of SAMPLER: <u>5</u> 1/2/2 1980 \$.C 8 10% | Sept. ett lanteemte DATE COLLECTED RELINGUISHED BY / AFFILIATION Madia Menten Joju Abraham / Lauren Petty <u>3</u> 3/12/M1750 SCS10348606 START Plant Hammond Required Project Information: Copy To: Geosyntec ঠ ۹ 9 Purchase Order #: MATRIX CODE (see valid codes to left) Project Name: Section B MATRIX
Dirixing Water
Water
Water
Water
Product
SouvSoid
Oil
Wipe
Air
Cother
Cother Georgia Power - Coal Combustion Residuals ADDITIONAL COMMENTS One Character per box. (A-2, 0-9 /, -). Sample Ids must be unique Allanta, GA 30339
iabraham@southernco.com Phone: (404)506-7239 Fax: Requested Due Date: STANOADA SAMPLE ID 2480 Maner Road equired Client Information: SWIT TIMES 0-9 Page 20 of 2 Address: 6 . # Mati

Carried St.	Sampi	Condition	Opon Receipt		
Pace Analy	tical Client Name:	GLA 1	Power	Project #	
Tracking #:	x 🔲 UPS 🗍 USPS 🗍 Client			WO#: 26	16036
Custody Seal on C	poler/Box Present: yes	no Seals	intact:yes	PM: BM	Due Date: 03/20/
Packing Material:	│ │☐ Bubble Wrap │☐ Bubble Bag	S None	Other	CLIENT: GAPo	Reli-for
Thermometer Used	. A				ing process has begun
Cooler Temperatur		•	is Frozen: Yes No	Date and Initials	of person/examining
Temp should be above	freezing to 6°C	ļ.,	Comments:	001101131	
Chain of Custody Po	esent:	Yes □No □N/A	1.		
Chain of Custody Fi	led Out:	Yes □No □N/A	2.		
Chain of Custody R	elinguished:	Yes □No □N/A	3.		
Sampler Name & Si	gnature on COC:	TES ONO ON/A	4.		
Samples Arrived wit	hin Hold Time:	Yes DNo DN/A	5.		
Short Hold Time A	nalysis (<72hr):	Yes DING DINA	6.		
Rush Turn Around	Time Requested:	YPS DING DN/A	7.		
Sufficient Volume:	ي	YES DNO DN/A	8.		
Correct Containers	Used:	TES DNO DN/A	9.		
-Pace Container	s Used:	Yes □No □N/A			
Containers Intact:	ع.	Yes Ono On/A	10.		
Filtered volume rec	eived for Dissolved tests	Yes □No ÆMTĀ	11.		
Sample Labels mat	h COC:	Hes □No □N/A	12.		
-Includes date/ti		\mathcal{W}			
All containers needing	reservation have been checked.	Nes □No □N/A	13.		
All containers needing compliance with EPA	preservation are found to be in ecommendation.	Mes Ono On/A	1-141-1		
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	Ives DNo	Initial when completed	Lot # of added preservative	
Samples checked for	or dechlorination:	lyes □No ĐN/A	14.		
Headspace in VOA	Vials (>6mm):	iyes □No ÆNÃ	15.		
Trip Blank Present:		Ives □no ØNÃ	16.		
Trip Blank Custody	Seals Present	Tyes DNo -DN/A	1		
Pace Trip Blank Lo	# (if purchased):				
Client Notification	I Pasalution:			Field Data Required	? Y / N
	acted:	Date	Time:	Field Data Required	1 / 14
Comments/ Reso		- Date		 	
Project Manage	r Review:			Date:	
	e is a discrepancy affecting North Caro			m will be sent to the Nort	n Carolina DEHNR

F-ALLC003rev.3, 11September 2006





March 29, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616037

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta





Peachtree Corners, GA 30092 (770)734-4200

CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616037

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616037

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616037001	HGWA-1	Water	03/12/19 14:31	03/13/19 14:00	
2616037002	HGWA-2	Water	03/12/19 10:45	03/13/19 14:00	
2616037003	HGWA-3	Water	03/12/19 10:00	03/13/19 14:00	
2616037004	FB-01	Water	03/12/19 19:15	03/13/19 14:00	
2616037005	EB-01	Water	03/12/19 19:50	03/13/19 14:00	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616037

Lab ID Sample ID		Method		Analytes Reported	Laboratory	
2616037001	HGWA-1	EPA 9315	LAL	1	PASI-PA	
		EPA 9320	JLW	1	PASI-PA	
		Total Radium Calculation	CMC	1	PASI-PA	
2616037002	HGWA-2	EPA 9315	LAL	1	PASI-PA	
		EPA 9320	JLW	1	PASI-PA	
		Total Radium Calculation	CMC	1	PASI-PA	
2616037003 HGWA-3	EPA 9315	LAL	1	PASI-PA		
		EPA 9320	JLW	1	PASI-PA	
		Total Radium Calculation	CMC	1	PASI-PA	
2616037004	FB-01	EPA 9315	LAL	1	PASI-PA	
		EPA 9320	JLW	1	PASI-PA	
		Total Radium Calculation	CMC	1	PASI-PA	
2616037005	EB-01	EPA 9315	LAL	1	PASI-PA	
		EPA 9320	JLW	1	PASI-PA	
		Total Radium Calculation	CMC	1	PASI-PA	



Project: Plant Hammond

Pace Project No.: 2616037

Sample: HGWA-1 Lab ID: 2616037001 Collected: 03/12/19 14:31 Received: 03/13/19 14:00 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.263 ± 0.240 (0.452) C:82% T:NA	pCi/L	03/25/19 08:34	13982-63-3	
Radium-228	EPA 9320	0.0637 ± 0.372 (0.848) C:72% T:83%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	0.327 ± 0.612 (1.30)	pCi/L	03/27/19 11:32	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616037

Sample: HGWA-2 Lab ID: 2616037002 Collected: 03/12/19 10:45 Received: 03/13/19 14:00 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Method Act ± Unc (MDC) Carr Trac		Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.228 ± 0.190 (0.332) C:94% T:NA	pCi/L	03/25/19 08:34	13982-63-3	
Radium-228	EPA 9320	0.226 ± 0.318 (0.681) C:74% T:89%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	0.454 ± 0.508 (1.01)	pCi/L	03/27/19 11:32	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616037

Sample: HGWA-3 PWS:	Lab ID: 26160370 Site ID:	Collected: 03/12/19 10:00 Sample Type:	Received:	03/13/19 14:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.387 ± 0.232 (0.327) C:90% T:NA	pCi/L	03/25/19 08:33	13982-63-3	
Radium-228		0.626 ± 0.376 (0.699) C:78% T:84%	pCi/L	03/26/19 12:54	1 15262-20-1	
Total Radium	Total Radium Calculation	1.01 ± 0.608 (1.03)	pCi/L	03/27/19 11:32	2 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616037

Sample: FB-01 PWS:	Lab ID: 26160370 Site ID:	O4 Collected: 03/12/19 19:15 Sample Type:	Received:	03/13/19 14:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.248 ± 0.204 (0.334) C:79% T:NA	pCi/L	03/25/19 08:34	13982-63-3	
Radium-228		0.111 ± 0.352 (0.792) C:76% T:82%	pCi/L	03/26/19 12:54	4 15262-20-1	
Total Radium	Total Radium Calculation	0.359 ± 0.556 (1.13)	pCi/L	03/27/19 11:32	2 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616037

Sample: EB-01 PWS:	Lab ID: 26160370 Site ID:	Collected: 03/12/19 19:50 Sample Type:	Received:	03/13/19 14:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.160 ± 0.197 (0.405) C:82% T:NA	pCi/L	03/25/19 08:31	1 13982-63-3	
Radium-228	EPA 9320	0.386 ± 0.383 (0.790) C:76% T:78%	pCi/L	03/26/19 12:54	1 15262-20-1	
Total Radium	Total Radium Calculation	$0.546 \pm 0.580 (1.20)$	pCi/L	03/27/19 11:32	2 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

QC Batch: 334698 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

METHOD BLANK: 1628718 Matrix: Water

Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-226 0.482 ± 0.254 (0.327) C:96% T:NA pCi/L 03/25/19 08:31

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

QC Batch: 334688 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

METHOD BLANK: 1628693 Matrix: Water

Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-228 0.978 \pm 0.447 (0.755) C:76% T:82% pCi/L 03/26/19 12:53

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616037

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

Date: 03/29/2019 04:56 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616037

Date: 03/29/2019 04:56 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616037001	HGWA-1	EPA 9315	334698		
2616037002	HGWA-2	EPA 9315	334698		
2616037003	HGWA-3	EPA 9315	334698		
2616037004	FB-01	EPA 9315	334698		
2616037005	EB-01	EPA 9315	334698		
2616037001	HGWA-1	EPA 9320	334688		
2616037002	HGWA-2	EPA 9320	334688		
2616037003	HGWA-3	EPA 9320	334688		
2616037004	FB-01	EPA 9320	334688		
2616037005	EB-01	EPA 9320	334688		
2616037001	HGWA-1	Total Radium Calculation	335714		
2616037002	HGWA-2	Total Radium Calculation	335714		
2616037003	HGWA-3	Total Radium Calculation	335714		
2616037004	FB-01	Total Radium Calculation	335714		
2616037005	EB-01	Total Radium Calculation	335714		

CHAIN-OF-CUSTODY / Analytical Request Document

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

SAMPLECONDITIONS Sinta / Location Regidetory Agoncy MO#:2616037 Residual Chlorine (Y/N) Page: 1400 TIME したちゃ 3/12/19/2205 A -- Requested Analysis Filtered (Y/N) 3,13,19 DATE 3 Sulfate by 300.0 Metals (As, B, Co, Mo) man Radium 226/228 betsy.modernet@pacetabs.com ACCEPTED BY JAFFULATION 0.005 yd abitoul-Attention: <u>scsinvoices@southernco.com</u> Company Name: Address: App. IV Metals Analyses Test NIA Pace Quote: Pace Project Managar. betsy modernet@ Pace Profile ff. 327.4 (AP) or 328.5 (Huff) lcnsrtieM EOSSZ6N Preservatives HOBN НСІ Section C Invoice Information: EONH 1000 #OSZH 943 peaseadun SESMIATINOS TO 3/13/19 DATE SAMPLE TEMP AT COLLECTION जिस्तान भार श्रीयान प्राप्त HWE 읾 DATE Gas. the COLLECTED RELINGUISHED BY LAFFILLATION Required Project Information: Report To: Joju Abraham / Lauren Petty TIME SCS10348606 Plant Hammond START Martia Off Klass Copy To: Geosyntec (G=GRAB C=COMP) **34YT 3J9MA**8 Purchase Order #:
Project Name: Pr WATRIX CODE (see valid codes to leaf) Section B MATRIX
Dinking Water
Wasse Water
Wasse Water
Pediod
Solu@bisd
Out
Wipe
Air
Other
Tissue repary: Georgia Power - Coal Combustion Residuals dess: 2480 Maner Road
Allanta, GA 30339
sai: jabraham@southem.co.com
core: (404)506-7239 Fax:
repressed Due Date* Standard THT ADDITIONAL COMMENTS One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique SAMPLE ID ーきると quired Client Information: 4 6 6 ITEM #

(N/A)

Sealed Cooler (V/V)

Custody (Y/N)

Received on

B

DATE Signed: 3/12

SAMPLER NAME AND SHONATURE

PRINT Name of SAMPLER: NOOLO MUSEUS

SIGNATURE OF SAMPLER: WOULE MIMMON

Page 14 of 17

seigme2

Section B

CHAIN-OF-CUSTODY / Analytical Request Document

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

例从

A

Due Date: 04/10/19 (N/A) petin Samples 210/27 SAMPLE CONDITIONS (N/A) Cooler **Pel66** MO#:2616037 Rogulatory Agency State / Location Custod (N/A) 80 Received on CLIENT: GAPouer-CCR 12 Residual Chlorina (Y/V) TEMP in C 3/13/19/14/20 3/12 19 1950 24 TIME 3/11/11 2105 DATE Signed: 02/12/19 5.15.19 DATE Sulfate by 300.0 Metals (As, B, Co, Mo) betsy modaniel@pacelabs.com 8ZZ/9ZZ Wnipex Maclia M/ waters 7 Fluoride by 300.0 ACCEPTED BY JAFFILLATION man Attention: scsinvoices@southernco.com 2 Public IV Metals Parce NY jeeT eesylanA. Pace Quote:
Pocs Project Manager: betsy moderniel@
Pace Profile #: 327.4 (AP) or 328.5 (Huff) 2 lonshieM **Suturelly** Preservatives EOZSZBN HOPN PRINT Name of SAMPLER: Great Walte Section C Invoice Information: ЮН EONH Company Name: HSSON 03/2M 1950 3/12/14/22/05 943 4ddress: SAMPLER KAME AND SIGNATURE Unpreserved # OF CONTAINERS SAMPLE TEMP AT COLLECTION Law Bearington 3/13/19 SIGNATURE of SAMPLER: DATE A CS BOTH DOOR DEAD TO JK TIME END DATE COLLECTED man Valte / Georgatee RELINGUISHED BY LAFFILIATION Report To: Joju Abraham / Lauren Petty TIME SCS10348606 START Plant Hammond Required Project Information: Geosyntec (G=GRAB C=COMP) SAMPLE TYPE Modela Purchase Order #: MATRIX CODE (see valid codes to left) Project Name. Project # Copy To: MATRIX
Dirixing Water
Water
Water
Water
Water
Product
SoulSciid
Oid
Wive
Air
Chher
Tissue Georgia Power - Coal Combustion Residuals 2480 Maner Road TAT ADDITIONAL COMMENTS. (A-Z, 0-9 / , -) Sample kds must be unique Email: jabraham@southemco.com Phone (404)506-7239 Feet Requested Due Date: 574m/a/d One Character per box. SAMPLE ID Atlanta, GA 30339 HEWA-L Required Client Information: ÷ ± Page 15 of 17 18 mg 4 6 Y . 8 9 ILEM #

Section B

CHAIN-OF-CUSTODY / Analytical Request Document

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

M

40

Due Date: 04/10/19 (N/A) seldmaS SAMPLE CONDITIONS (N/A) Sealed MO# -2616037 Custody Regulatory Agency (N/A) ð Received on CLIENT: GAPONET-CCR Residual Chlorine (Y/N) TEMP in C 力もなっ 1400 150 acs TIME · Requested Analysis Filtered (Y/N 19/19 3/12/0 5/12/19 PH. 94 3,13,19 してしてしょうからなり DATE I Sulfate by 300.0 1 Metals (As, B. Co, Mo) DATE Signed: Radium 226/228 belsy moderiel@pacelabs con Parce S ン Pluoride by 300.0 > ACCEPTED BY (AFFILLATION Attention: scsinvoices@soulhernco.com Z stateM VI .qq/ NY jaeT seavisnA Pace Quote: Pace Project Manager: belsy moderial@ Pace Profile #: 327.4 (AP) or 328.5 (Huff) IchertaM Nathia Preservatives EOZSZBN 各古のよるい HOPN HCI Section C Invoice Information: ሊን EONH Сотралу Мате: 026/2/01/2 SAMPLER NAME AND SIGNATURE **†OSZH** 943 Address: THE pevieserdun # OF CONTAINERS Law Georntee 3/13/19 られば Х SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION DATE नीयान १९६० TIME 행사 DATE COLLECTED RELINDUISHED BY LAFFILLATION 12/2 5161 William Joju Abraham / Lauren Petty 4 3/12/PITSO SCS10348606 START Plani Hammond Required Project Information: dia m Geosyntec 3 <u>ی</u> 2] SAMPLE TYPE (G-GRAB C-COMP) Purchase Order #. Project Name: Serg **宏** MATRIX CODE (see valid codes to left) Copy To: 1 Project # MATRIX
Drinking Water
Water
Wase Water
Wase Water
Product
Solorocci
Old
Wipo
Wipo
Au
Ohe
Tissue Georgia Power - Coal Combustion Residuals ADDITIONAL COMMENTS One Character per box. (A-2, 0-9 / , -) Sample Ids must be unique Atlanta, GA 30339 mail jabraham@southemco.com STALMORDA SAMPLE ID 2480 Maner Road rone: (404)506-7239 Requested Due Date: lequired Client Information: STATA STATA () 72 7 . 9 8 9 ÷ . 9 Page 16 of 17 # M3TI

(1) En/20

なったり

						opon receipt			
Pace Analy	tical Client Name:		<u>G1</u>	A	-/	Power	F	Project#	
Tracking #:	x UPS USPS Client						-	40#:26	16037
Custody Seal on C	poler/Box Present: // yes	띡	no		Seals i	intact: yes	(LIENT: GAPou	er-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble B	3ags	Z	No	one [Other			
Thermometer Used	· · · · · · · · · · · · · · · · · · ·								ing process has begun
Cooler Temperatur					•	is Frozen: Yes No	1		of person/examining
Temp should be above						Comments:		contents:	
Chain of Custody P	resent:	Ø	. □	10	□N/A	1.			
Chain of Custody Fi	lled Out:	£29	s □n	4 0	□n/a	2.			
Chain of Custody R	elinquished:		s 🗆	No.	□n/a	3.		-	
Sampler Name & Si			E 01	۷o	□n/a	4.			
Samples Arrived wit	thin Hold Time:	-27	s 🗆	۷o	□n/a	5.			
Short Hold Time A	nalysis (<72hr):		ıs Dı	40	□n/A	6.			
Rush Turn Around	Time Requested:	ΠA	s Дн	10	□n/A	7.			
Sufficient Volume:		۳4.	ś 🗆	۷o	□n/a	8.			
Correct Containers	Used:	, D	≅ □	No	□n/a	9.			
-Pace Container	s Used:	En	ãs □	No	□n/A				
Containers Intact:		-BY	s 🗆	No	□n/A	10.			
Filtered volume rec	eived for Dissolved tests	_/	es 🔲	No .	-₽N/A	11.			
Sample Labels mat	ch COC:	<u>, []</u>	s O	No	□n/a	12.			
-Includes date/ti	me/ID/Analysis Matrix:		L	\mathcal{I}	_				
All containers needing	preservation have been checked.	.8	es 🗆	No	□n/a	13.			
All containers needing	preservation are found to be in		<u> </u>	Na	□n/a				
compliance with EPA	recommendation.		U	NO	шил	Initial whom	+	Lot # of added	
exceptions: VOA, colifor	rm, TOC, O&G, WI-DRO (water)		es 🔎	No		Initial when completed		preservative	
Samples checked f	or dechlorination:	<u></u>	es 🗆	No	ÐN/A	14.		· 	
Headspace in VOA	Vials (>6mm):		es 🗆	No	-DINIA	15.	_		
Trip Blank Present:			es 🗆	No	DNA	16.			
Trip Blank Custody	Seals Present		es 🛘	No	-EN/A				
Pace Trip Blank Lo	# (if purchased):	,							
Client Notification	/ Resolution:							Field Data Require	? Y / N
	tacted:				_Date/	Time:		·	
	oution:								
							-		
							<u>l</u>		
Project Manage	r Review:							Date:	
	re is a discrepancy affecting North C le out of hold, incorrect preservative						m '	will be sent to the Nor	th Carolina DEHNR

F-ALLCO3rev.3, 11September2008 of 17





March 20, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616042

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta







CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616042

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616042

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616042001	MW-28D	Water	03/12/19 17:25	03/13/19 14:00	
2616042002	HGWC-8	Water	03/12/19 16:27	03/13/19 14:00	
2616042003	MW-29	Water	03/12/19 18:23	03/13/19 14:00	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616042

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616042001	MW-28D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616042002	HGWC-8	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616042003	MW-29	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616042

Date: 03/20/2019 03:23 PM

Sample: MW-28D	Lab ID:	2616042001	Collecte	ed: 03/12/19	17:25	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 18:54	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 18:54	7440-38-2	
Barium	0.82	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 18:54	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 18:54	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 18:54	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 18:54	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 18:54	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 18:54	7439-92-1	
Lithium	0.011J	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 18:54	7439-93-2	
Molybdenum	0.013	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 18:54	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 18:54	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 18:54	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Metl	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:12	03/15/19 14:56	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.24J	mg/L	0.30	0.029	1		03/19/19 00:09	16984-48-8	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616042

Date: 03/20/2019 03:23 PM

Sample: HGWC-8	Lab ID:	Collected: 03/12/19 16:27			Received: 03/13/19 14:00 Matrix: Water				
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 19:00	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 19:00	7440-38-2	
Barium	0.062	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 19:00	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 19:00	7440-41-7	
Cadmium	0.00020J	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 19:00	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 19:00	7440-47-3	
Cobalt	0.0020J	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 19:00	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 19:00	7439-92-1	
Lithium	0.0025J	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 19:00	7439-93-2	
Molybdenum	0.50	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 19:00	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 19:00	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 19:00	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:12	03/15/19 15:13	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.58	mg/L	0.30	0.029	1		03/19/19 00:32	16984-48-8	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616042

Date: 03/20/2019 03:23 PM

Sample: MW-29	Lab ID:	2616042003	Collecte	ed: 03/12/19	18:23	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 19:06	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 19:06	7440-38-2	
Barium	0.089	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 19:06	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 19:06	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 19:06	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 19:06	7440-47-3	
Cobalt	0.00057J	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 19:06	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 19:06	7439-92-1	
Lithium	0.0024J	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 19:06	7439-93-2	
Molybdenum	0.0038J	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 19:06	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 19:06	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 19:06	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Metl	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:12	03/15/19 15:15	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.070J	mg/L	0.30	0.029	1		03/19/19 00:55	16984-48-8	



Project:

Plant Hammond

Pace Project No.:

2616042

QC Batch: QC Batch Method: 24399

Analysis Method:

EPA 7470A

EPA 7470A

Analysis Description:

7470 Mercury

Associated Lab Samples:

2616042001, 2616042002, 2616042003

METHOD BLANK: 109482

Matrix: Water Associated Lab Samples: 2616042001, 2616042002, 2616042003

Blank Result

Parameter

Units

Reporting Limit

MDL Analyzed Qualifiers

Mercury

mg/L

Units

mg/L

2616042001

ND

0.00050

0.000036

117

03/15/19 14:51

LABORATORY CONTROL SAMPLE:

Parameter

109483

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

80-120

Qualifiers

Mercury

109484

109485

0.0029

MS

MS

MSD % Rec

% Rec Limits

Max RPD RPD

Qual

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

MS MSD Spike

0.0025

Spike Conc.

Result Result

MSD

% Rec 105

101

75-125

Date: 03/20/2019 03:23 PM

Mercury

Parameter Units mg/L

Result ND

Conc. 0.0025 0.0025

0.0025 0.0026

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.



Project: Plant Hammond

Pace Project No.: 2616042

Thallium

Date: 03/20/2019 03:23 PM

QC Batch: 24384 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616042001, 2616042002, 2616042003

METHOD BLANK: 109374 Matrix: Water

Associated Lab Samples: 2616042001, 2616042002, 2616042003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/18/19 17:34	
Arsenic	mg/L	0.00071J	0.0050	0.00057	03/18/19 17:34	
Barium	mg/L	ND	0.010	0.00078	03/18/19 17:34	
Beryllium	mg/L	ND	0.0030	0.000050	03/18/19 17:34	
Cadmium	mg/L	ND	0.0010	0.000093	03/18/19 17:34	
Chromium	mg/L	ND	0.010	0.0016	03/18/19 17:34	
Cobalt	mg/L	ND	0.010	0.00052	03/18/19 17:34	
Lead	mg/L	ND	0.0050	0.00027	03/18/19 17:34	
Lithium	mg/L	ND	0.050	0.00097	03/18/19 17:34	
Molybdenum	mg/L	ND	0.010	0.0019	03/18/19 17:34	
Selenium	mg/L	ND	0.010	0.0014	03/18/19 17:34	
Thallium	mg/L	ND	0.0010	0.00014	03/18/19 17:34	

LABORATORY CONTROL SAMPLE:	109375					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.11	109	80-120	
Arsenic	mg/L	0.1	0.10	104	80-120	
Barium	mg/L	0.1	0.10	102	80-120	
Beryllium	mg/L	0.1	0.11	108	80-120	
Cadmium	mg/L	0.1	0.11	105	80-120	
Chromium	mg/L	0.1	0.11	107	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	104	80-120	
Lithium	mg/L	0.1	0.11	107	80-120	
Molybdenum	mg/L	0.1	0.10	104	80-120	
Selenium	mg/L	0.1	0.10	105	80-120	

0.1

mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109376 109377												
5		2616039003	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	0 1
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	106	107	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.11	0.10	106	103	75-125	3	20	
Barium	mg/L	0.20	0.1	0.1	0.29	0.30	95	103	75-125	2	20	
Beryllium	mg/L	ND	0.1	0.1	0.097	0.094	97	94	75-125	3	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20	

0.10

103

80-120

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.



Project: Plant Hammond

Pace Project No.: 2616042

Date: 03/20/2019 03:23 PM

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	ATE: 109370	6 MS	MSD	109377							
Parameter	Units	2616039003 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L		0.1	0.1	0.10	0.10	104	103	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.098	101	98	75-125	3	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.096	101	95	75-125	5	20	
Lithium	mg/L	0.011J	0.1	0.1	0.11	0.10	97	91	75-125	5	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	103	104	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	106	102	75-125	4	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20	

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



Project:

Plant Hammond

Pace Project No.:

2616042

QC Batch: QC Batch Method: 24522

Analysis Method:

EPA 300.0

EPA 300.0

Analysis Description:

300.0 IC Anions

Associated Lab Samples:

2616042001, 2616042002, 2616042003

METHOD BLANK: 110051

Matrix: Water

Associated Lab Samples:

2616042001, 2616042002, 2616042003

Blank

Reporting

Parameter

Units

Result

10

Limit

MDL

98

Analyzed

Qualifiers

Fluoride

Fluoride

Fluoride

Fluoride

mg/L

mg/L

2616039001

Result

0.035J

ND

MS

Spike

Conc.

0.30

0.029

03/18/19 21:29

LABORATORY CONTROL SAMPLE:

Parameter

110052

Units

mg/L

Spike Units Conc.

LCS Result

LCS % Rec % Rec Limits

90-110

Qualifiers

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

110053

110054

Result

10.2

9.8

MSD

Conc.

Spike MS

10

MSD

Result

10.3

10.3

MS % Rec

102

MSD % Rec

103

102

% Rec Limits RPD

Max RPD 0 15

Qual

MATRIX SPIKE SAMPLE:

Date: 03/20/2019 03:23 PM

Parameter

110055

Parameter Units mg/L 2616039002 Result 0.079J

10

Spike Conc. 10

MS Result

MS % Rec % Rec Limits

90-110

90-110

Qualifiers

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.



QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616042

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.

Date: 03/20/2019 03:23 PM



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616042

Date: 03/20/2019 03:23 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616042001	MW-28D	EPA 3005A	24384	EPA 6020B	<u>24419</u>
2616042002	HGWC-8	EPA 3005A	24384	EPA 6020B	24419
2616042003	MW-29	EPA 3005A	24384	EPA 6020B	24419
2616042001	MW-28D	EPA 7470A	24399	EPA 7470A	24404
2616042002	HGWC-8	EPA 7470A	24399	EPA 7470A	24404
2616042003	MW-29	EPA 7470A	24399	EPA 7470A	24404
2616042001	MW-28D	EPA 300.0	24522		
2616042002	HGWC-8	EPA 300.0	24522		
2616042003	MW-29	EPA 300.0	24522		

CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) utset Sambles SAMPLECONDITIONS (N/A) 13 Cooler Regulatory Agency WO#:2616042 Custody State / Location (A\N) ce Received on Residual Chlorine (Y/N) TEMP in C 3/14/m 1950 1400 3/14/105 449 0944 TIME らす ج **|| || || || ||** 261**6**042 4/13/19 DATE DATE Signed: 02/10 Sulfate by 300.0 Metals (As, B, Co, Mo) LICKATO 2 Radium 226/228 betsy.mcdaniel@pacelabs.com ACCEPTED BY ! AFFILIATION Fluoride by 300.0 nnan scsinvoices@southernco.com App. IV Metals Mackey whaten Perco NA JaoT sesyland, 327.4 (AP) or 328.5 (Huff) U tring Nethanol Preservatives Na2S2O3 HOBM Pace Project Manager. Pace Profile #: 327.4 PRINT NAME OF SAMPLER: PCH ML IN ЮН Invoice Information: EONH company Name 3-112/19-19-550 **POSZH** Pace Quote: 310 3/12/19 2205 Section C Address: 215/201 - 1807-te 3/13/14 943 Devieseran SAMPLER NAME AND SIGNATURE # OF CONTAINERS DATE SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION HWE. 13.53 S DATE RELINOVISHED BY / AFFILIATION COLLECTED Joju Abraham / Lauren Petty TIME Purchase Order #: SCS10348606 Project Name: Plant Hammond Project #: 0 START DATE Required Project Information: Modia m Geosyntec و (GHOD=0 BARD=0) BAYT BJ9MAS 17 MATRIX CODE (see valid codes to left) Report To: Copy To: Section B MATRIX
Dirithing Wares
Water
Waste Waste
Waste Waste
On Booksolid
Oil
Wipe
Au
Chter
Tissue Georgia Power - Coal Combustion Residuals ADOMICAMAL COMMENTS. One Character per box. (A-2, 0-9 /, -). Sample Ids must be unique Email: jabraham@southemco.com SAMPLE ID 3/23/19 2480 Maner Road Atlanta, GA 30339 MW-285 Required Client Information: Requested Oue Date: Page 14 of 17 . 6 10 # M311

CHAIN-OF-CUSTODY / Analytical Request Document

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

Due Date: 03/20/19 (N/A) Intact Samples Sealed Cooler (Y/N) SAMPLE CONDITIONS 150 **MO#:2616042** State / Location. Regulatory Agency Costoo (N/A) CLIENT: GAPOWER-CCR 8 Received on Residual Chlorine (Y/N) Page: TEMP in C X THE 3/14/9 2205 3 relia 1950 3,13, 9 0944 Roquested Analysis Filtered (Y/N) DATE Signed: 03/12/19 ĺ DATE 0.005 yd etsliu2 Metals (As, B, Co, Mo) h betsy.mcdaniei@pacetabs.com Radium 226/228 ACCEPTED BY (AFFILIATION: O'00E yd ebnoul-NANAN IN Grant Walter Georgialed Bestated 1930 14 to De All without scsinvoices@southemco.com App. IV Metals Ñ/A Proce Pace Project Manager: betsy.mcdaniel@g Pace Profile #: 327.4 (AP) or 328.5 (Huff) JaoT agevianA tensitisM Preservatives Na2S203 SIGNATURE OF SAMPLER: ALT WOLLE 73tpm HOBN НСІ Invoice Information: EONH Company Name Address: Stept Pace Quote: H2SO4 SAMPLER NAME AND SIGNATURE अधीत कर Attention: 993 Devreserded SHENIATION TO S P 221 45.6 PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 3/13/19 DATE TIME O 2 DATE WIIGHUS 16:06 0272 RELINGUISHED BY LAFFILLATION COLLECTED Let Luw Geor to Report To: Joju Abraham / Lauren Petty TIME 경 SCS10348606 Morlia Marlow START Purchase Order #: SCS103486 Project Nama: Plant Hammond DATE Required Project Information: Geosyntec (G=GRAB C=COMP) 39YT 3J9MA8 MATRIX CODE (see valid codes to left) Copy To: MATRIX
Drinking Werer
Waste Wester
Waste Wester
Preduct
Soll/Sold
Oil
Wipe
Aur
Cheer
Tissue Georgia Power - Coal Combustion Residuals Email: jabraham@southernco.com Prone. (404)506-7239 Fax Requested Oue Date: Nandard TAT ADDITIONAL COMMENTS One Character per box. (A-Z, 0.9 f, -) Sample Ids must be unique SAMPLE ID HGWC 2480 Maner Road Required Client Information: Page 15 of 17 Address: 4 0 E ~ ... 2 ITEM #

CHAIN-OF-CUSTODY / Analytical Request Document

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

なの

Due Date: 63/20/19 (N/A)hitact SAMPLECONDITIONS Regulatory Agency (N/A) **WO#:2616042** Cooler State / Location belse Custody (N/A) CLIENT: GAPower-CCR Received on Residual Chlorine (Y/N) Page: TEMP in C 41441 2005 8.13,19 1094K 1186 11/2/19 14B OATE Sulfate by 300.0 2 Metals (As, 8, Co, Mo) DATE Signed: 2 Pace Quote:
Pace Project Manager: betsy modanist@pacelabs.com.
Pace Profile #: 327.4 (AP) or 328.5 (Huff) Radium 226/228 ACCEPTED BY / AFFLIATION 5 *Inoride by 300.0 MAN Attention: scsinvoices@southernco.com چ لالا Pop. IV Metals Jaol seavienA 327.4 (AP) or 328.5 (Huff) NUSES tonsritely SIGNATURE OF SAMPLER: YOULS'A MINISON Preservatives ROZSZBN HORN 3/6/19 200 1/3/12 HCI Invoice Information: Noelia EONH Company Name: **₽**OSZH SAMPLER NAME AND SIGNATURE 413/19 943 Deviesered SHEWATHON HO PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION DATE WC312/19/1900 3/2/19/193 TME 8 DATE COLLECTED WB w Bagnte RELINGUISKED BY LAFFILIATION Report To: Joju Abraham / Lauren Petty TIME Medio Muber SCS10348606 START Plant Hammond DATE Required Project Information: Geosyntec (G=GRAB C=COMP) Purchase Order #: MATRIX CODE (see valid codes to left) Section B Copy To. MATRIX
Druking Warer
Wasta Wiczer
Wasta Wiczer
Product
Solufsocial
Oil
Wipe
Afr
Chre
Chre
Tissue Company: Georgia Power - Coal Combustion Residuals TEL -MW -D ADDITIONAL COMMENTS (A.Z. 0-9 /, -) Sample Ids must be unique jabraham@southernco.com Phone. (404)506-7239
Requested Due Date: **5-001.** One Character per box. SAMPLE ID 2480 Maner Road Atlanta GA 30339 Required Client Information: Page 16 of 17 8 **.** 9 Email: 9 ILEM #

3/12/19

and the same	Sample	Condition	Upon Receipt		
Face Analy	tical Client Name:	GIA 1	Power	Project #	
	x UPS USPS Client	Commercial	Pace Other	WO#:26	516042
Tracking #:	ooler/Box Present: yes	no Seals	intact: Ves	PM: BM CLIENT: GRPc	Due Date: 03/20/ wer-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None (Other	OLIZZIVI C	"
Thermometer Use				Samples on ice, coo	ing process has begun
Cooler Temperatu	A A 5:		is Frozen: Yes No	Date and Initials	of person/examining
Temp should be above			Comments:	contents:	13/19 mg
Chain of Custody P	resent:	es DNo DN/A	1.		
Chain of Custody Fi	illed Out:	es DNo DN/A	2.		
Chain of Custody R	elinquished:	es 🗆 No 🗆 N/A	3.		
Sampler Name & S	ا ignature on COC: ج	B No N/A	4.		
Samples Arrived wi	thin Hold Time:	es □No □N/A	5.		
Short Hold Time A	nalysis (<72hr):	es ONG ON/A	6.		
		es DINO ON/A	7.		
Sufficient Volume:	_D ₁	es □No □N/A	8.		
Correct Containers	Used: ₽7	es □No □N/A	9.		
-Pace Container	s Used: -E7	es 🗆 No 🗆 N/A			
Containers Intact:	.BY	es 🗆 No 🗆 N/A	10.		
Filtered volume rec	eived for Dissolved tests	es 🗆 No 🏻 🗗 NA	11.		
Sample Labels mat		es ⊡no □n/A			
-Includes date/ti		ω			
	preservation have been checked	es 🗆 No 🗀 N/A	13.		
Ail containers needing	preservation are found to be in	es Ono On/A		i	
compliance with EPA	recommendation.	es uno un/a		1	
exceptions: VOA, colifor	mn, TOC, O&G, WI-DRO (water)	es 🔎 No	Initial when completed	Lot # of added preservative	
Samples checked f	or dechlorination:	es □No ŪN⁄A	14.		
Headspace in VOA].	es □No ₽NÃ	15.		
Trip Blank Present:	ii i	es □No ØNĀ			
Trip Blank Custody		es 🗆 No 🗗 NIA	1		
Pace Trip Blank Lo					
	1				
Client Notification		Date/	Timo:	Field Data Required	? Y/N
	acted: lution:	Date	ime.		
Comments/ 17esu	-				
					
Project Manage	r Review:			Date:	
NI-A-, IABLE CO.	1		onlog o oposi ožakio to	on will be sent to the bloom	Carolina DELINO
	e is a discrepancy affecting North Caroline out of hold, incorrect preservative, out			in will be sent to the Norti	I CAIOIIRA DEFINA
•	ľ			F-ALLC00	3rev.3, 11September 2006 7 of 1





March 29, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616043

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616043

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616043

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616043001	MW-28D	Water	03/12/19 17:25	03/13/19 14:00	
2616043002	HGWC-8	Water	03/12/19 16:27	03/13/19 14:00	
2616043003	MW-29	Water	03/12/19 18:23	03/13/19 14:00	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616043

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616043001	MW-28D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616043002	HGWC-8	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616043003	MW-29	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

Sample: MW-28D PWS:	Lab ID: 26160430 Site ID:	O1 Collected: 03/12/19 17:25 Sample Type:	Received:	03/13/19 14:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.395 ± 0.214 (0.242) C:95% T:NA	pCi/L	03/25/19 10:08	13982-63-3	
Radium-228		0.531 ± 0.380 (0.742) C:73% T:88%	pCi/L	03/26/19 12:54	1 15262-20-1	
Total Radium	Total Radium Calculation	0.926 ± 0.594 (0.984)	pCi/L	03/27/19 11:32	2 7440-14-4	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

Sample: HGWC-8 Lab ID: 2616043002 Collected: 03/12/19 16:27 Received: 03/13/19 14:00 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.187 ± 0.174 (0.291) C:76% T:NA	pCi/L	03/25/19 08:32	13982-63-3	
Radium-228	EPA 9320	0.357 ± 0.366 (0.760) C:75% T:87%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	0.544 ± 0.540 (1.05)	pCi/L	03/27/19 11:32	7440-14-4	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

Sample: MW-29 Lab ID: 2616043003 Collected: 03/12/19 18:23 Received: 03/13/19 14:00 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

•		•				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.188 ± 0.159 (0.241) C:91% T:NA	pCi/L	03/25/19 10:08	13982-63-3	
Radium-228	EPA 9320	1.18 ± 0.482 (0.767) C:74% T:90%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	1.37 ± 0.641 (1.01)	pCi/L	03/28/19 15:28	7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

QC Batch: 334698 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616043001, 2616043002, 2616043003

METHOD BLANK: 1628718 Matrix: Water

Associated Lab Samples: 2616043001, 2616043002, 2616043003

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-226 0.482 ± 0.254 (0.327) C:96% T:NA pCi/L 03/25/19 08:31

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

QC Batch: 334688 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616043001, 2616043002, 2616043003

METHOD BLANK: 1628693 Matrix: Water

Associated Lab Samples: 2616043001, 2616043002, 2616043003

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-228 0.978 ± 0.447 (0.755) C:76% T:82% pCi/L 03/26/19 12:53

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616043

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

Date: 03/29/2019 04:55 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616043

Date: 03/29/2019 04:55 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616043001	MW-28D	EPA 9315	334698		
2616043002	HGWC-8	EPA 9315	334698		
2616043003	MW-29	EPA 9315	334698		
2616043001	MW-28D	EPA 9320	334688		
2616043002	HGWC-8	EPA 9320	334688		
2616043003	MW-29	EPA 9320	334688		
2616043001	MW-28D	Total Radium Calculation	335714		
2616043002	HGWC-8	Total Radium Calculation	335714		
2616043003	MW-29	Total Radium Calculation	335989		

CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) Samples SAMPLE CONDITIONS (N/A) B Safe / Location Cooler belse2 **JO#:2616043** Custod (N/A) Received on Residual Chlorina (Y/V) TEMP in C 1400 0861 17.50 अप्यात्र यळ TIME ج 3/11/19 5,18,18 4/2/19 TICKATE DATE Signed: 05/19 DATE Sulfate by 300.0 Metala (As, B. Co, Mo) 2 Pace Quote:
Pace Project Manager. — betsy.modarhek@pacelabs.com Redium 226/228 Fluoride by 300.0 ACCEPTED BY / AFFILLATION Section C
Invoice Information:
Attention: Scsirvoices@southernco.com App. IV Metals NÄ JeeT sesylenA Pace Profils #: 327.4 (AP) or 328.5 (Huff) पर्याष tensatieN Na2S203 Preservatives HOSN PRINT Name of SAMPLER: PLL IDU 114 ЮН EONH Company Name **POSZH** 3/12/19 2205 3/13/14 943 ddress: paviasaidnU SAMPLER NAME/AND SIGNATURE # OF CONTAINERS SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION DATE TIME 7.15 S Kery. K. 7 DATE RELINGUISHED BY FAFFILM TON COLLECTED Report To: Joju Abraham / Lauren Petty TIME 30/10/10/11/20 Purchase Order #: SCS10348606 Project Name: Ptant Hammond START 1915/au DATE Required Project information: John 13 Geosymac 9 SAMPLE TYPE (G-GRAB C-COMP) 44 MATRIX CODE (see valid codes to left) Copy To: MATRIX
Dinking Water
Water
Water
Water
Product
Solu/Solid
Oil
Wipe
Air
Other
Tassee Georgia Power - Coal Combustion Residuals Phone. (404)506-7239 Fax.
Requested Due Date: AMANILD ADDITIONAL COMMENTS One Charactor per box. (A-2, 0-9 /, -). Sample ids must be unique iabraham@southernco.com SAMPLE ID P1/81/8 2/19 2480 Maner Road Allanta, GA 30339 MW-220D Required Client Information: 2 1 8 4 6 9 10 -Page 12 of 15 # MBTI

CHAIN-OF-CUSTODY / Analytical Request Document

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

15

Due Date: 04/10/19 (N/Y) seldmeS SAMPLE CONDITIONS (N/A) Cooler Sinte / Location belse2 **JOH: 2616043** Cratogy Regulationy Agency (AVA) Received on ð CLIENT: GAPower-CCR Residual Chlorine (YW) TEMP in C 720 Y 920 TIME 1500 4480 DATE Signed: 03/12/19 3/12/19 3/14/9 3,13, 19 DATE Sulfate by 300.0 Metals (As. B. Co. Mo) 4 betsy mcdaniel@pacetabs.com. Radium 226/228 ACCEPTED BY ! AFFILIATION man Fluoride by 300.0 Chant Walter Georgiaec Beleville 1950 7/10 Sta Mulans scsinvoices@southernco.com App. IV Metals law 2000 N/X Analyses Test 327.4 (AP) or 328.5 (Huff) tonsitieM SIGNATURE OF SAMPLER: WIT WALK Preservatives Na2S2O3 Grant Voltes HOSN Pace Project Manager. Pace Profile #: 327.4 ЮН Invoice information: EONH #OSZH Pace Quote त्रायान कर TIME 243 SAMPLER NÁME AND SIGNATURE nubleserved # OF CONTAINERS PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 3/13/19 DATE TIME 8 DATE Glana 16:06 02/12 COLLECTED Low George to RELINGUISHED BY / AFFICIATION 3 Required Project Information: Report To: Joju Abraham / Lauren Petty TIME Norlia Mulan SCS10348606 Plant Hammond START DATE Geosyntec (9MOD=D BARD=D) SAMPLE TYPE Purchase Order #: Project Name: PI Project #: MATRIX CODE (see valid codes to left) Section B Copy To: MATRIX
Diriching Water
Water
Wasse Wicker
Product
SacRodict
Od
Wipe
Mybe
Au
Tissue Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax: Requested Due Date: Tangord (A) One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique ADDITIONAL COMMENTS Atlanta, GA 30339
Email jabraham@southernco.com SAMPLE ID 2480 Mener Road ととと Required Cilent Information: Сопралу: Address: . 6 6. 7. 8 6 9 Page 13 of 15 3 7

CHAIN-OF-CUSTODY / Analytical Request Document

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

Due Date: 04/10/19 (N/A) กรอณ Samplas SAMPLE CONDITIONS (N/A) 43 19 State / Location Custod) Sealed Cooler WO#:2616043 Regulatory Agone, (N/A) Received on CLIENT: GAPower-CCR Residual Chlorine (Y/N) TEMP in C 144 2200 8.13,99 194C 13/19/148 TIME 3/12/19 DATE Sulfate by 300.0 Metals (As, 8, Co, Mo) 2 DATE Signed: S Radium 226/228 Pace Project Manager. betsy.mcdantel@pacelabs.com 2 ACCEPTED BY! AFFILIATION man Quoride by 300.0 Attention: scsinvoices@southernco.com YN. aleteM VI .qqA ZUSES . 180T, coevisnA. 327.4 (AP) or 328.5 (Huff) 1918 dan lonsiteM SKGNATURE OF SAMPLER YOUL'A MUNICON Preservatives Ne2S2O3 HOBN PRINT Name of SAMPLER: NOCHIA НСІ Invoice information: EONH Company Name: 3/2/19 220 Address: Pace Quote: **≯OSZH** TIME 413/19 943 DeviesendaU SAMPLER NAME AND SIGNATURE OF CONTAINERS DATE SAMPLE TEMP AT COLLECTION G3 12 14 1800 3/12 14 18 13 TIME S DATE RELINDUÍSHED BY / AFFILIATION COLLECTED Wanter Bagnete Joju Abraham / Lauren Petty TWE Modia Muse Purchase Order #: SCS10348606 Project Name: Plani Hammond Project #. START DATE Required Project Information: Geosyntec SAMPLE TYPE (G=GRAB C=COMP) MATRIX CODE (see valid codes to left) Report To: Section B Copy To: MATRIX
Drinking Water
Water
Water
Water
Product
Soil/Sold
Oil
Wipe
Wipe
Chir
Chira Abbilliowal COMMENTS tequired Client information: company: Georgia Power - Coal Combustion Residuals MW-29 127 One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique jabraham@southernco.com Phone: (404)506-7239 Fax Requested Due Date: **5-041.4 ar.** SAMPLE ID 2480 Maner Road Atlanta, GA 30339 4ddress: 10 ... 6. 12 Page 14 of 15 . # WBIL

	Sample	: Condition	Upon Receipt		
Pace Anal	vtical Client Name:	GLA,	Power	Project #	
Tracking #:	x UPS USPS Client			WO# : 20	516043 Due Date: 04/10/
Custody Seal on C	ooler/Box Present: yes	no Seals	intact: / yes	CLIENT: GAP	uer-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None	Other	<u> 194 </u>	
Thermometer Use	d <u>83</u> тур	e of Ice: Wet	Blue None	Samples on ice, coo	ling process has begun
Cooler Temperatu	li	•	is Frozen: Yes No	Date and Initial	s of person/examining
Temp should be abov	e freezing to 6°C		Comments:		
Chain of Custody P		es 🗆 No 🗆 N/A			
Chain of Custody F	lled Out:	es □No □N/A	2.		
Chain of Custody R	elinquished:	es 🗆 No 🗆 N/A	3.		
Sampler Name & S	ignature on COC:	es □no □n/A	4.		
Samples Arrived wi	thin Hold Time:	es □No □N/A	5.	: :	
Short Hold Time A	nalysis (<72hr):	es □Mo □N/A	6.		
Rush Turn Around	Time Requested:	es ☑Mo □N/A	7.		
Sufficient Volume:		es □No □N/A	8.		
Correct Containers	Used:	es □no □n/a	9.		
-Pace Container	s Used: - Ers	es □No □N/A			
Containers Intact:	.81	es □No □N/A	10.		
Filtered volume rec	eived for Dissolved tests	es □No -□NA	11.		
Sample Labels mat	ch COC: اعطر	es □No □N/A	12.		
-Includes date/ti		ω			
All containers needing	preservation have been checked.	es 🗆 No 🗆 N/A	13.		
All containers needing compliance with EPA	preservation are found to be in recommendation.	es 🗆 No 🗆 N/A		l la companya da c	
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es 🔎 No	Initial when completed	Lot # of added preservative	
Samples checked for	or dechlorination:	es 🗆 No 🗖 N/A	14.		
Headspace in VOA	Vials (>6mm): □Y	es 🗆 No 🗗 🗖 Ä	15.		
Trip Blank Present:		es □No ØÑÃ	16.		
Trip Blank Custody	Seals Present	es 🗆 No 🗕 🗖 🗚			
Pace Trip Blank Lo	# (if purchased):				
Client Notification	/ Resolution:			Field Data Required	? Y / N
Person Cont		Date/	Гіme:	1 1010 Data Nequileu	. , ,
Comments/ Reso					
		<u>.</u>			
Project Manage	Review:			Date:	
,					
	e is a discrepancy affecting North Carolin out of hold, incorrect preservative, out			n will be sent to the North	Carolina DEHNR

F-ALLC003rev.3, 11September 2006





March 21, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616120

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 14, 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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta







CERTIFICATIONS

Project: Plant Hammond Pace Project No.: 2616120

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616120

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616120001	MW-7	Water	03/13/19 17:46	03/14/19 12:45
2616120002	MW-26D	Water	03/13/19 13:36	03/14/19 12:45
2616120003	HGWC-9	Water	03/13/19 11:46	03/14/19 12:45
2616120004	MW-27D	Water	03/13/19 09:24	03/14/19 12:45
2616120005	MW-6	Water	03/13/19 11:06	03/14/19 12:45
2616120006	HGWC-10	Water	03/13/19 12:10	03/14/19 12:45
2616120007	MW-24D	Water	03/13/19 14:48	03/14/19 12:45
2616120008	HGWC-13	Water	03/13/19 15:40	03/14/19 12:45
2616120009	FD-1	Water	03/13/19 00:00	03/14/19 12:45
2616120010	MW-20	Water	03/13/19 10:53	03/14/19 12:45
2616120011	MW-5	Water	03/13/19 12:33	03/14/19 12:45
2616120012	HGWC-7	Water	03/13/19 16:03	03/14/19 12:45
2616120013	HGWC-11	Water	03/13/19 17:34	03/14/19 12:45



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616120

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616120001	MW-7	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120002	MW-26D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120003	HGWC-9	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120004	MW-27D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120005	MW-6	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120006	HGWC-10	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120007	MW-24D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120008	HGWC-13	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120009	FD-1	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120010	MW-20	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120011	MW-5	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120012	HGWC-7	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120013	HGWC-11	EPA 6020B	CSW	12

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616120

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1



Project: Plant Hammond Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: MW-7	Lab ID:	2616120001	Collecte	ed: 03/13/19	9 17:46	Received: 03/	/14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: El	PA 3005A			
Antimony	0.00086J	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 14:32	7440-36-0	В
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 14:32	7440-38-2	
Barium	0.063	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 14:32	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 14:32	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 14:32	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 14:32	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 14:32	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 14:32	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 14:32	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 14:32	7439-98-7	
Selenium	0.0016J	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 14:32	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 14:32	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 14:44	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.069J	mg/L	0.30	0.029	1		03/19/19 01:18	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: MW-26D	Lab ID:	2616120002	Collecte	ed: 03/13/19	13:36	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 14:38	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 14:38	7440-38-2	
Barium	0.099	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 14:38	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 14:38	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 14:38	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 14:38	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 14:38	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 14:38	7439-92-1	
Lithium	0.0033J	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 14:38	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 14:38	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 14:38	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 14:38	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Metl	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/20/19 09:33	03/20/19 13:26	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.052J	mg/L	0.30	0.029	1		03/19/19 01:40	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: HGWC-9	Lab ID:	2616120003	Collecte	ed: 03/13/19	11:46	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 14:44	7440-36-0	
Arsenic	0.00075J	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 14:44	7440-38-2	
Barium	0.10	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 14:44	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 14:44	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 14:44	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 14:44	7440-47-3	
Cobalt	0.00065J	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 14:44	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 14:44	7439-92-1	
Lithium	0.0040J	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 14:44	7439-93-2	
Molybdenum	0.028	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 14:44	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 14:44	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 14:44	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 14:53	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.14J	mg/L	0.30	0.029	1		03/19/19 03:35	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: MW-27D	Lab ID:	2616120004	Collecte	ed: 03/13/19	09:24	Received: 03/	14/19 12:45 Ma	atrix: Water	•
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 14:49	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 14:49	7440-38-2	
Barium	1.5	mg/L	0.10	0.0078	10	03/18/19 13:34	03/21/19 13:04	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 14:49	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 14:49	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 14:49	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 14:49	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 14:49	7439-92-1	
Lithium	0.0097J	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 14:49	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 14:49	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 14:49	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 14:49	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 14:55	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.28J	mg/L	0.30	0.029	1		03/19/19 03:58	16984-48-8	



Thallium

Date: 03/21/2019 01:57 PM

ANALYTICAL RESULTS

Project: Plant Hammond Pace Project No.: 2616120

Sample: MW-6 Collected: 03/13/19 11:06 Lab ID: 2616120005 Received: 03/14/19 12:45 Matrix: Water Report Units MDL DF **Parameters** Results Limit Prepared CAS No. Analyzed Qual **6020B MET ICPMS** Analytical Method: EPA 6020B Preparation Method: EPA 3005A Antimony ND mg/L 0.0030 0.00078 03/18/19 13:34 03/20/19 14:55 7440-36-0 ND 0.0050 0.00057 03/20/19 14:55 7440-38-2 Arsenic mg/L 03/18/19 13:34 0.10 0.00078 03/20/19 14:55 7440-39-3 Barium mg/L 0.010 03/18/19 13:34 Beryllium ND mg/L 0.0030 0.000050 03/18/19 13:34 03/20/19 14:55 7440-41-7 1 0.0010 Cadmium ND mg/L 0.000093 03/18/19 13:34 03/20/19 14:55 7440-43-9 ND 0.010 03/20/19 14:55 7440-47-3 Chromium mg/L 0.0016 03/18/19 13:34 0.00055J 0.010 0.00052 03/20/19 14:55 7440-48-4 Cobalt mg/L 03/18/19 13:34 Lead ND mg/L 0.0050 0.00027 03/18/19 13:34 03/20/19 14:55 7439-92-1 Lithium ND mg/L 0.050 0.00097 03/18/19 13:34 03/20/19 14:55 7439-93-2 Molybdenum 0.0021J mg/L 0.010 0.0019 03/18/19 13:34 03/20/19 14:55 7439-98-7 Selenium ND mg/L 0.010 0.0014 03/18/19 13:34 03/20/19 14:55 7782-49-2

7470 Mercury Analytical Method: EPA 7470A Preparation Method: EPA 7470A

mg/L

ND

Mercury ND mg/L 0.00050 0.000036 1 03/18/19 10:52 03/19/19 14:58 7439-97-6

0.0010

0.00014

03/18/19 13:34 03/20/19 14:55 7440-28-0

300.0 IC Anions 28 Days Analytical Method: EPA 300.0

Fluoride **0.19J** mg/L 0.30 0.029 1 03/19/19 04:43 16984-48-8



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: HGWC-10	Lab ID:	2616120006	Collecte	ed: 03/13/19	12:10	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 15:01	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 15:01	7440-38-2	
Barium	0.044	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 15:01	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 15:01	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 15:01	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 15:01	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 15:01	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 15:01	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 15:01	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 15:01	7439-98-7	
Selenium	0.0015J	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 15:01	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 15:01	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	nod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:00	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.17J	mg/L	0.30	0.029	1		03/19/19 05:06	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: MW-24D	Lab ID:	2616120007	Collecte	ed: 03/13/19	14:48	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 15:07	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 15:07	7440-38-2	
Barium	0.053	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 15:07	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 15:07	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 15:07	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 15:07	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 15:07	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 15:07	7439-92-1	
Lithium	0.0029J	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 15:07	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 15:07	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 15:07	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 15:07	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:07	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.074J	mg/L	0.30	0.029	1		03/19/19 05:29	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: HGWC-13	Lab ID:	2616120008	Collecte	ed: 03/13/19	15:40	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 15:12	7440-36-0	
Arsenic	0.42	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 15:12	7440-38-2	
Barium	0.10	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 15:12	7440-39-3	
Beryllium	0.000062J	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 15:12	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 15:12	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 15:12	7440-47-3	
Cobalt	0.0022J	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 15:12	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 15:12	7439-92-1	
Lithium	0.029J	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 15:12	7439-93-2	
Molybdenum	0.033	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 15:12	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 15:12	7782-49-2	
Thallium	0.00039J	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 15:12	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	nod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:10	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.78	mg/L	0.30	0.029	1		03/19/19 05:52	16984-48-8	



Project: Plant Hammond Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: FD-1	Lab ID:	2616120009	Collecte	ed: 03/13/19	00:00	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	0.00088J	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 15:50	7440-36-0	В
Arsenic	0.42	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 15:50	7440-38-2	
Barium	0.099	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 15:50	7440-39-3	
Beryllium	0.000089J	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 15:50	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 15:50	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 15:50	7440-47-3	
Cobalt	0.0023J	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 15:50	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 15:50	7439-92-1	
Lithium	0.029J	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 15:50	7439-93-2	
Molybdenum	0.033	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 15:50	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 15:50	7782-49-2	
Thallium	0.00043J	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 15:50	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Metl	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:12	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.81	mg/L	0.30	0.029	1		03/19/19 06:15	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: MW-20	Lab ID:	2616120010	Collecte	ed: 03/13/19	10:53	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 15:55	7440-36-0	
Arsenic	0.0023J	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 15:55	7440-38-2	
Barium	0.087	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 15:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 15:55	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 15:55	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 15:55	7440-47-3	
Cobalt	0.0011J	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 15:55	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 15:55	7439-92-1	
Lithium	0.0016J	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 15:55	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 15:55	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 15:55	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 15:55	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:14	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.072J	mg/L	0.30	0.029	1		03/19/19 06:38	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: MW-5	Lab ID:	2616120011	Collecte	ed: 03/13/19	12:33	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 16:01	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 16:01	7440-38-2	
Barium	0.056	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 16:01	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 16:01	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 16:01	7440-43-9	
Chromium	0.0030J	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 16:01	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 16:01	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 16:01	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 16:01	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 16:01	7439-98-7	
Selenium	0.0033J	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 16:01	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 16:01	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:17	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.10J	mg/L	0.30	0.029	1		03/19/19 07:01	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: HGWC-7	Lab ID:	2616120012	Collecte	ed: 03/13/19	16:03	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 16:07	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 16:07	7440-38-2	
Barium	0.083	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 16:07	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 16:07	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 16:07	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 16:07	7440-47-3	
Cobalt	0.00067J	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 16:07	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 16:07	7439-92-1	
Lithium	0.0024J	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 16:07	7439-93-2	
Molybdenum	0.040	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 16:07	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 16:07	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 16:07	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Metl	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:19	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.12J	mg/L	0.30	0.029	1		03/19/19 08:55	16984-48-8	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: HGWC-11	Lab ID:	2616120013	Collecte	ed: 03/13/19	17:34	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 16:13	7440-36-0	
Arsenic	0.0024J	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 16:13	7440-38-2	
Barium	0.024	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 16:13	7440-39-3	
Beryllium	0.00010J	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 16:13	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 16:13	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 16:13	7440-47-3	
Cobalt	0.00098J	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 16:13	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 16:13	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 16:13	7439-93-2	
Molybdenum	0.012	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 16:13	7439-98-7	
Selenium	0.023	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 16:13	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 16:13	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:21	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.51	mg/L	0.30	0.029	1		03/19/19 09:18	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

QC Batch: 24464 Analysis Method: EPA 7470A QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

2616120001, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, 2616120009, Associated Lab Samples:

2616120010, 2616120011, 2616120012, 2616120013

METHOD BLANK: 109864 Matrix: Water

2616120001, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, 2616120009, Associated Lab Samples:

2616120010, 2616120011, 2616120012, 2616120013

Reporting MDL Qualifiers Parameter Units Result Limit Analyzed Mercury mg/L ND 0.00050 0.000036 03/19/19 14:39

Blank

LABORATORY CONTROL SAMPLE: 109865

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109866 109867 MS MSD 2616120001 Spike MS MSD MS MSD Spike % Rec Max RPD RPD Parameter Units Result Conc. % Rec % Rec Limits Conc. Result Result Qual Mercury mg/L ND 0.0025 0.0025 0.0025 0.0025 101 102 75-125 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.



Project:

Plant Hammond

Pace Project No.:

2616120

QC Batch:

Mercury

Mercury

Mercury

24639

QC Batch Method:

EPA 7470A

Analysis Method:

EPA 7470A

Analysis Description:

ND

7470 Mercury

Associated Lab Samples: 2616120002

METHOD BLANK: 110677

Matrix: Water

mg/L

Units

mg/L

Associated Lab Samples:

2616120002

Blank Result

Reporting

0.00050

Parameter

Units

Limit

MDL 0.000036

96

Analyzed

03/20/19 13:07

Qualifiers

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Units

mg/L

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

80-120

Qualifiers

110679

110680

0.0024

MS

MS

0.0025

MSD

MSD

MS % Rec % Rec

MSD

% Rec Limits

Max RPD

RPD

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

ND

2616179001 Result

Spike Spike Conc. Conc. 0.0025 0.0025

Result Result 0.0025 0.0025

99

99

75-125 0

20

Qual

Date: 03/21/2019 01:57 PM

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.



Project: Plant Hammond

LABORATORY CONTROL CAMPLE

Date: 03/21/2019 01:57 PM

Pace Project No.: 2616120

QC Batch: 24489 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616120001, 2616120002, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008,

2616120009, 2616120010, 2616120011, 2616120012, 2616120013

METHOD BLANK: 109939 Matrix: Water

Associated Lab Samples: 2616120001, 2616120002, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008,

2616120009, 2616120010, 2616120011, 2616120012, 2616120013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
- arameter				IVIDE	Analyzed	— Qualificis
Antimony	mg/L	0.0014J	0.0030	0.00078	03/20/19 14:21	
Arsenic	mg/L	ND	0.0050	0.00057	03/20/19 14:21	
Barium	mg/L	ND	0.010	0.00078	03/20/19 14:21	
Beryllium	mg/L	ND	0.0030	0.000050	03/20/19 14:21	
Cadmium	mg/L	ND	0.0010	0.000093	03/20/19 14:21	
Chromium	mg/L	ND	0.010	0.0016	03/20/19 14:21	
Cobalt	mg/L	ND	0.010	0.00052	03/20/19 14:21	
Lead	mg/L	ND	0.0050	0.00027	03/20/19 14:21	
Lithium	mg/L	ND	0.050	0.00097	03/20/19 14:21	
Molybdenum	mg/L	ND	0.010	0.0019	03/20/19 14:21	
Selenium	mg/L	ND	0.010	0.0014	03/20/19 14:21	
Thallium	mg/L	ND	0.0010	0.00014	03/20/19 14:21	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	 mg/L	0.1	0.11	107	80-120	
Arsenic	mg/L	0.1	0.098	98	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.10	102	80-120	
Cadmium	mg/L	0.1	0.097	97	80-120	
Chromium	mg/L	0.1	0.10	101	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lead	mg/L	0.1	0.098	98	80-120	
Lithium	mg/L	0.1	0.10	101	80-120	
Molybdenum	mg/L	0.1	0.10	101	80-120	
Selenium	mg/L	0.1	0.10	104	80-120	
Thallium	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIR	KE DUPLIC	CATE: 10994	1		109942							
		2616120008	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD		Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	105	105	75-125		20	
Arsenic	mg/L	0.42	0.1	0.1	0.51	0.53	99	113	75-125	3	20	
Barium	mg/L	0.10	0.1	0.1	0.18	0.18	76	75	75-125	1	20	
Beryllium	mg/L	0.000062J	0.1	0.1	0.094	0.095	94	95	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.



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	NTE: 10994	1		109942							
			MS	MSD								
		2616120008	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Cadmium	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125	0	20	
Chromium	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	2	20	
Cobalt	mg/L	0.0022J	0.1	0.1	0.098	0.099	96	96	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.093	0.096	93	96	75-125	3	20	
Lithium	mg/L	0.029J	0.1	0.1	0.12	0.12	92	94	75-125	2	20	
Molybdenum	mg/L	0.033	0.1	0.1	0.13	0.13	96	99	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.099	0.10	99	104	75-125	6	20	
Thallium	mg/L	0.00039J	0.1	0.1	0.095	0.096	94	96	75-125	1	20	

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



Project: Plant Hammond

Pace Project No.: 2616120

Fluoride

Date: 03/21/2019 01:57 PM

QC Batch: 24522 Analysis Method: EPA 300.0 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions

mg/L

2616120001, 2616120002, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, Associated Lab Samples:

2616120009, 2616120010, 2616120011, 2616120012, 2616120013

METHOD BLANK: 110051			N	latrix: Wa	ter							
		2616120002, 2 2616120010, 2					6120006, 2	616120007	, 2616120	0008,		
		•	Blank	R	eporting							
Parameter		Units	Result	t	Limit	MDL		Analyzed	Qua	alifiers		
Fluoride		mg/L		ND	0.30	C	0.029 03/	18/19 21:29)			
LABORATORY CONTROL SA	MPLE: 110	0052										
			Spike	LCS		LCS	% Red					
Parameter		Units	Conc.	Resu	ılt	% Rec	Limits	s Qι	ıalifiers			
Fluoride		mg/L	10		9.8	98	90)-110				
MATRIX SPIKE & MATRIX SP	IKE DUPLIC	ATE: 11005	3		110054							
			MS	MSD								
		2616039001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	0.035J	10	10	10.2	10.3	102	102	90-110	0	15	
MATRIX SPIKE SAMPLE:	110	0055										
			261603	9002	Spike	MS	N	1S	% Rec			
Parameter		Units	Resi	ult	Conc.	Result	%	Rec	Limits		Qualif	iers

0.079J

10

10.3

103

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.



QUALIFIERS

Project: Plant Hammond Pace Project No.: 2616120

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

Date: 03/21/2019 01:57 PM

B Analyte was detected in the associated method blank.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2616120001	MW-7	EPA 3005A	24489	EPA 6020B	24530
2616120002	MW-26D	EPA 3005A	24489	EPA 6020B	24530
2616120003	HGWC-9	EPA 3005A	24489	EPA 6020B	24530
616120004	MW-27D	EPA 3005A	24489	EPA 6020B	24530
2616120005	MW-6	EPA 3005A	24489	EPA 6020B	24530
616120006	HGWC-10	EPA 3005A	24489	EPA 6020B	24530
616120007	MW-24D	EPA 3005A	24489	EPA 6020B	24530
616120008	HGWC-13	EPA 3005A	24489	EPA 6020B	24530
616120009	FD-1	EPA 3005A	24489	EPA 6020B	24530
616120010	MW-20	EPA 3005A	24489	EPA 6020B	24530
616120011	MW-5	EPA 3005A	24489	EPA 6020B	24530
616120012	HGWC-7	EPA 3005A	24489	EPA 6020B	24530
616120013	HGWC-11	EPA 3005A	24489	EPA 6020B	24530
616120001	MW-7	EPA 7470A	24464	EPA 7470A	24540
616120002	MW-26D	EPA 7470A	24639	EPA 7470A	24703
616120003	HGWC-9	EPA 7470A	24464	EPA 7470A	24540
616120004	MW-27D	EPA 7470A	24464	EPA 7470A	24540
616120005	MW-6	EPA 7470A	24464	EPA 7470A	24540
616120006	HGWC-10	EPA 7470A	24464	EPA 7470A	24540
616120007	MW-24D	EPA 7470A	24464	EPA 7470A	24540
616120008	HGWC-13	EPA 7470A	24464	EPA 7470A	24540
616120009	FD-1	EPA 7470A	24464	EPA 7470A	24540
616120010	MW-20	EPA 7470A	24464	EPA 7470A	24540
616120011	MW-5	EPA 7470A	24464	EPA 7470A	24540
616120012	HGWC-7	EPA 7470A	24464	EPA 7470A	24540
616120013	HGWC-11	EPA 7470A	24464	EPA 7470A	24540
616120001	MW-7	EPA 300.0	24522		
616120002	MW-26D	EPA 300.0	24522		
616120003	HGWC-9	EPA 300.0	24522		
616120004	MW-27D	EPA 300.0	24522		
616120005	MW-6	EPA 300.0	24522		
616120006	HGWC-10	EPA 300.0	24522		
616120007	MW-24D	EPA 300.0	24522		
616120008	HGWC-13	EPA 300.0	24522		
616120009	FD-1	EPA 300.0	24522		
616120010	MW-20	EPA 300.0	24522		
616120011	MW-5	EPA 300.0	24522		
616120012	HGWC-7	EPA 300.0	24522		
616120013	HGWC-11	EPA 300.0	24522		

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

-	Shirftbellan GA nafrinj	(WV) enholino faubiseA	#:2616120 #:2616120 #:2616120	TEMP in C
<u> 8 </u>	Pace Project Manager: betsy.modaniel@pacelabs.com, Pace Profile #: 327.4 (AP) or 328.5 (Huff)	Unpreserved H2SO4	### 17 7 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SCA LICEATE
n Petty 56	Part Hanmond	COLLECTED SY S	MEN TICKTER 3/15 12.36 18 4 19 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SAMPLERNAME AND SIGNATURE PRINT Name of SAMPLER: SIGNATURE of SAMPLER:
Section A Required Client Information: Company: Georgia Power - Coal Combustion Residuats Address: 2480 Maner Road Attanta, GA 30339 Email: jabraham@southernco.com	Phone: (404)506-7239 Fax Requested Due Date: Hanland TRT	MATRIX Director Wester Wester Wester Wester Wester Wester Wester Wester AZ 0-9 () CAMPLE ID ON	10mc - 4 10mc - 4 10mc - 4	Page 26 of 29
Section A Required Company: Address:	Phone: Request	# W311	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 age 20 01 29

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Pace Analytical

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(Particle of	Sample	: Condition	Upon Receipt		
Pace Analy	rtical Client Name:	GCA 1	Powere	Project #	
Courier: Fed E	x 🔲 UPS 🔲 USPS 🗎 Client 🛭	Commercial	Pace Other	WO#: 26	
	ooler/Box Present: yes	no Seals	intact: Tyes	PM: BM CLIENT: GRPON	Due Date: 03/21/19
	☐ Bubble Wrap ☐ Bubble Bags	_	-	SAL ON	· ·
Thermometer Used	2 4	e of Ice: Wet	_	Samples on ice, coo	ling process has begun
Cooler Temperatur		`	is Frozen: Yes No	Date and Initial	s of person examining
Temp should be above			Comments:	contents: 3	114/19 ng
Chain of Custody P	resent:	1 es □No □N/A	1.		
Chain of Custody Fi	led Out:	es 🗆 No 🗆 N/A	2.		
Chain of Custody R		S □No □N/A			
Sampler Name & Si		es 🗆 No 🗆 N/A			
Samples Arrived wit		es ONO ON/A			
Short Hold Time A		es 🖾 No 7 🗆 N/A			
Rush Turn Around		es □No □N/A			
Sufficient Volume:		1 es □No □N/A			
Correct Containers		1 es □No □N/A			
-Pace Containers		es □No □N/A	·.		
Containers Intact:		S □No □N/A	10		
		es 🗆 No 🖽 N/A			
Sample Labels mate		es¹ □No □N/A			
-Includes date/tir		W			
	reservation have been checked	3 □No □N/A	13		
All containers needing	processing are found to be in		10.		
compliance with EPA	li -7.	S □No □N/A			
exceptions: VOA, colifon	m, TOC, O&G, WI-DRO (water)	es 🕬o	Initial when completed	Lot # of added preservative	
Samples checked for		es 🗆 No 🗲 📆 Ā	14.		=
Headspace in VOA		es 🗆 No 🗸 🗆 N/A			
Trip Blank Present:		es 🗆 No 🖅 🗖 🗖			
Trip Blank Custody		es 🗆 No 🖽 N/A			
Pace Trip Blank Lot					
					-
Client Notification/		Dete	F:	Field Data Required	? Y/N
Comments/ Resol	cted:	Date/1	ıme:	<u> </u>	
Commence resor	ddoir.				
Project Manager	Review			Date:	
i i oject manager				Date:	
Note: Whenever there	is a discrepancy affecting North Carolina	compliance sam	ples, a copy of this form	n will be sent to the North	Carolina DEHNR
Certification Office (i.e	out of hold, incorrect preservative, out	of temp, incorrect	containers)	[. F•A⊟ C000	Page 29 of 29 Brev.3, 11September2008





April 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616121

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 14, 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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616121

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616121

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616121001	MW-7	Water	03/13/19 17:46	03/14/19 12:45
2616121002	MW-26D	Water	03/13/19 13:36	03/14/19 12:45
2616121003	HGWC-9	Water	03/13/19 11:46	03/14/19 12:45
2616121004	MW-27D	Water	03/13/19 09:24	03/14/19 12:45
2616121005	MW-6	Water	03/13/19 11:06	03/14/19 12:45
2616121006	HGWC-10	Water	03/13/19 12:10	03/14/19 12:45
2616121007	MW-24D	Water	03/13/19 14:48	03/14/19 12:45
2616121008	HGWC-13	Water	03/13/19 15:40	03/14/19 12:45
2616121009	FD-1	Water	03/13/19 00:00	03/14/19 12:45
2616121010	MW-20	Water	03/13/19 10:53	03/14/19 12:45
2616121011	MW-5	Water	03/13/19 12:33	03/14/19 12:45
2616121012	HGWC-7	Water	03/13/19 16:03	03/14/19 12:45
2616121013	HGWC-11	Water	03/13/19 17:34	03/14/19 12:45



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616121

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616121001	MW-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121002	MW-26D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121003	HGWC-9	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121004	MW-27D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121005	MW-6	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121006	HGWC-10	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121007	MW-24D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121008	HGWC-13	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121009	FD-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121010	MW-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121011	MW-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121012	HGWC-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121013	HGWC-11	EPA 9315	LAL	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616121

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-7 PWS:	Lab ID: 26161210 Site ID:	O1 Collected: 03/13/19 17:46 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.279 ± 0.224 (0.348) C:83% T:NA	pCi/L	03/27/19 09:28	13982-63-3	
Radium-228		0.947 ± 0.444 (0.758) C:76% T:84%	pCi/L	03/27/19 12:58	3 15262-20-1	
Total Radium	Total Radium Calculation	1.23 ± 0.668 (1.11)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-26D PWS:	Lab ID: 26161210 Site ID:	Collected: 03/13/19 13:36 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.322 ± 0.223 (0.355) C:84% T:NA	pCi/L	03/25/19 10:07	13982-63-3	
Radium-228		0.305 ± 0.363 (0.764) C:72% T:77%	pCi/L	03/26/19 14:39	15262-20-1	
Total Radium	Total Radium Calculation	0.627 ± 0.586 (1.12)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: HGWC-9 PWS:	Lab ID: 26161210 Site ID:	O3 Collected: 03/13/19 11:46 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.276 ± 0.215 (0.363) C:84% T:NA	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228		0.727 ± 0.437 (0.815) C:75% T:82%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	1.00 ± 0.652 (1.18)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-27D PWS:	Lab ID: 26161210 Site ID:	O4 Collected: 03/13/19 09:24 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.588 ± 0.331 (0.516) C:82% T:NA	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228	EPA 9320	1.22 ± 0.457 (0.682) C:76% T:93%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	1.81 ± 0.788 (1.20)	pCi/L	03/28/19 15:28	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-6 PWS:	Lab ID: 26161210 Site ID:	O5 Collected: 03/13/19 11:06 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.840 ± 0.406 (0.563) C:66% T:NA	pCi/L	03/25/19 09:49	13982-63-3	
Radium-228	EPA 9320	1.23 ± 0.526 (0.866) C:77% T:77%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	2.07 ± 0.932 (1.43)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: HGWC-10 PWS:	Lab ID: 26161210 Site ID:	O6 Collected: 03/13/19 12:10 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.105 ± 0.189 (0.430) C:82% T:NA	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228	EPA 9320	1.08 ± 0.472 (0.789) C:76% T:89%	pCi/L	03/26/19 16:05	5 15262-20-1	
Total Radium	Total Radium Calculation	1.19 ± 0.661 (1.22)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-24D PWS:	Lab ID: 26161210 Site ID:	O7 Collected: 03/13/19 14:48 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.0299 ± 0.156 (0.402) C:93% T:NA	pCi/L	03/25/19 10:07	13982-63-3	
Radium-228		0.281 ± 0.360 (0.763) C:71% T:84%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	0.311 ± 0.516 (1.17)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: HGWC-13 PWS:	Lab ID: 26161210 Site ID:	O8 Collected: 03/13/19 15:40 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.365 ± 0.227 (0.309) C:88% T:NA	pCi/L	03/25/19 10:07	7 13982-63-3	
Radium-228		0.0254 ± 0.267 (0.627) C:74% T:89%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	$0.390 \pm 0.494 (0.936)$	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: FD-1 PWS:	Lab ID: 26161210 Site ID:	O9 Collected: 03/13/19 00:00 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.668 ± 0.300 (0.282) C:80% T:NA	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228		1.02 ± 0.464 (0.778) C:76% T:83%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	1.69 ± 0.764 (1.06)	pCi/L	03/28/19 15:28	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-20 PWS:	Lab ID: 26161210 Site ID:	10 Collected: 03/13/19 10:53 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.315 ± 0.254 (0.460) C:83% T:NA	pCi/L	03/25/19 09:49	13982-63-3	
Radium-228		0.223 ± 0.386 (0.843) C:76% T:83%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	0.538 ± 0.640 (1.30)	pCi/L	03/28/19 15:28	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-5 PWS:	Lab ID: 26161210 Site ID:	Collected: 03/13/19 12:33 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.442 ± 0.247 (0.330) C:87% T:NA	pCi/L	03/25/19 10:07	7 13982-63-3	-
Radium-228	EPA 9320	0.179 ± 0.313 (0.684) C:73% T:85%	pCi/L	03/26/19 14:39	9 15262-20-1	
Total Radium		0.621 ± 0.560 (1.01)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: HGWC-7 PWS:	Lab ID: 26161210 Site ID:	Collected: 03/13/19 16:03 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.210 ± 0.199 (0.367) C:79% T:NA	pCi/L	03/25/19 07:59	13982-63-3	
Radium-228		0.193 ± 0.292 (0.630) C:74% T:75%	pCi/L	03/26/19 14:39	15262-20-1	
Total Radium	Total Radium Calculation	0.403 ± 0.491 (0.997)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: HGWC-11 PWS:	Lab ID: 26161210 Site ID:	Collected: 03/13/19 17:34 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.352 ± 0.225 (0.296) C:98% T:NA	pCi/L	03/27/19 09:28	3 13982-63-3	
Radium-228		0.232 ± 0.305 (0.647) C:77% T:78%	pCi/L	03/26/19 14:39	9 15262-20-1	
Total Radium	Total Radium Calculation	0.584 ± 0.530 (0.943)	pCi/L	03/28/19 15:33	3 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

QC Batch: 334699 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616121001, 2616121013

METHOD BLANK: 1628719 Matrix: Water

Associated Lab Samples: 2616121001, 2616121013

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.248 ± 0.200 (0.320) C:97% T:NA
 pCi/L
 03/27/19 09:28

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

QC Batch: 334689 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616121001

METHOD BLANK: 1628695 Matrix: Water

Associated Lab Samples: 2616121001

 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.



QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616121

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

Date: 04/01/2019 03:41 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616121

Date: 04/01/2019 03:41 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2616121001	MW-7	EPA 9315	334699	_	
2616121002	MW-26D	EPA 9315	334698		
2616121003	HGWC-9	EPA 9315	334698		
2616121004	MW-27D	EPA 9315	334698		
616121005	MW-6	EPA 9315	334698		
2616121006	HGWC-10	EPA 9315	334698		
616121007	MW-24D	EPA 9315	334698		
616121008	HGWC-13	EPA 9315	334698		
616121009	FD-1	EPA 9315	334698		
616121010	MW-20	EPA 9315	334698		
616121011	MW-5	EPA 9315	334698		
616121012	HGWC-7	EPA 9315	334698		
2616121013	HGWC-11	EPA 9315	334699		
2616121001	MW-7	EPA 9320	334689		
2616121002	MW-26D	EPA 9320	334688		
616121003	HGWC-9	EPA 9320	334688		
616121004	MW-27D	EPA 9320	334688		
616121005	MW-6	EPA 9320	334688		
616121006	HGWC-10	EPA 9320	334688		
616121007	MW-24D	EPA 9320	334688		
616121008	HGWC-13	EPA 9320	334688		
616121009	FD-1	EPA 9320	334688		
616121010	MW-20	EPA 9320	334688		
616121011	MW-5	EPA 9320	334688		
616121012	HGWC-7	EPA 9320	334688		
616121013	HGWC-11	EPA 9320	334688		
616121001	MW-7	Total Radium Calculation	335990		
2616121002	MW-26D	Total Radium Calculation	335990		
616121003	HGWC-9	Total Radium Calculation	335990		
616121004	MW-27D	Total Radium Calculation	335989		
616121005	MW-6	Total Radium Calculation	335990		
	HGWC-10	Total Radium Calculation			
2616121006			335990		
616121007	MW-24D	Total Radium Calculation	335990		
616121008	HGWC-13	Total Radium Calculation	335990		
616121009	FD-1	Total Radium Calculation	335989		
2616121010	MW-20	Total Radium Calculation	335989		
2616121011	MW-5	Total Radium Calculation	335990		
616121012	HGWC-7	Total Radium Calculation	335990		
616121013	HGWC-11	Total Radium Calculation	335990		



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

RELINGUISHED BY LAFFILLATION STORY (NEW LOCAL PRINT NAME PRINT NAME PRINT NAME SIGNATURE

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

Section C	Altention: scsinvolces@southemco.com	Company Name.			anager. betsy.mcdaniel@pacelabs.com.	Pace Profils #: 327.4 (AP) or 328.5 (Huff)	Processed Analysis Filtered (ViN)	`\	Preservatives > \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \		(oM	0.0	ed (8,98)	Processing of Control	H H H C	₹ ₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹₹		7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	コー・エコー・アック	1 H H	4 1 3			PM: 8M Due Date: 04/11/19	CLIENT: GRPouer-CCR		THIRE SAMPLE CONDITIONS DATE THE SAMPLE CONDITIONS	373 April Marie 2 2 3 13 19 1823		Circles Josephine	-	Ma Consan 2/14/19 124 2:17 7 X	uo O	MP in	- Ca 1/2 1/2 DATE Signed: OK 13 /19 日 日 20 19 19 19 19 19 19 19 19 19 19 19 19 19
Section B	Report To: Joju Abraham / Lauren Petty	!!	- 1	9	Project Name: Plant Hammond			⊢	COLECTED	O-O	ŠŠ ¢ 8∀AS	START END	PDE SA	STRIX CC	Ø DATE TIME DATE TIME	11 12 6 21/2 15-12 12/2 12/21	JAO 3/13 1251 3/15 11 06 10	7:00	3/12 11:77 5/12	3/12/5/5/12	03/4 / 3/13 /	2	13/18				RELINDIASHED BY / AFFILIATION]]	A IST / COMMICE O	11011 11 112 11 1 1 1 1 1 1 1 1 1 1 1 1	13 Rlow/Gent inter 3/14/19		SAMPLER NAME AND SIGNATURE	PRINT Name of SAMPLER:	SIGNATURE of SAMPLER:
	Georgia Power - Coal Combustion Residuals		Atlanta, GA 30339			Requested Due Date Japanesed Tax			XISTOR	Drinking Water	Watter Waste Water Weste Woter Product	SAMPLE ID Softsond	One Character per box. Wipe	ənt		Ot2-MI	J'AN		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		7 1	1			10	24 (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	Z Z						Pa	age 2	24 (

CHAIN-OF-CUSTODY / Analytical Request Document

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

(V/V) Due Date: 04/11/19 SAMPLE CONDITIONS (N/A) Cooler ŏ Custody State / Locallon Regulatory Agency (N/A) 3 MO#:2616121 Received on ð Σ Residual Chlorine (YM) Page: TEMP in C CLIENT: GAPower-CCR 124 3/8/19 20:18 7577 TIME 61/ Requested Analysis Filtered (Y/IA 41/4/12 विभार 5/13 DATE <u>\{ \{ \} \} \</u> 5 0.005 yd etsilu2 ξ 2 Metals (As, B. Co, Mo) DATE Signed: Radium 226/228 beisy modaniel@pacelabs.com, ACCEPTED BY I AFFILIATION Fluoride by 300.0 GESCHALE Park scsinvoices@southernco.com App. IV Metals 2027505 Analysea Test N/A 327.4 (AP) or 328.5 (Huff) Muton Methanol May 8 EOZSZEN Preservatives HOSN Pace Quote:
Pace Project Manager:
Pace Profile #: 327.4. нсв عوان ه Invoice information: orlia 6 ~ HINO3 Attention: SC Company Name POSZH 3018 Section C TIME 5/14/19/11 35 Unpreserved Address: MG 1919 1919 1919 1934 1919 1919 SAMPLER NAME AND SIGNATURE WT 6/3/18/19 12-12/3/13/19/1233 129 4 SHEWATHON TO THE SE PRINT Name of SAMPLER: SIGNATURE of SAMPLER: W 6,2/13/19 1542 3/13/19 (603/63 SAMPLE TEMP AT COLLECTION Histk DATE G19/13/19/1032 3/13/19/1053 S DATE Kolin Martin/ (al surke COLLECTED RELINQUISHED BY / AFFILIATION Beer who Joju Abraham / Lauren Petty TIME SCS10348606 START Purchase Order # SCS103486 Project Name: Plant Hammond DATE Required Project Information: Copy To. Geosyntec (GMOD=D BARD=D) **BAYT BIRMAS** MATRIX CODE (see valid codes to left) Report To: Section B Project #: MATRIX
Denking Water
Water
Water
Water
Product
SourSond
ON
Wipe
Att
Chree Georgia Power - Coal Combustion Residuals 2480 Marter Road ADDITIONAL COMMENTS One Character per box. (A-Z, 0-9 /, -) Sample lds must be unique Email jabraham@southemco.com Phone (404)506-7239 Fax SAMPLE ID コーコのいな Haw C-7 MW-20 Atlanta, GA 30339 なぎっぴ Phone: (404)506-7239 Requested Due Date: Required Client Information: Pace Analytical 9 ما 10 1 Ξ 12 Page 25 of 26 ILEM #

Carried St.				<u> </u>	I
. Pace Anal	tical Client Name:	GCA 1	Powere	Project #	
•			<u>.</u>		16121
	x UPS USPS Client	Commercial	Pace Other	<u> WO# : 26</u>	
Tracking #:	ooler/Box Present: yes [no Seele	intact: yes	PM: BM CLIENT: GAPOI	Due Date: 04/11/
				CETEM!: GHEO!	
	☐ Bubble Wrap ☐ Bubble Bag	. ا			P
Thermometer Use	A . D:	re of Ice: Wet	is Frozen: Yes No		ling process has begun s of person examining
Cooler Temperatu Temp should be abov		diogical rissue	Comments:	contents:	114/19 mg
Chain of Custody P		Yes ONo ON/A	I		
Chain of Custody F		Yes □No □N/A	 		
Chain of Custody R		Mes □No □N/A			
Sampler Name & S		Nes □No □N/A	4.		
Samples Arrived wi		Nes □No □N/A	5.		
Short Hold Time A	nalysis (<72hr):	Yes ⊉No □N/A	6.		
Rush Turn Around	Time Requested:	Yes No ON/A	7.		
Sufficient Volume:	-6	Nes □No □N/A	8.		
Correct Containers	Used: ·⁺□	Nes □No □N/A	9.		
-Pace Containe	s Used:	Nes ONO ON/A			
Containers Intact:		hes Ono On/A	10.		
Filtered volume rec	eived for Dissolved tests	ves DNo .EN/A	11.		
Sample Labels mat	ch COC:	Nes □No □N/A	12.		
-Includes date/ti		W			
All containers needing	treservation have been checked.	hes Ono On/A	13.		
	preservation are found to be in	Nes □No □N/A			
compliance with EPA			Initial when	Lot # of added	
exceptions: VOA, colifo	m, TOC, O&G, WI-DRO (water)	Ives 2140	completed	preservative	
Samples checked f	er dechlorination:	l es ONO ONIA	14.		
Headspace in VOA	Vials (>6mm):	lYes □No <□N/A	15.		
Trip Blank Present:]tes □No ÐNĀ	16.		
Trip Blank Custody]Yes □No ⊕N/A			
Pace Trip Blank Lo	(# (if purchased):				
Client Notification	/ Resolution:			Field Data Require	e? Y/N
Person Conf	tacted:	Date/	Time:		
Comments/ Reso	ution:				
		1			
		+		<u> </u>	
		1			
Project Manage	r Review:	1		Date:	
Note: Whenever the	ne is a discrepancy affecting North Caro	lina compliance sa	mples, a copy of this fo	rm will be sent to the Nor	h Carolina DEHNR
Ondification Office (aut of hold incorrect procentative o	of tomp incorred	t containers)	I	1

F-ALLC003rev.3, 11September2006 Page 26 of 26





March 25, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616161

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 15, 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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta







CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616161

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616161

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616161001	HGWC-12	Water	03/14/19 09:46	03/15/19 13:00	
2616161002	MW-25D	Water	03/14/19 11:41	03/15/19 13:00	
2616161003	MW-19	Water	03/14/19 14:21	03/15/19 13:00	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616161

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616161001	HGWC-12	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616161002	MW-25D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616161003	MW-19	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1



Project: Plant Hammond

Pace Project No.: 2616161

Date: 03/25/2019 08:21 AM

Sample: HGWC-12	Lab ID:	2616161001	Collecte	ed: 03/14/19	09:46	Received: 03/	15/19 13:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:15	03/20/19 23:27	7440-36-0	
Arsenic	0.0026J	mg/L	0.0050	0.00057	1	03/19/19 12:15	03/20/19 23:27	7440-38-2	
Barium	0.081	mg/L	0.010	0.00078	1	03/19/19 12:15	03/20/19 23:27	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/19/19 12:15	03/20/19 23:27	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/19/19 12:15	03/20/19 23:27	7440-43-9	
Chromium	0.0025J	mg/L	0.010	0.0016	1	03/19/19 12:15	03/20/19 23:27	7440-47-3	
Cobalt	0.0011J	mg/L	0.010	0.00052	1	03/19/19 12:15	03/20/19 23:27	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:15	03/20/19 23:27	7439-92-1	
Lithium	0.0058J	mg/L	0.050	0.00097	1	03/19/19 12:15	03/20/19 23:27	7439-93-2	
Molybdenum	0.046	mg/L	0.010	0.0019	1	03/19/19 12:15	03/20/19 23:27	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:15	03/20/19 23:27	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:15	03/20/19 23:27	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Metl	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:24	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	1.1	mg/L	0.30	0.029	1		03/22/19 01:03	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616161

Date: 03/25/2019 08:21 AM

Sample: MW-25D	Lab ID:	2616161002	Collecte	ed: 03/14/19	11:41	Received: 03/	15/19 13:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:15	03/20/19 23:33	7440-36-0	
Arsenic	0.0019J	mg/L	0.0050	0.00057	1	03/19/19 12:15	03/20/19 23:33	7440-38-2	
Barium	0.44	mg/L	0.010	0.00078	1	03/19/19 12:15	03/21/19 15:23	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/19/19 12:15	03/20/19 23:33	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/19/19 12:15	03/20/19 23:33	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:15	03/20/19 23:33	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/19/19 12:15	03/20/19 23:33	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:15	03/20/19 23:33	7439-92-1	
Lithium	0.050	mg/L	0.050	0.00097	1	03/19/19 12:15	03/20/19 23:33	7439-93-2	
Molybdenum	0.0022J	mg/L	0.010	0.0019	1	03/19/19 12:15	03/20/19 23:33	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:15	03/20/19 23:33	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:15	03/20/19 23:33	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:26	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	2.2	mg/L	0.30	0.029	1		03/22/19 01:28	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616161

Date: 03/25/2019 08:21 AM

Sample: MW-19	Lab ID:	2616161003	Collecte	ed: 03/14/19	14:21	Received: 03/	15/19 13:00 Ma	atrix: Water	•
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:15	03/20/19 23:39	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/19/19 12:15	03/20/19 23:39	7440-38-2	
Barium	0.060	mg/L	0.010	0.00078	1	03/19/19 12:15	03/20/19 23:39	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/19/19 12:15	03/20/19 23:39	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/19/19 12:15	03/20/19 23:39	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:15	03/20/19 23:39	7440-47-3	
Cobalt	0.025	mg/L	0.010	0.00052	1	03/19/19 12:15	03/20/19 23:39	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:15	03/20/19 23:39	7439-92-1	
Lithium	0.0089J	mg/L	0.050	0.00097	1	03/19/19 12:15	03/20/19 23:39	7439-93-2	
Molybdenum	0.057	mg/L	0.010	0.0019	1	03/19/19 12:15	03/20/19 23:39	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:15	03/20/19 23:39	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:15	03/20/19 23:39	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 16:37	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.35	mg/L	0.30	0.029	1		03/22/19 01:52	16984-48-8	



Project:

Plant Hammond

Pace Project No.:

2616161

QC Batch: QC Batch Method: 24464

Analysis Method:

EPA 7470A

EPA 7470A

Analysis Description:

ND

7470 Mercury

Associated Lab Samples:

2616161001, 2616161002, 2616161003

METHOD BLANK: 109864 Associated Lab Samples:

Matrix: Water 2616161001, 2616161002, 2616161003

Blank

Reporting

Parameter

Units mg/L Result

Limit

0.00050

MDL

102

0.000036

Analyzed 03/19/19 14:39 Qualifiers

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

109865

Spike Conc.

0.0025

LCS Result

LCS % Rec % Rec Limits

80-120

Qualifiers

Mercury

Mercury

Mercury

Units

mg/L

Units

mg/L

Result

109867

MS

0.0026

MS

MSD

MSD

MS % Rec

MSD % Rec % Rec Limits

Max RPD RPD

Qual 20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

109866

ND

2616120001 Spike

Spike Conc. Conc. 0.0025 0.0025

Result Result 0.0025 0.0025

101

102

75-125

Date: 03/25/2019 08:21 AM

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.



Project: Plant Hammond

Pace Project No.: 2616161

QC Batch: 24594 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616161001, 2616161002, 2616161003

METHOD BLANK: 110479 Matrix: Water

Associated Lab Samples: 2616161001, 2616161002, 2616161003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND ND	0.0030	0.00078	03/20/19 18:52	
Arsenic	mg/L	ND	0.0050	0.00057	03/20/19 18:52	
Barium	mg/L	ND	0.010	0.00078	03/20/19 18:52	
Beryllium	mg/L	ND	0.0030	0.000050	03/20/19 18:52	
Cadmium	mg/L	ND	0.0010	0.000093	03/20/19 18:52	
Chromium	mg/L	ND	0.010	0.0016	03/20/19 18:52	
Cobalt	mg/L	ND	0.010	0.00052	03/20/19 18:52	
Lead	mg/L	ND	0.0050	0.00027	03/20/19 18:52	
Lithium	mg/L	ND	0.050	0.00097	03/20/19 18:52	
Molybdenum	mg/L	ND	0.010	0.0019	03/20/19 18:52	
Selenium	mg/L	ND	0.010	0.0014	03/20/19 18:52	
Thallium	mg/L	ND	0.0010	0.00014	03/20/19 18:52	

EABORATORT CONTROL GAME EL. 110400	LABORATORY	CONTROL	SAMPLE:	110480
------------------------------------	------------	---------	---------	--------

Date: 03/25/2019 08:21 AM

110400					
	Spike	LCS	LCS	% Rec	
Units	Conc.	Result	% Rec	Limits	Qualifiers
mg/L	0.1	0.11	106	80-120	_
mg/L	0.1	0.10	101	80-120	
mg/L	0.1	0.097	97	80-120	
mg/L	0.1	0.10	100	80-120	
mg/L	0.1	0.10	100	80-120	
mg/L	0.1	0.10	102	80-120	
mg/L	0.1	0.10	100	80-120	
mg/L	0.1	0.096	96	80-120	
mg/L	0.1	0.10	101	80-120	
mg/L	0.1	0.098	98	80-120	
mg/L	0.1	0.10	101	80-120	
mg/L	0.1	0.096	96	80-120	
	Units mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/	Units Spike Conc. mg/L 0.1 mg/L 0.1	Units Spike Conc. LCS Result mg/L 0.1 0.11 mg/L 0.1 0.10 mg/L 0.1 0.097 mg/L 0.1 0.10 mg/L 0.1 0.10 mg/L 0.1 0.10 mg/L 0.1 0.096 mg/L 0.1 0.098 mg/L 0.1 0.098 mg/L 0.1 0.10	Units Spike Conc. LCS Result LCS % Rec mg/L 0.1 0.11 106 mg/L 0.1 0.10 101 mg/L 0.1 0.097 97 mg/L 0.1 0.10 100 mg/L 0.1 0.10 100 mg/L 0.1 0.10 102 mg/L 0.1 0.10 100 mg/L 0.1 0.096 96 mg/L 0.1 0.10 101 mg/L 0.1 0.098 98 mg/L 0.1 0.10 101 mg/L 0.1 0.10 101	Units Spike Conc. LCS Result LCS % Rec LCS Limits mg/L 0.1 0.11 106 80-120 mg/L 0.1 0.10 101 80-120 mg/L 0.1 0.097 97 80-120 mg/L 0.1 0.10 100 80-120 mg/L 0.1 0.10 100 80-120 mg/L 0.1 0.10 102 80-120 mg/L 0.1 0.10 100 80-120 mg/L 0.1 0.10 100 80-120 mg/L 0.1 0.096 96 80-120 mg/L 0.1 0.10 101 80-120 mg/L 0.1 0.098 98 80-120 mg/L 0.1 0.098 98 80-120 mg/L 0.1 0.10 101 80-120

MATRIX SPIKE & MATRIX SP	IKE DUPLIC	CATE: 11048	1		110482							
		2616160006	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	% Rec	RPD		Qual
		_ -										
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	100	99	75-125	2	20	
Barium	mg/L	0.026	0.1	0.1	0.11	0.11	86	85	75-125	1	20	
Beryllium	mg/L	0.00017J	0.1	0.1	0.093	0.090	93	90	75-125	4	20	
Cadmium	mg/L	0.00058J	0.1	0.1	0.096	0.097	96	96	75-125	1	20	

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



Project: Plant Hammond

Pace Project No.: 2616161

Date: 03/25/2019 08:21 AM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 11048	1		110482							
Parameter	Units	2616160006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	ND	0.1	0.1	0.10	0.099	99	99	75-125	0	20	
Cobalt	mg/L	0.0099J	0.1	0.1	0.11	0.10	96	95	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.091	0.091	91	91	75-125	0	20	
Lithium	mg/L	0.0061J	0.1	0.1	0.098	0.095	91	89	75-125	3	20	
Molybdenum	mg/L	ND	0.1	0.1	0.093	0.094	93	94	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	103	103	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.091	0.092	91	92	75-125	1	20	

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



Project:

Plant Hammond

Pace Project No.:

2616161

QC Batch:

24743

Analysis Method:

EPA 300.0

QC Batch Method: EPA 300.0 Analysis Description:

300.0 IC Anions

Associated Lab Samples:

2616161001, 2616161002, 2616161003

METHOD BLANK: 111327

Matrix: Water

Associated Lab Samples:

2616161001, 2616161002, 2616161003

Blank Result Reporting

Parameter

Units

Limit

MDL Analyzed Qualifiers

Fluoride

Fluoride

Fluoride

Fluoride

mg/L

Units

mg/L

2616160010

Result

ND

0.30

0.029

03/21/19 21:46

LABORATORY CONTROL SAMPLE:

Parameter

Spike Conc.

MS

Spike

Conc.

10

LCS Result

MSD

Spike

Conc.

10

LCS % Rec % Rec Limits

MS

% Rec

115

Qualifiers

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

111329

ND

111330

10.4

MS

Result

11.5

MSD

Result

11.2

104

MSD

% Rec

120

112

90-110

% Rec

Max RPD RPD Qual

15 M1

MATRIX SPIKE SAMPLE:

Date: 03/25/2019 08:21 AM

Parameter

111331

Parameter Units mg/L

Units

mg/L

2616160011 Result 1.6

10

Spike Conc. 10

MS Result

13.6

MS % Rec

% Rec Limits

Limits

90-110

Qualifiers

90-110 M1

2

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.



QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616161

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

Date: 03/25/2019 08:21 AM

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616161

Date: 03/25/2019 08:21 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616161001	HGWC-12	EPA 3005A	24594	EPA 6020B	24646
2616161002	MW-25D	EPA 3005A	24594	EPA 6020B	24646
2616161003	MW-19	EPA 3005A	24594	EPA 6020B	24646
2616161001	HGWC-12	EPA 7470A	24464	EPA 7470A	24540
2616161002	MW-25D	EPA 7470A	24464	EPA 7470A	24540
2616161003	MW-19	EPA 7470A	24464	EPA 7470A	24540
2616161001	HGWC-12	EPA 300.0	24743		
2616161002	MW-25D	EPA 300.0	24743		
2616161003	MW-19	EPA 300.0	24743		

(N/A) SAMPLE CONDITIONS ... Samples Intact Cooler (Y/N) ŏ Regulatory Agency State / Cocation (N/A) Received on Residual Chlorine (Y/N) 2 4.5 S TEMP IN C 8481 61/h//E 1300 2016 TIME 3/15/19 1129 DATE Signed: 3 14/9 3/14/19 15/19 DATE Sulfate by 300.0 Metals (As, B, Co, Mo) <u>></u> betsy.modaniel@pacelabs.com, Radium 226/228 AHMAN PACE 7 ACCEPTED BY AFFULATION Fluorida by 300.0 scsinvoices@southernco.com slateM VI .qqA Pace Project Manager. betsy modaniel@ N/X feeT seevienA Kusk Other Methanol Na2S2O3 Preservatives HOSN 7 CHAIN-OF-CUSTODY /, The Chain-of-Custody is a LEGAL DC ЮН Invoice Information: EONH company Name: 1 (5, co 2/14/19 1848 下午日 200 Pace Quote: **₱OSZH** Section C 3/15/19 1129 Unpreserved SAMPLER NAME AND SIGNATURE # OF CONTAINERS W. C. PINIA WAS PINIO WALL IT ष्ट Muka (Georgia Hilly) PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION DATE SIGNATURE of SAMPLER: M Golnia 1120 Plyling 1141 C 3/4/4 0135 3/14/19 0946 P T WE 8 DATE COLLECTED Geography RELINCATIONED BY LAFFILLATION Report To: Joju Abraham / Lauren Petty Ę Purchase Order #: SCS10348606 Project Name: Plant Hammond Project #: START Required Project Information: SAMPLE TYPE Man Malla 15 (see Alliid codes to left) **BOOD XIRTAM** Section B Copy To: MATRIX
Drinking Water
Water
Waste Water
Product
Soutiscid
Oil
Wape
All
Tissue Georgia Power - Coal Combustion Residuals (404)506-7239, Fax: 9 Date: Steel ADDITIONAL COMMENTS. One Character per box. (A-Z, 0-9 /, -). Sample ids must be unique Email: jabraham@southernco.com SAMPLE ID 45WC-1 MW-19 Atlanta, GA 30339 Required Client Information: Requested Due Date: Page 14 of 15 . . . # M3TI

WO#:2616161

			Sam	ıple	Cond	lition	Upon Re	ceipt		40#	∷26	316161	L
Pace Anal	vtical"	Client	Name:	GA	Po	يص	<u> دن</u>	R	F	M: BM	-	Due Date:	
•					·				0	LIENT	GAPo	er-CCR	
Courier: Fed I	x 🗌 UPS	S 🗌 USP:	S Client	ф	Comm	ercial	Pace (Other				e Date:	
Custody Seal on (ooler/Box	Present:	☐ yes	V	no no	Seals	intact:] yes		no	Proj. N	me:	
Packing Material:	Bubble	e Wrap	☐ Bubble I	Bags		lone	Other		!				
Thermometer Use	d	Ø83		Туре	of Ice:	Wet	Blue No	ne		Samples	on ice, co	 oling process has b	egun
Cooler Temperatu	re —	4.5	о с.	Biolo	gical 1	Tissue	: is Frozen: `	Yes No		Date	and Initia	s of person exam	ining
Temp should be above							Comments	:		CON	itents: <u>/ S</u>	15/19 JW	
Chain of Custody F	resent:			□ es	i □No	□n/a	1.						
Chain of Custody F	illed Out:			D es	i □No	□n/a	2.						
Chain of Custody F	l Relinquished	d:		□ es	No	□n/a	3.						
Sampler Name & S	ignature on	COC:		□ es	i □No	□n/a	4.						
Samples Arrived w	thin Hold T	ime:		□ es	s □No	□N/A	5.						
Short Hold Time	nalysis (<	72hr):		□Yes	s DANo	□n/a	6.				, ,		
Rush Turn Around	d Time Rec	quested:		□Yes	s ⊠ No	□n/a	7.						
Sufficient Volume:				□ res	s 🗆 No	□n/a	8.						
Correct Containers	Used:			SZ ves	s 🗆 No	□n/a	9.						
-Pace Containe	rs Used:			☐ Yes	s □No	□n/a							
Containers Intact:				Ø ve:	s 🗆 No	□n/a	10.						
Filtered volume red	eived for D	issolved te	ests	□Yes	s 🗆 No	ØÑ/A	11.		į				
Sample Labels ma	ch COC:			☑ e:	s 🗆 No	□n/a	12.						
-Includes date/t	 me/ID/Anal	lysis I	Matrix:	wt									
All containers needing	preservation	have been	checked.	₽	s 🗆 No	□n/a	13.						
All containers needin	r -		d to be in		s 🗆 No	□N/A							
compliance with EPA	recommend	lation.			. LINO		Initial when			1 -1 # -6			
exceptions: VOA, colifo	m, TOC, O&G	G, WI-DRO (v	vater)	□re	s 122No		Initial when completed		İ	Lot # of a preserva			
Samples checked	or dechlorin	nation:		□/e:	s 🗆 No	⊠ Ñ/A	14.						
Headspace in VOA	Vials (>6n	nm):		□ Ye:	s 🗆 No	⊠ N/A	15.						
Trip Blank Present				□re	s 🗆 No	DZN/A	16.						
Trip Blank Custody	Seals Pres	sent		□Ye	s 🗆 No	DN/A	1						j
Pace Trip Blank Lo	t # (if purch	nased):		, .									
Client Notification	/ Resolution	on:			···					Field Dat	ta Require	d? Y /	N
Person Con	ĺ					Date/	Time:						
Comments/ Reso									Ĺ				
	i			_ _					 				
	<u> </u>			_			····						
						····							
Project Manage	r Review:	-								_ [Date:		
Alata, Mikasa are										Ma E			
Note: Whenever the	re is a discre	pancy affer	cung North C	aroima	complia	ance sai	mpies, a copy	or this fol	m wi	ııı be sent	to the Not	ın Carolina DEHNF	ζ

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





April 02, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616168

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 15, 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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616168

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616168

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616168001	HGWC-12	Water	03/14/19 09:46	03/15/19 13:00	
2616168002	MW-25D	Water	03/14/19 11:41	03/15/19 13:00	
2616168003	MW-19	Water	03/14/19 14:21	03/15/19 13:00	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616168

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616168001	HGWC-12	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616168002	MW-25D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616168003	MW-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

Sample: HGWC-12 Lab ID: 2616168001 Collected: 03/14/19 09:46 Received: 03/15/19 13:00 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

•		•				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.327 ± 0.118 (0.142) C:92% T:NA	pCi/L	03/26/19 21:15	13982-63-3	
Radium-228	EPA 9320	0.665 ± 0.471 (0.903) C:79% T:83%	pCi/L	03/27/19 18:19	15262-20-1	
Total Radium	Total Radium Calculation	0.992 ± 0.589 (1.05)	pCi/L	03/28/19 15:44	7440-14-4	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

Sample: MW-25D Lab ID: 2616168002 Collected: 03/14/19 11:41 Received: 03/15/19 13:00 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.552 ± 0.177 (0.228) C:90% T:NA	pCi/L	03/26/19 21:15	13982-63-3	
Radium-228	EPA 9320	0.732 ± 0.732 (1.53) C:74% T:91%	pCi/L	03/27/19 19:43	15262-20-1	
Total Radium	Total Radium Calculation	1.28 ± 0.909 (1.76)	pCi/L	03/28/19 15:44	7440-14-4	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

Sample: MW-19 Lab ID: 2616168003 Collected: 03/14/19 14:21 Received: 03/15/19 13:00 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.347 ± 0.127 (0.158) C:91% T:NA	pCi/L	03/26/19 21:15	13982-63-3	
Radium-228	EPA 9320	-0.259 ± 0.590 (1.41) C:76% T:87%	pCi/L	03/27/19 19:43	15262-20-1	
Total Radium	Total Radium Calculation	0.347 ± 0.717 (1.57)	pCi/L	03/28/19 15:44	7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

QC Batch: 334699 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616168001, 2616168002, 2616168003

METHOD BLANK: 1628719 Matrix: Water

Associated Lab Samples: 2616168001, 2616168002, 2616168003

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.248 ± 0.200 (0.320) C:97% T:NA
 pCi/L
 03/27/19 09:28

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

QC Batch: 334690 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616168001, 2616168002, 2616168003

METHOD BLANK: 1628696 Matrix: Water

Associated Lab Samples: 2616168001, 2616168002, 2616168003

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-228 0.646 ± 0.338 (0.565) C:74% T:86% pCi/L 03/27/19 16:14

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



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616168

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

Date: 04/02/2019 05:08 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616168

Date: 04/02/2019 05:08 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616168001	HGWC-12	EPA 9315	334699		
2616168002	MW-25D	EPA 9315	334699		
2616168003	MW-19	EPA 9315	334699		
2616168001	HGWC-12	EPA 9320	334690		
2616168002	MW-25D	EPA 9320	334690		
2616168003	MW-19	EPA 9320	334690		
2616168001	HGWC-12	Total Radium Calculation	335993		
2616168002	MW-25D	Total Radium Calculation	335993		
2616168003	MW-19	Total Radium Calculation	335993		

The Chain-of-Custody is a LEGAL DOC

CHAIN-OF-CUSTODY / A

Attention: scsinvoices@southemco.com

Report To: Joju Abraham / Lauren Petty

Georgia Power - Coal Combustion Residuals

equired Cilent Information:

Required Project Information:

Section B

10 - W

WO#: 2616168 invoice information:

SAMPLE CONDITIONS Regulatory Agency. State / Location Residual Chlorine (Y/N) 7 2 3/14/10 1840 3/14/19 2026 THE 15/19/1129 Requested Analysis Filtered (Y/N) DATE Sulfate by 300.0 Metals (As. B. Co. Mo) betsy.mcdaniel@pacelabs.com, Redium 226/228 accenter AHMAN > ACCEPTED BY / AFFILIATION Martie report ÑÃ 120T ReavienA 327.4 (AP) or 328.5 (Huff) tertio lonsitieM **Preservatives** Na2S2O3 HORN Pace Project Manager HCI EONH Company Name: 3 21 /Cres 3/14/19 (848) 200 Pace Quote H2SO4 TIME Address: 3/15/19 1129 Unpreserved 9 # OF CONTAINERS <u>a</u> Ċ SAMPLE TEMP AT COLLECTION Malla Meter (George Hiller DATE Simile State T. Ξ END 7/14/19 DATE COLLECTED RELINGUISHED BY LAFFILLATION Mon Geographic C DIMINATE 1 wt Galacha was WIC 3/MIGHTON Purchase Order #: SCS10348606 Project Name: Plant Hammond START DATE SAMPLE TYPE (G-GRAB C-COMP) MATRIX CODE (see valid codes to left) Copy To: MATRIX
Delixing Warter
Waste Wester
Waste Wester
Product
SourSould
Oil
Wape
Wape
Tissue Parker (404)506-7239, Farc (404)506-7239, Farc (404)506-7239, Farc (404)506-7239, Farc (404) One Character per box.
(A-Z, 0-91, -)
Sample Ids must be unique ADDITIONAL COMMENTS jabraham@southemco.com SAMPLE ID +6wc-12 4W-19 2480 Maner Road Atlanta, GA 30339 <u>z</u> 3 2 3 9 9 10 # MaTI

(N/A) Semples Intact

> (Y/N) pelses

(N/A) Received on

PATE Signed: 3 14 19

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SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

Page 12 of 1B

2

TEMP IN C

بر پې

1300

31151

PACE



	Sam	iple	Conc	lition	Upon Receipt		MO#	:2	616168	
Face Anal	vtical Client Name:	G	4 Po	wes	-ccr		PM: BM CLIENT:		Due Date: 04/12	19
Courier: Fed E	x UPS USPS Client		Comm	ercial	Pace Other Courier	-		mj. Di	e Date:	
Custody Seal on C	ooler/Box Present:	4	no	Seals	intact:		no 🗓	ioj. įve		
Packing Material:	☐ Bubble Wrap ☐ Bubble 8	Bags	☑ N	lone	Other					
Thermometer Use	d <u>Ø</u> 83	Туре	of Ice:	Wet	Blue None		Samples on	ice, co	ling process has begun	
Cooler Temperatu Temp should be abov		Biol	ogical 1	Tissue	is Frozen: Yes No Comments:				s of person examining	
Chain of Custody P		DV6	s 🗆 No	□N/A	r	 	<u> </u>			
Chain of Custody F			s 🗆 No		i					
Chain of Custody R			s 🗆 No							
Sampler Name & S			s □No							
Samples Arrived wi	thin Hold Time:		s 🗆 No		-					
Short Hold Time A	nalysis (<72hr):	□√e	s Danio	□n/a	6.					
Rush Turn Around	Time Requested:		s PNo							
Sufficient Volume:		Ū te	s 🗆 No	□n/a	8.	1				
Correct Containers	Used:	⊠	s 🗆 No	□n/a	9.					
-Pace Container	s Used:		, s □No	□n/a		:				
Containers Intact:		⊠ %e	s 🗆 No	□n/a	10.					
Filtered volume rec	eived for Dissolved tests	□Ye	s 🗆 No	ØÑ/A	11.					
Sample Labels mate	ch COC:	Ø ∀ e:	s 🗆 No	□n/A	12.					
-Includes date/til	me/ID/Analysis Matrix:	NT								
All containers needing [preservation have been checked.	52 √ e	s 🗆 No	□n/a	13.					
All containers needing compliance with EPA	preservation are found to be in ecommendation.	™ e:	s 🗆 No					<u>.</u>		
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	□Ye	s 121/10		Initial when completed		Lot # of adde preservative			
Samples checked fo	or dechlorination:	□Ye	s 🗆 No	₩A	14.					
Headspace in VOA	Vials (>6mm):	□Yes	s 🗆 No	™ N/A	15.					
Trip Blank Present:		□Ye	s 🗆 No	DEN/A	16.	!				
Trip Blank Custody	Seals Present		s 🗆 No	DN/A						
Pace Trip Blank Lot	# (if purchased):									
Client Notification	Resolution:			-		 	Field Data R	equired	? Y / N	
Person Conta	acted:			Date/1	Time:					
	ution:									
						-				
						-				
						 				
Project Manager	Review:						Date	e:		
Vote: Whanavar than	ie a diegrananau offaction North Co-		aar-1!-						0	
Certification Office (i.e	is a discrepancy affecting North Cal out of hold, incorrect preservative,	out of	complian temp, in	ice sam correct	pies, a copy of this for containers)	n will	De sent to th	ne North	Carolina DEHNR Page 13 of 1	β





March 25, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616230

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 18, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Eben Buchanan for

Betsy McDaniel

Eben Bustanan

betsy.mcdaniel@pacelabs.com

(770)734-4200

Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Lauren Petty, Southern Company Services, Inc. Rebecca Thornton, Pace Analytical Atlanta







CERTIFICATIONS

Project: Plant Hammond Pace Project No.: 2616230

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





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616230

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616230001	FB-02	Water	03/15/19 14:50	03/18/19 12:00



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616230

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616230001	FB-02	EPA 6020B	CSW	13
		EPA 7470A	DRB	1
		EPA 300.0	RLC	2



Project: Plant Hammond

Pace Project No.: 2616230

Date: 03/25/2019 07:53 PM

Sample: FB-02	Lab ID:	2616230001	Collecte	ed: 03/15/19	14:50	Received: 03/	18/19 12:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/20/19 14:34	03/21/19 23:21	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/20/19 14:34	03/21/19 23:21	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/20/19 14:34	03/21/19 23:21	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/20/19 14:34	03/21/19 23:21	7440-41-7	
Boron	0.011J	mg/L	0.040	0.0039	1	03/20/19 14:34	03/21/19 23:21	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/20/19 14:34	03/21/19 23:21	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/20/19 14:34	03/21/19 23:21	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/20/19 14:34	03/21/19 23:21	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/20/19 14:34	03/21/19 23:21	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/20/19 14:34	03/21/19 23:21	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/20/19 14:34	03/21/19 23:21	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/20/19 14:34	03/21/19 23:21	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/20/19 14:34	03/21/19 23:21	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/25/19 08:02	03/25/19 13:58	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		03/24/19 17:35	16984-48-8	
Sulfate	ND	mg/L	1.0	0.017	1		03/24/19 17:35	14808-79-8	



EPA 7470A

7470 Mercury

Project: Plant Hammond

Pace Project No.: 2616230

Date: 03/25/2019 07:53 PM

QC Batch: 24983 Analysis Method:
QC Batch Method: EPA 7470A Analysis Description:

Associated Lab Samples: 2616230001

METHOD BLANK: 112752 Matrix: Water

Associated Lab Samples: 2616230001

Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury mg/L ND 0.00050 0.000036 03/25/19 12:52

LABORATORY CONTROL SAMPLE: 112753

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Mercury mg/L 0.0025 0.0023 94 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 112754 112755

MS MSD

2616228001 Spike Spike MS MSD MS MSD % Rec M

Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual ND 0.0025 0.0025 0.0023 0.0024 75-125 3 20 Mercury mg/L 92 95

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.



Project: Plant Hammond

Pace Project No.: 2616230

Date: 03/25/2019 07:53 PM

QC Batch: 24707 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616230001

METHOD BLANK: 111121 Matrix: Water

Associated Lab Samples: 2616230001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/21/19 19:09	
Arsenic	mg/L	ND	0.0050	0.00057	03/21/19 19:09	
Barium	mg/L	ND	0.010	0.00078	03/21/19 19:09	
Beryllium	mg/L	ND	0.0030	0.000050	03/21/19 19:09	
Boron	mg/L	ND	0.040	0.0039	03/21/19 19:09	
Cadmium	mg/L	ND	0.0010	0.000093	03/21/19 19:09	
Chromium	mg/L	ND	0.010	0.0016	03/21/19 19:09	
Cobalt	mg/L	ND	0.010	0.00052	03/21/19 19:09	
Lead	mg/L	ND	0.0050	0.00027	03/21/19 19:09	
Lithium	mg/L	ND	0.050	0.00097	03/21/19 19:09	
Molybdenum	mg/L	ND	0.010	0.0019	03/21/19 19:09	
Selenium	mg/L	ND	0.010	0.0014	03/21/19 19:09	
Thallium	mg/L	ND	0.0010	0.00014	03/21/19 19:09	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Intimony	mg/L	0.1	0.11	107	80-120	
rsenic	mg/L	0.1	0.10	104	80-120	
arium	mg/L	0.1	0.10	103	80-120	
eryllium	mg/L	0.1	0.099	99	80-120	
Boron	mg/L	1	1.0	100	80-120	
Cadmium	mg/L	0.1	0.10	105	80-120	
Chromium	mg/L	0.1	0.11	106	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
ead	mg/L	0.1	0.10	101	80-120	
ithium	mg/L	0.1	0.10	101	80-120	
1olybdenum	mg/L	0.1	0.11	108	80-120	
Selenium	mg/L	0.1	0.10	105	80-120	
hallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	CATE: 111123	3		111124							
Parameter	Units	2616193001 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	0.11	0.11	107	106	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	103	105	75-125	2	20	
Barium	mg/L	0.028	0.1	0.1	0.13	0.13	101	100	75-125	1	20	

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



Project: Plant Hammond

Pace Project No.: 2616230

Date: 03/25/2019 07:53 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	ATE: 111123	3		111124							
Parameter	Units	2616193001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Beryllium	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20	
Boron	mg/L	0.0070J	1	1	0.96	0.99	95	98	75-125	3	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20	
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.098	0.096	97	96	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	107	105	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	105	103	75-125	2	20	
Thallium	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	1	20	

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



Project:

Plant Hammond

Pace Project No.:

2616230

QC Batch:

24985

QC Batch Method:

EPA 300.0

Analysis Method:

EPA 300.0

Analysis Description:

Matrix: Water

300.0 IC Anions

Associated Lab Samples: METHOD BLANK: 112760

2616230001

Associated Lab Samples: 2616230001

Parameter

Blank Result Reporting

Limit

MDL

Analyzed

Qualifiers

Fluoride Sulfate

mg/L mg/L

Units

Units

2616191001

Result

ND ND 0.30 1.0 0.029 0.017 03/24/19 14:11 03/24/19 14:11

LABORATORY CONTROL SAMPLE:

Parameter

Date: 03/25/2019 07:53 PM

Parameter

112761

Spike Conc.

Conc.

LCS LCS Result % Rec % Rec Limits

Qualifiers

Fluoride Sulfate

Fluoride

Sulfate

mg/L mg/L

Units

mg/L

mg/L

10 10 9.9 9.4 99 94 90-110 90-110

MSD

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

Conc.

112763

MS

Result

9.0

28.9

95

72

112762

ND

22.0

MSD MS Spike

10

10

Spike

10

10

MSD

Result

9.5

29.2

MS % Rec

90

69

% Rec % Rec Limits

RPD RPD 90-110

Qual 5 15 90-110 15 M1

Max

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.



QUALIFIERS

Project: Plant Hammond Pace Project No.: 2616230

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

Date: 03/25/2019 07:53 PM

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616230

Date: 03/25/2019 07:53 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616230001	FB-02	EPA 3005A	24707	EPA 6020B	24750
2616230001	FB-02	EPA 7470A	24983	EPA 7470A	25042
2616230001	FB-02	EPA 300.0	24985		

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

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- Face Ana.	<i>lytical</i> Client Name: _	GIA 1	Power	Project #	
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Custody Seal on	Cooler/Box Present: yes	no Seals	intact:	PM: BM CLIENT: GAP	Due Date: 03/25/ suer-CCR
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Thermometer Use		pe of Ice: Wet	Blue None	Samples on ice, co	oling process has begun
Cooler Temperatu	ire 4.2 Bi	ological Tissue	is Frozen: Yes No		s of person examining
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Chain of Custody F	resent:	Yes □No □N/A	1.		
Chain of Custody F	filled Out:	Yes □No □N/A	2.		
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exceptions: VOA, colifo	ım, TOC, O&G, WI-DRO (water)	res 🗆 No	Initial when completed	Lot # of added preservative	
Samples checked t	for dechlorination:	Yes □No -21N/A	14.		
Headspace in VOA	Vials (>6mm): □	Ves □No ,□NVĀ	15.		
Trip Blank Present		Yes □No ☑N/A	16.		
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Project Manage	r Review:			Date:	
	re is a discrepancy affecting North Caroli be out of hold, incorrect preservative, ou			rm will be sent to the Nort	h Carolina DEHNR

F-ALLC003rev.3, 11September 2008 of 13





April 10, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616231

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 18, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616231

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





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616231

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616231001	FB-02	Water	03/15/19 14:50	03/18/19 12:00



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616231

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616231001	FB-02	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616231

Sample: FB-02 PWS:	Lab ID: 26162310 Site ID:	O1 Collected: 03/15/19 14:50 Sample Type:	Received:	03/18/19 12:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.285 ± 0.233 (0.397) C:91% T:NA	pCi/L	03/27/19 08:15	13982-63-3	
Radium-228		0.313 ± 0.326 (0.671) C:70% T:84%	pCi/L	03/29/19 14:37	7 15262-20-1	
Total Radium	Total Radium Calculation	0.598 ± 0.559 (1.07)	pCi/L	04/02/19 13:34	1 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

EPA 9320

Project: Plant Hammond

Pace Project No.: 2616231

QC Batch: 334703

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616231001

METHOD BLANK: 1628726 Matrix: Water

Associated Lab Samples: 2616231001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.496 ± 0.336 (0.636) C:77% T:84%
 pCi/L
 03/29/19 11:27

Analysis Method:

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.



QUALITY CONTROL - RADIOCHEMISTRY

EPA 9315

Project: Plant Hammond

Pace Project No.: 2616231

QC Batch: 334701

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

Associated Lab Samples: 2616231001

METHOD BLANK: 1628722 Matrix: Water

Associated Lab Samples: 2616231001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.317 ± 0.219 (0.286) C:97% T:NA
 pCi/L
 03/27/19 08:17

Analysis Method:

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.



QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616231

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

Date: 04/10/2019 05:20 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616231

Date: 04/10/2019 05:20 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616231001	FB-02	EPA 9315	334701		
2616231001	FB-02	EPA 9320	334703		
2616231001	FB-02	Total Radium Calculation	336613		

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

Section A		Section B	1	1				S S	Section C	Section C	į										Page			ŏ	_
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Phone	(404)506-7239 Fax	Project Name:	Plant	Plant Hammond				ă d	Pace Project N	Pace Project Managar.	ager.	ger. betsy.mcdaniel@	betsy modaniel@pacelabs.com	ed s	celabs	Ē					2	A C	anous co	4, 50 february	
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Custody Seal on C	Cooler/Box Present: yes	⇉،	по	Seals	intact: yes	`	LIENT: GAPou	
Packing Material:	☐ Bubble Wrap ☐ Bubble Ba	a s		one [Other			
Thermometer Use	d 83 T	/pe	of Ice:	Wel	Blue None		Samples on ice, coo	ling process has begun
Cooler Temperatu	16.2			_	is Frozen: Yes No		Date and Initial	of person examining
Temp should be above			•		Comments:		contents:	1/18/19 mg
Chain of Custody F	resent:	Nes	□No	□N/A	1.			
Chain of Custody F		Nes	□No	□n/a	2.			
Chain of Custody R		res	□No	□n/a	3.			
Sampler Name & S		1_	□No					
Samples Arrived w			□No					
Short Hold Time	nalysis (<72hr):] Yes	₽ √0	□n/a	6.			
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Sufficient Volume:	i	1	□No					
Correct Containers	Used: -{	3 res	□No	□n/a	9.			
-Pace Containe	rs Used:	J Ves	No	□n/a				
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exceptions: VOA, colifo	rm, TOC, O&G, WI-DRO (water)	⊐Yes	S UNO		Initial when completed		Lot # of added preservative	
Samples checked	for dechlorination:	Ye:	s 🗆 No	₽N/A	14.			
Headspace in VOA	Vials (>6mm):	Ye	s 🗆 No	,D I N/A	15.			
Trip Blank Present		Ye	s 🗆 No	ĐNA	16.			
Trip Blank Custody	Seals Present	_ _Ye:	s 🗆 No	Æ N/A				
Pace Trip Blank Lo	ot # (if purchased):							
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Note: Whenever the	ere is a discrepancy affecting North Ca	olina	compli	ance sa	mples, a copy of this f	orm v	will be sent to the No	th Carolina DEHNR

F-ALLC003rev.3, 11September 2006 of 1

First Semiannual Sampling Event April 2019





April 09, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616885

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 02, 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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta







CERTIFICATIONS

Project: Plant Hammond Pace Project No.: 2616885

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





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616885

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616885001	HGWA-3	Water	04/01/19 17:25	04/02/19 11:30



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616885

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616885001	HGWA-3	EPA 6020B	CSW	14
		SM 2540C	RLC	1
		EPA 300.0	RLC	3



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616885

Date: 04/09/2019 02:37 PM

Sample: HGWA-3	Lab ID:	2616885001	Collecte	ed: 04/01/19	17:25	Received: 04/	02/19 11:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 14:47	04/08/19 18:46	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 14:47	04/08/19 18:46	7440-38-2	
Barium	0.13	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 18:46	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 18:46	7440-41-7	
Boron	0.0066J	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 18:46	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 18:46	7440-43-9	
Calcium	80.5	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 18:52	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 18:46	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 14:47	04/08/19 18:46	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 14:47	04/08/19 18:46	7439-92-1	
Lithium	0.0032J	mg/L	0.050	0.00097	1	04/05/19 14:47	04/08/19 18:46	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 14:47	04/08/19 18:46	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 14:47	04/08/19 18:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 14:47	04/08/19 18:46	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	284	mg/L	25.0	10.0	1		04/04/19 17:45		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	6.5	mg/L	0.25	0.024	1		04/06/19 01:13	16887-00-6	M1
Fluoride	0.029J	mg/L	0.30	0.029	1		04/06/19 01:13	16984-48-8	
Sulfate	50.4	mg/L	10.0	0.17	10		04/08/19 20:01	14808-79-8	M1



Project: Plant Hammond

Pace Project No.: 2616885

Parameter

Date: 04/09/2019 02:37 PM

Antimony

Units

mg/L

Result

ND

Conc.

0.1

QC Batch: 25905 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616885001

METHOD BLANK: 116813 Matrix: Water

Associated Lab Samples: 2616885001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND ND	0.0030	0.00078	04/08/19 18:23	
Arsenic	mg/L	ND	0.0050	0.00057	04/08/19 18:23	
Barium	mg/L	ND	0.010	0.00078	04/08/19 18:23	
Beryllium	mg/L	ND	0.0030	0.000050	04/08/19 18:23	
Boron	mg/L	ND	0.040	0.0039	04/08/19 18:23	
Cadmium	mg/L	ND	0.0010	0.000093	04/08/19 18:23	
Calcium	mg/L	ND	0.50	0.014	04/08/19 18:23	
Chromium	mg/L	ND	0.010	0.0016	04/08/19 18:23	
Cobalt	mg/L	ND	0.010	0.00052	04/08/19 18:23	
Lead	mg/L	ND	0.0050	0.00027	04/08/19 18:23	
Lithium	mg/L	ND	0.050	0.00097	04/08/19 18:23	
Molybdenum	mg/L	ND	0.010	0.0019	04/08/19 18:23	
Selenium	mg/L	ND	0.010	0.0014	04/08/19 18:23	
Thallium	mg/L	ND	0.0010	0.00014	04/08/19 18:23	

LABORATORY CONTROL SAMPLE:	116814	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.11	108	80-120	
Arsenic	mg/L	0.1	0.10	103	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Boron	mg/L	1	1.0	105	80-120	
Cadmium	mg/L	0.1	0.11	109	80-120	
Calcium	mg/L	1	1.0	104	80-120	
Chromium	mg/L	0.1	0.11	108	80-120	
Cobalt	mg/L	0.1	0.11	107	80-120	
Lead	mg/L	0.1	0.10	103	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	
Molybdenum	mg/L	0.1	0.11	105	80-120	
Selenium	mg/L	0.1	0.11	106	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	
MATRIX SPIKE & MATRIX SPIKE DU	PLICATE: 11681		116816 MSD	3		
	2616901004		Spike MS	MSD	MS MS	D % Rec M

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.

0.1

Result

0.11

Result

0.11

% Rec

110

% Rec

107

Limits

75-125

RPD RPD

3 20

Conc.

REPORT OF LABORATORY ANALYSIS

Qual



Project: Plant Hammond

Pace Project No.: 2616885

Date: 04/09/2019 02:37 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 11681	5		116816							
			MS	MSD								
		2616901004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Barium	mg/L	0.027	0.1	0.1	0.13	0.13	105	100	75-125	4	20	
Beryllium	mg/L	0.00015J	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Boron	mg/L	0.63	1	1	1.6	1.6	102	101	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.10	105	105	75-125	0	20	
Calcium	mg/L	11.9J	1	1	13.1J	17.2J	129	532	75-125	27	20	M6,R1
Chromium	mg/L	0.0030J	0.1	0.1	0.11	0.11	106	106	75-125	0	20	
Cobalt	mg/L	0.0022J	0.1	0.1	0.11	0.10	103	101	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.10	102	101	75-125	0	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	

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



Project:

Associated Lab Samples:

Plant Hammond

Pace Project No.:

2616885

QC Batch:

25772

QC Batch Method:

SM 2540C

2616885001

Analysis Method:

SM 2540C

Analysis Description:

2540C Total Dissolved Solids

LABORATORY CONTROL SAMPLE:

Parameter

Spike

LCS

LCS

% Rec

Limits

Qualifiers

Total Dissolved Solids

Units mg/L Conc. 400 Result 403 % Rec 101

SAMPLE DUPLICATE: 116266

Units

2616783001 Result

Dup Result

RPD

Max RPD

84-108

Qualifiers

Parameter **Total Dissolved Solids**

Date: 04/09/2019 02:37 PM

mg/L

87.0

115

28

10 D6

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



Project: Plant Hammond

Pace Project No.: 2616885

QC Batch: 25881 QC Batch Method: EPA 300.0

2171000.0

Analysis Method:

EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2616885001

METHOD BLANK: 116727

Date: 04/09/2019 02:37 PM

Matrix: Water

Associated Lab Samples: 2616885001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.069J	0.25	0.024	04/05/19 23:23	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 23:23	
Sulfate	mg/L	0.028J	1.0	0.017	04/05/19 23:23	

Chloride	mg/L	10	10.3	103	90-110	222/11010
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
		Spike	LCS	LCS	% Rec	
LABORATORY CONTROL SAMPLE:	116728					

Fluoride mg/L 10 10.3 103 90-110
Sulfate mg/L 10 10.1 101 90-110

MATRIX SPIKE & MATRIX SPI	KE DUPLIC	ATE: 116729	9		116730							
			MS	MSD								
		2616881001	Spike	Spike	MS	MSD	MS	MSD	% Rec	N	Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD R	RPD	Qual
Chloride	mg/L	4.0	10	10	13.8	13.7	99	97	90-110		15	

Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qua
Chloride	mg/L	4.0	10	10	13.8	13.7	99	97	90-110	1	15	
Fluoride	mg/L	0.042J	10	10	10.0	9.9	100	99	90-110	1	15	
Sulfate	mg/L	1.7	10	10	11.4	11.4	97	96	90-110	1	15	

MATRIX SPIKE SAMPLE:	116731						
_		2616885001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	6.5	10	15.5	89	90-110	M1
Fluoride	mg/L	0.029J	10	9.5	95	90-110)
Sulfate	mg/L	50.4	10	54.7	43	90-110	E,M1

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



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616885

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

Date: 04/09/2019 02:37 PM

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

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

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

R1 RPD value was outside control limits.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616885

Date: 04/09/2019 02:37 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616885001	HGWA-3	EPA 3005A	25905	EPA 6020B	25922
2616885001	HGWA-3	SM 2540C	25772		
2616885001	HGWA-3	EPA 300.0	25881		

Pace Anabrical

CHAIN-OF-CUSTODY / Analytical Request Document

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

(V/V) Samples (N/A) ŏ Cooler Sealed (possng (N/A) MO#:2616885 80 B Received on Residual Chlorine (Y/V) TEMP in C 4/2/19/0930 9501 <u>a</u> I Radium 226/228 (200 DATE Signed: 108, Cl. F, SO4 betsy modaniel@pacetabs.com (O.80 & III .qqA) sisteM Mets (App. III, App. IV, D&O Parle Vetals (App. III & App. IV) deeT seavisnA **MIX** vuention: sosirvoices@southernco.com Company Name: 7 05 ENS 327 (AP) or 328 (Huff) lonerieM SIGNATURE OF SAMPLER: MELLIC MINN MAN Preservatives ROZSZEN HOBN Q Pace Quote:
Pace Project Manager:
Pace Profile #: 327 (4) HCI involce information: PRINT Name of SAMPLER: NOE / A <u>ন</u> EONH HS2O4 Section C 1036 Address: Unpreserved # OF CONTAINERS Q SAMPLE TEMP AT COLLECTION T 28 M/1/4851 TIME 2 DATE COLLECTED 500 TIME Lauren Petty, Geosyntec Purchase Order #: SC\$10348606 Project Name: Plant Hammond Project #: dia Muhn START <u>র</u> ই DATE Required Project Information: SAMPLE TYPE (G-GRAS C-COMP) andos MATRIX CODE (see valid codes to left) Report To: Copy To: Apoendik IV (1): Infimony, Amenic, Ban Benjimm, Codmium, Chromium, Cobalt, Hund MATRIX
Delinking Water
Delinking Water
Waste Water
Product
SourSoled
On
Wipe
Mipa
All
Chare
Thasee within , Moly Adenim , Selenium, Thalism Georgia Power - Coal Combustion Residuals 2480 Maner Road One Character per box.
(A-Z, 0-9 /, -)
Sample Ids must be unique Phone: (404)506-7239 Fax Requested Due Date: 2 And and SAMPLE ID Email: __jabraham@southemco.com Required Client Information: ا ج ا Allanta, GA 30339 É Page 12 of 1B ITEM #

	Sample	≘ Conditio	n Upon Receipt		
Face Anal			Power	Project #	
Courier: Fed E	x UPS USPS Client [,	•	WO# : 26	16885
Custody Seal on C	ooler/Box Present:	no Seal	s intact: yes	PM: BM CLIENT: GAPOI	Due Date: 04/09/:
a contract of the contract of	☐ Bubble Wrap ☐ Bubble Bags	None	Other	COLIENT: CAPO	IBF-CCK
			Blue None	Samples on ice, coo	ing/process has begun
Cooler Temperatul Temp should be above		logical Tissue	is Frozen: Yes No Comments:	Date and Initial contents:	of person examining
Chain of Custody Pr	esent:	s □no □n/a	1.		
Chain of Custody Fi	led Out:	S ONO ON/A	2.		
Chain of Custody Re	J	s 🗆 No 🗆 N/A	†		
Sampler Name & Si		S □No □N/A			
Samples Arrived wit		s 🗆 No 🗆 N/A	† 		
Short Hold Time Ar		s ⊠No □N/A			
Rush Turn Around		s ONO ON/A			
Sufficient Volume:		S DNO DN/A			
Correct Containers (s ONO ON/A			
-Pace Containers		S ONO ON/A	9.		
Containers Intact:		s ONO ON/A	40		
Sample Labels matc		s ONO -ON/A		<u> </u>	
-Includes date/tim	-	s DNO DN/A	12.		
All containers needing pr	eservation have been checked				
All containers needing p	preservation are found to be in		13.		
compliance with EPA re	Commendation.		Initial when	Lot # of added	
			completed	preservative	
Samples checked for		ONO DATA		<u> </u>	
Headspace in VOA V	ials (>6mm): □Ye	No DNA	15.		
Trip Blank Present:		□No ÆNÆ	16.	i	
Trip Blank Custody S		□No ÆN/A			
Pace Trip Blank Lot #	(if purchased):				
Client Notification/	Resolution:			Field Data Required?	Y / N
Person Contac	ted:	Date/7	ime:		, , ,,
Comments/ Resolu	ion:				
		·			
Project Manager (Review:			Date:	
Note: Whenever there i Certification Office (i.e	s a discrepancy affecting North Carolina out of hold, incorrect preservative, out of	compliance sam temp, incorrect	ples, a copy of this form containers)	will be sent to the North C	arolina DEHNR





April 25, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616886

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 02, 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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616886

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 Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617 New Jersey/TNI Certification #: PA051

New Jersey FNI Certification #: PA05 New Mexico Certification #: PA01457 New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Ohio EPA Rad Approval: #41249

Missouri Certification #: 235

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





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616886

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616886001	HGWA-3	Water	04/01/19 17:25	04/02/19 11:30



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616886

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616886001	HGWA-3	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond Pace Project No.: 2616886

Calculation

Sample: HGWA-3 PWS:	Lab ID: 26168 Site ID:	86001 Collected: 04/01/19 17:25 Sample Type:	Received:	04/02/19 11:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.388 ± 0.261 (0.385) C:94% T:NA	pCi/L	04/12/19 08:04	4 13982-63-3	
Radium-228	EPA 9320	0.372 ± 0.422 (0.887) C:75% T:83%	pCi/L	04/16/19 16:2	1 15262-20-1	
Total Radium	Total Radium	0.760 ± 0.683 (1.27)	pCi/L	04/17/19 13:1	5 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616886

QC Batch: 337341 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616886001

METHOD BLANK: 1641952 Matrix: Water

Associated Lab Samples: 2616886001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.438 ± 0.343 (0.679) C:77% T:88%
 pCi/L
 04/16/19 13:06

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



QUALITY CONTROL - RADIOCHEMISTRY

EPA 9315

Project: Plant Hammond

Pace Project No.: 2616886

QC Batch: 337391

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

Associated Lab Samples: 2616886001

METHOD BLANK: 1642068 Matrix: Water

Associated Lab Samples: 2616886001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.148 ± 0.194 (0.401) C:93% T:NA
 pCi/L
 04/12/19 08:12

Analysis Method:

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616886

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

Date: 04/25/2019 04:14 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616886

Date: 04/25/2019 04:14 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616886001	HGWA-3	EPA 9315	337391		
2616886001	HGWA-3	EPA 9320	337341		
2616886001	HGWA-3	Total Radium Calculation	338683		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) utsa Sambles Section (Section () Alberta () (N/A) Cooler ŏ pelees Custody (N/A) WO#:2616886 Received on Residual Chlorine (Y/V) Page: TEMP IN C 20 4/2/19/09:30 950 6 119 T (200) Redium 226/228 DATE Signed: TDS, CI, F, SO4 (O&C & III .qqA) elstaM betsy.mcdaniel@pacelabs.com monn O&G ,VI .qqA ,III .qqA) staN Pere F(VI .qqA & III .qqA) sleteM ENK Jeel AesylenA Attention: scsinvoices@southernco.com Company Name: Plussus 327 (AP) or 328 (Huff) SIGNATURE OF SAMPLER: Madig My MIND lonshieM Preservatives ROSSZBN Q HOBN Pace Quote: Pace Project Manager: Pace Profile #: 327 (A ЮН Invoice Information: PRINT Name of SAMPLER: NOE / A A **ЕО**ИН HS204 でなっ Section C Address: B Devieserdau S OF CONTAINERS B 5/7/ SAMPLE TEMP AT COLLECTION 村 25 120 1/1/2 St 12/1/2 EN D DATE COLLECTED 200 : lahun/ (200 RELINDUSKED BY LAFFLUKTON TIME Report To: Joju Abraham Copy To: Lauren Petty, Geosyntec Purchase Order #. SCS10348606 man START Plant Hammond Required Project Information: Notia M arsox (G=GRAB C=COMP) **34YT 3J4MA2** 5 Project Name: Project #: 3 MATRIX CODE (see valid codes to left) Section B Beaglion, Codmium, Chromium, Cobalt, Hund Apoendik IV (1): Intimony, Arenic .Baw MATRIX
Diresting Water
Water
Waste Water
Waste Water
Product
Solubosid
Oil
Wipe
Ant
Other
Tissue athium, Holy Adenum, Selenium, Thalium Georgia Power - Coal Combustion Residuals TAT (A.Z, 0-9 /, -) Sample Ids must be unique One Character per box. Phone: (404)506-7239 Fax Requested Due Date: 3 and and SAMPLE ID Eneit ptrehen@southenco.com 2480 Maner Road するのよ Required Client Information: Manta, GA 30339 Page 10 of 1 # WBTI

		111,576	oonan	1011	opon receipt	i		
Face Analy	<i>rtical</i> Client Name	»:	G1 F	٧	Power		Project #	
Courier: Fed E	x 🗆 UPS 🗆 USPS 🗀 Clie				•			516886
	ooler/Box Present: Ves		no S	عادم	intact: yes		PM: BM CLIENT: GAP	Due Date: 04/30
	☐ Bubble Wrap ☐ Bubble				•	_	CETEMI: OH!	
Thermometer Use	2 4	-			Blue None		Comples on ice co	ling/process has begun
Cooler Temperatu			•		is Frozen: Yes No		Date and Initial	s of person examining
Temp should be above			- 5.0 <u>-</u>		Comments:		contents: 4	12/19 M2
Chain of Custody P	resent:		No []N/A	1.	Ħ		
Chain of Custody F	lled Out:		No []N/A	2.			
Chain of Custody R	elinquished:	, 2mes	No □]N/A	3.		İ	
Sampler Name & Si	gnature on COC:		PNo D	_				
Samples Arrived with	thin Hold Time:	∠ 2769	. □No □]N/A	5.			
Short Hold Time A	nalysis (<72hr):	□Yes	: 2No □]N/A	6.			
Rush Turn Around	Time Requested:	□Yes	: □ (]N/A	7.			
Sufficient Volume:		-21%	□No □]n/a	8.		;	
Correct Containers	Used:	-EY	No C]N/A	9.			
-Pace Container	s Used:	-276	No □]N/A				
Containers Intact:		.⊒1	ONO D]N/A	10.			
Filtered volume reco	aived for Dissolved tests	□Yes	s □No -E	A/A	11.		i	
Sample Labels mate	h COC:		. □Nº □	A/N[12.			
-Includes date/tir	ne/ID/Analysis Matrix:		ω_{-}					
All containers needing p	reservation have been checked.	£279:	DNO D	A/A	13.			
All containers needing compliance with EPA	preservation are found to be in ecommendation.	٩	T□No □	3n/a	1-12-1-1			
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	□Yes	No		Initial when completed		Lot # of added preservative	
Samples checked for	r dechlorination:	□Yes	o □No [JN/A¹	14.		:	
Headspace in VOA	Vials (>6mm):	□Yes	s □No 万	JW/A	15.			
Trip Blank Present:		□Yes	s □No Æ	A/AC	16.			
Trip Blank Custody	Seals Present	□Yes	s □no Æ	N/A				
Pace Trip Blank Lot	# (if purchased):	_				-		
Client Notification	Resolution:						Field Data Required	? Y / N
Person Conta			D	ate/1	lime:		!	
Comments/ Resol	ution:							
		$-\!$				<u> </u>		
			**************************************			<u> </u>		
						<u> </u>		
Project Manager	Review:						Date:	
	1						- · · · · · · · · · · · · · · · · · · ·	
	is a discrepancy affecting North (hi wi	il be sent to the Nort	Carolina DEHNR

F-ALLC003rev.3, 11September2006 Page 11 of 11





April 10, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616925

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta







CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616925

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616925

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616925001	HGWA-1	Water	04/02/19 10:02	04/03/19 11:10
2616925002	HGWA-2	Water	04/02/19 13:40	04/03/19 11:10



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616925

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616925001	HGWA-1	EPA 6020B	CSW	14
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616925002	HGWA-2	EPA 6020B	CSW	14
		SM 2540C	RLC	1
		EPA 300.0	RLC	3



Date: 04/10/2019 04:36 PM

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2616925

Sample: HGWA-1	Lab ID:	2616925001	Collecte	ed: 04/02/19	10:02	Received: 04/	03/19 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 14:47	04/08/19 22:29	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 14:47	04/08/19 22:29	7440-38-2	
Barium	0.040	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 22:29	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 22:29	7440-41-7	
Boron	0.016J	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 22:29	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 22:29	7440-43-9	
Calcium	132	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 22:35	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 22:29	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 14:47	04/08/19 22:29	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 14:47	04/08/19 22:29	7439-92-1	
Lithium	0.0010J	mg/L	0.050	0.00097	1	04/05/19 14:47	04/08/19 22:29	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 14:47	04/08/19 22:29	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 14:47	04/08/19 22:29	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 14:47	04/08/19 22:29	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	452	mg/L	25.0	10.0	1		04/08/19 15:30		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	20.3	mg/L	0.25	0.024	1		04/06/19 10:16	16887-00-6	
Fluoride	0.10J	mg/L	0.30	0.029	1		04/06/19 10:16	16984-48-8	
Sulfate	84.3	mg/L	5.0	0.085	5		04/06/19 11:43	14808-79-8	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616925

Date: 04/10/2019 04:36 PM

Sample: HGWA-2	Lab ID:	2616925002	Collecte	ed: 04/02/19	13:40	Received: 04/	03/19 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 14:47	04/08/19 22:52	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 14:47	04/08/19 22:52	7440-38-2	
Barium	0.13	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 22:52	7440-39-3	
Beryllium	0.00015J	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 22:52	7440-41-7	
Boron	0.034J	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 22:52	7440-42-8	
Cadmium	0.00015J	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 22:52	7440-43-9	
Calcium	22.5J	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 22:58	7440-70-2	D3
Chromium	0.0079J	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 22:52	7440-47-3	
Cobalt	0.019	mg/L	0.010	0.00052	1	04/05/19 14:47	04/08/19 22:52	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 14:47	04/08/19 22:52	7439-92-1	
Lithium	0.0018J	mg/L	0.050	0.00097	1	04/05/19 14:47	04/08/19 22:52	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 14:47	04/08/19 22:52	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 14:47	04/08/19 22:52	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 14:47	04/08/19 22:52	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	133	mg/L	25.0	10.0	1		04/08/19 15:31		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	5.8	mg/L	0.25	0.024	1		04/06/19 10:38	16887-00-6	
Fluoride	0.071J	mg/L	0.30	0.029	1		04/06/19 10:38	16984-48-8	
Sulfate	48.7	mg/L	1.0	0.017	1		04/06/19 10:38	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616925

Antimony

Date: 04/10/2019 04:36 PM

QC Batch: 25905 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616925001, 2616925002

METHOD BLANK: 116813 Matrix: Water

Associated Lab Samples: 2616925001, 2616925002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	04/08/19 18:23	
Arsenic	mg/L	ND	0.0050	0.00057	04/08/19 18:23	
Barium	mg/L	ND	0.010	0.00078	04/08/19 18:23	
Beryllium	mg/L	ND	0.0030	0.000050	04/08/19 18:23	
Boron	mg/L	ND	0.040	0.0039	04/08/19 18:23	
Cadmium	mg/L	ND	0.0010	0.000093	04/08/19 18:23	
Calcium	mg/L	ND	0.50	0.014	04/08/19 18:23	
Chromium	mg/L	ND	0.010	0.0016	04/08/19 18:23	
Cobalt	mg/L	ND	0.010	0.00052	04/08/19 18:23	
Lead	mg/L	ND	0.0050	0.00027	04/08/19 18:23	
Lithium	mg/L	ND	0.050	0.00097	04/08/19 18:23	
Molybdenum	mg/L	ND	0.010	0.0019	04/08/19 18:23	
Selenium	mg/L	ND	0.010	0.0014	04/08/19 18:23	
Thallium	mg/L	ND	0.0010	0.00014	04/08/19 18:23	

		Spike	LCS		LCS	% Re					
Parameter	Units	Conc.	Resul	t	% Rec	Limit	s C	Qualifiers	_		
Antimony	mg/L	0.	1	0.11	108	8	0-120				
Arsenic	mg/L	0.	1	0.10	103	8	0-120				
Barium	mg/L	0.	1	0.10	103	8	0-120				
Beryllium	mg/L	0.	1	0.10	101	8	0-120				
Boron	mg/L		1	1.0	105	8	0-120				
Cadmium	mg/L	0.	1	0.11	109	8	0-120				
Calcium	mg/L		1	1.0	104	8	0-120				
Chromium	mg/L	0.	1	0.11	108	8	0-120				
Cobalt	mg/L	0.	1	0.11	107	8	0-120				
Lead	mg/L	0.	1	0.10	103	8	0-120				
Lithium	mg/L	0.	1	0.10	102	8	0-120				
Molybdenum	mg/L	0.	1	0.11	105	8	0-120				
Selenium	mg/L	0.	1	0.11	106	8	0-120				
Thallium	mg/L	0.	1	0.10	103	8	0-120				
MATRIX SPIKE & MATRIX SPIKE	DUPLICATE:	116815		116816							
		MS	MSD								
	261690°	1004 Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units Res	ult Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Q

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.

0.1

0.11

0.11

110

107

75-125

3 20

ND

mg/L

0.1



Project: Plant Hammond

Pace Project No.: 2616925

Date: 04/10/2019 04:36 PM

MATRIX SPIKE & MATRIX S	PIKE DUPLICA	ATE: 116815	5		116816							
			MS	MSD								
		2616901004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Barium	mg/L	0.027	0.1	0.1	0.13	0.13	105	100	75-125	4	20	
Beryllium	mg/L	0.00015J	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Boron	mg/L	0.63	1	1	1.6	1.6	102	101	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.10	105	105	75-125	0	20	
Calcium	mg/L	11.9J	1	1	13.1J	17.2J	129	532	75-125	27	20	M6,R1
Chromium	mg/L	0.0030J	0.1	0.1	0.11	0.11	106	106	75-125	0	20	
Cobalt	mg/L	0.0022J	0.1	0.1	0.11	0.10	103	101	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.10	102	101	75-125	0	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	

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



Project: Plant Hammond

Pace Project No.: 2616925

QC Batch:

25999

Analysis Method:

SM 2540C

QC Batch Method: SM 2540C Analysis Description:

2540C Total Dissolved Solids

Associated Lab Samples: 2616925001, 2616925002

LABORATORY CONTROL SAMPLE: Parameter

Spike LCS

226

LCS

% Rec

Qualifiers

Total Dissolved Solids

Units mg/L Conc. 400 Result 411 % Rec 103 Limits 84-108

SAMPLE DUPLICATE: 117378

Parameter

Units

mg/L

2617086001 Result

Dup Result

203

RPD

RPD

11

Max RPD

Qualifiers

Total Dissolved Solids SAMPLE DUPLICATE:

Date: 04/10/2019 04:36 PM

117379

2616901015

Dup Result

Max RPD

Qualifiers

Parameter Units **Total Dissolved Solids** mg/L

Result ND

13.0J

10

10 D6

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



Project: Plant Hammond

Pace Project No.: 2616925

Date: 04/10/2019 04:36 PM

QC Batch: 25881
QC Batch Method: EPA 300.0

Analysis Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2616925001, 2616925002

METHOD BLANK: 116727 Matrix: Water

Associated Lab Samples: 2616925001, 2616925002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.069J	0.25	0.024	04/05/19 23:23	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 23:23	
Sulfate	mg/L	0.028J	1.0	0.017	04/05/19 23:23	

LABORATORY CONTROL SAMPLE:	116728					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	10	10.3	103	90-110	
Fluoride	mg/L	10	10.3	103	90-110	
Sulfate	mg/L	10	10.1	101	90-110	

MATRIX SPIKE & MATRIX SPI	KE DUPLIC	CATE: 116729	9		116730							
			MS	MSD								
		2616881001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	4.0	10	10	13.8	13.7	99	97	90-110	1	15	
Fluoride	mg/L	0.042J	10	10	10.0	9.9	100	99	90-110	1	15	
Sulfate	mg/L	1.7	10	10	11.4	11.4	97	96	90-110	1	15	

MATRIX SPIKE SAMPLE:	116731						
Parameter	Units	2616885001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Farameter	UIIIS	Resuit	COIIC.	Kesuit	70 KeC	LIIIIIII	Qualifiers
Chloride	mg/L	6.5	10	15.5	89	90-110	M1
Fluoride	mg/L	0.029J	10	9.5	95	90-110	
Sulfate	mg/L	50.4	10	54.7	43	90-110	E,M1

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



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616925

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

Date: 04/10/2019 04:36 PM

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.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

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

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

R1 RPD value was outside control limits.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616925

Date: 04/10/2019 04:36 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616925001	HGWA-1	EPA 3005A	25905	EPA 6020B	25922
2616925002	HGWA-2	EPA 3005A	25905	EPA 6020B	25922
2616925001	HGWA-1	SM 2540C	25999		
2616925002	HGWA-2	SM 2540C	25999		
2616925001	HGWA-1	EPA 300.0	25881		
2616925002	HGWA-2	EPA 300.0	25881		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

(A/N) Jursect Sambles Sealed Cooler (Y/N) ŏ (N/A) **WO#:2616925** 8 Received or Residual Chlorine (Y/N) TEMP in C 29 54 SHEI 1930 DATE Signed: 04/02/19 1/2/14 4.3.19 Segral Radium 226/228 LD2' Cl' E' 204 (O&G & III .qqA) stateM betsy.modaniel@pacelabs.com Mets (App. III, App. IV, D&O Metals (App. III & App. IV) Jalia Moupen N/X 1801 SOSAIBUV Attention: scsinvoices@southernco.com Jeur 327 (AP) or 328 (Huff) dagent antiffe Methanol Grant Wolfer Preservatives Na2S203 HOBN Pace Project Manager: Pace Profile #: 327 (нсі Invoice Information: EONH 3 Company Name H52O4 Pace Quote: 20954 PAS Section C Scant Walter/Geografie 1945 Address: pevieserdnU S OF CONTAINERS SAMPLER WAME AND SIGNATURE PRINT Name of SAMPLER: 4/2/19 SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION 10:02 TIME END END DATE 20h & 8h:6 cand COLLECTED ED BY / AFFE LATION TIME Copy To: Lauren Petty, Geosyntec SCS10348606 START Purchase Order #: SC\$1034866 Project Name: Plant Hammond Project #: Required Project Information: Report To: Joju Abraham DATE Jodia M 315 Law SAMPLE TYPE (G-GRAS C-COMP) b 7 MATRIX CODE (see velid codes to left) Section B MATRIX
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Water
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Tissue Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax
Requested Due Date: SAML/LANG TRY (A-Z, 0-9 /, -) Sample Ids must be unique Mobile Leaven, Salevillen One Character per box. SAMPLE ID Fluoride Beryllium, 2480 Maner Road equired Client Information HSWA Wanta, GA 30339 Cobalt, Sarite C Section A و عرق Page 13 of 15 6 # M3TI

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

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Address	s: 2480 Maner Road	Copy To:	aure	in Peth	Lauren Petty, Geosyntec	tec			<u>ت</u>	отралу	Name	,.																	
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Phone:	(404)506-7239 Fax	Project Name:		Plant H	Plant Hammond				تة	Pace Project Manager.	ect Ma	nager:		etsy.mx	betsy.modaniel@pacelabs.com	(g)	labs 8	<u>ا</u> ع				All of the second secon		SEE SEE	Wiles.	N. P.			I de dis
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	Sample	Condition	Obou Keceibt	i	
Face Analy	tical Client Name:	BIA	Power	Project #	
Courier: Fed E	x UPS USPS Client		•	WO#:26	
I tacking m	ooler/Box Present: yes			PM: BM CLIENT: GRPow	Due Date: 04/10/1 er-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None	Other		
Thermometer Used		e of Ice: Well		Samples on ice, cool	ing process has begun
Cooler Temperatur		· *	is Frozen: Yes No	Date and Initials	of/person examining
Temp should be above			Comments:	contents: 4	73/19
Chain of Custody Pr	esent:	es 🗆 No 🗆 N/A	1.		
Chain of Custody Fi	lled Out:	es □No □N/A	2.		
Chain of Custody Re	elinguished:	es 🗆 No 🗆 N/A	3.		
Sampler Name & Si		es DNo DN/A	i i		
Samples Arrived wit		es □No □N/A			
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All containers needing compliance with EPA r	preservation are found to be in ecommendation.	es □No □N/A			
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es _⊒M6	Initial when completed	Lot # of added preservative	
Samples checked for		es □No ☑MÃ			
Headspace in VOA		es 🗆 No 🔎 N7A			
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Project Manager	Review:			Date:	
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Note: Whenever there	e is a discrepancy affecting North Carolin	a compliance san	nples, a copy of this for	n will be sent to the North	Carolina DEHNR
Certification Office (i.e	e out of hold, incorrect preservative, out	pr temp, incorrect	Containers	F-ALLC00	3rev.3, 11Septembe 2005 5 of 1





April 25, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616926

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616926

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 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

Missouri Certification #: 235

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616926

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616926001	HGWA-1	Water	04/02/19 10:02	04/03/19 11:10	
2616926002	HGWA-2	Water	04/02/19 13:40	04/03/19 11:10	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616926

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616926001	HGWA-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616926002	HGWA-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616926

Sample: HGWA-1 PWS:	Lab ID: 26169260 Site ID:	O1 Collected: 04/02/19 10:02 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.426 ± 0.282 (0.418) C:85% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228		0.313 ± 0.501 (1.09) C:74% T:89%	pCi/L	04/16/19 19:38	3 15262-20-1	
Total Radium	Total Radium Calculation	0.739 ± 0.783 (1.51)	pCi/L	04/17/19 13:15	7440-14-4	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616926

Sample: HGWA-2 PWS:	Lab ID: 2616926 Site ID:	O02 Collected: 04/02/19 13:40 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.472 ± 0.275 (0.348) C:88% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	0.179 ± 0.465 (1.04) C:77% T:89%	pCi/L	04/16/19 18:32	2 15262-20-1	
Total Radium	Total Radium Calculation	0.651 ± 0.740 (1.39)	pCi/L	04/17/19 13:1	5 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616926

QC Batch: 337392 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616926001, 2616926002

METHOD BLANK: 1642069 Matrix: Water

Associated Lab Samples: 2616926001, 2616926002

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.117 ± 0.178 (0.382) C:94% T:NA
 pCi/L
 04/12/19 08:07

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616926

QC Batch: 337342

337342 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616926001, 2616926002

METHOD BLANK: 1641953 Matrix: Water

Associated Lab Samples: 2616926001, 2616926002

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 -0.245 ± 0.294 (0.748) C:78% T:79%
 pCi/L
 04/16/19 16:22

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616926

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

Date: 04/25/2019 03:53 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616926

Date: 04/25/2019 03:53 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616926001	HGWA-1	EPA 9315	337392		
2616926002	HGWA-2	EPA 9315	337392		
2616926001	HGWA-1	EPA 9320	337342		
2616926002	HGWA-2	EPA 9320	337342		
2616926001	HGWA-1	Total Radium Calculation	338683		
2616926002	HGWA-2	Total Radium Calculation	338683		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

(WW) ujecj gewbjea (N/A) ŏ Sealed Cooler The state of the s (N/A) ð MO#:2616926 Received on Residual Chlorine (Y/N) TEMP in C Shel 29 54 1930 DATE Signed: 04/02/19 112/14 72 George SZZ/SZZ WINDEX IDS, CI, F, SO4 betsy modaniel@pacelabs.com, (O.80 & III apA) alstelv Mets (App. III, App. IV, D&O anan (App. III & App. IV) alia Mouses MIX Visat seavish Attention: scsinvoices@southernco.com 327 (AP) or 328 (Huff) Methanol Grant Wolfer Preservatives edant walf N92S203 HOBN Pace Project Manager. Pace Profile #: 327 Invoice information: нсі 3 HNO3 Company Name Address: Pace Qunts: HSZO 10954 1940 Grant Walter/Gersyntecograph 1745 Unpreserved # OF CONTAINERS SAMPLE TEMP AT COLLECTION 4/2/19 PRINT Name of SAMPLER: 100 1 modern (George 412/19 SIGNATURE of SAMPLER: (0:0) TIME 8 20th 8 84:6 50th DATE COLLECTED TIME Willaw Gerrute Copy To: Lauren Petty, Geosyntec Purchase Order #. SCS10348606 Project Name: Plant Hammond Project #: START DATE Required Project Information: Report To: Joju Abraham (G=GRAB C=COMP) ø 39YT 3J9MA2 MATRIX CODE (see valid codes to left) 159 Section B MATRIX
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Tissue British Beryllivan, Calivian, Chronian Cobalt, Fluoride, Lord, Lithium, Mobile Season, Salerisan, Thellium App II (1): Antimony, Arraic, Georgia Power - Coal Combustion Residuals Prone: (404/506-7239 Fax Requested Due Date: Sewdand TPT One Character per box. (A-Z, 0-9 /, -) Sample lds must be unique SAMPLE ID Email: jabraham@southernco.com 2480 Maner Road Required Client Information: HGWA-Allenta, GA 30339 0.0 Page 11 of 1B # MaTI

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

Section A Required (Company:	Clent Information: Georgia Power - Coal Combustion Residuals	Section B Required Project Information: Report To: Joju Abrahan	Section C Invoice Information: Attention: scsinvoices@southernco.com	Page: 2 of 2
Address:	2480 Maner Road	Copy To: Lauren Petty, Geosyntec	Company Name:	
mail	Фзоитето сот	Purchase Order#: SCS10348606	Pace Quote:	Kendelör/Agansy.
Phone:	(404)506-7239 Fax:	Project Name: Plant Hammond	Pace Project Manager. betsy.mcdaniel@pacelabs.com.	
Seque	undard the	Project #:	(AP) or 328 (Huff)	
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Temp should be above	e freezing to 6°C				Comments:		contents: 2	13/19/10
Chain of Custody P	resent:	ZY _{PS}	□No	□n/a	1.			
Chain of Custody Fi	lled Out:	ZZYES	□No	□n/a	2.			
Chain of Custody R	elinquished:		□No	□n/a	3.		-	
Sampler Name & Si	gnature on COC:	ÆTYÞS	□No	□n/a	4.			
Samples Arrived wit	thin Hold Time:	₽7 es	□No	□n/a	5.			
Short Hold Time A	nalysis (<72hr):	□Yes	D4√0	□n/a	6.			
Rush Turn Around	Time Requested:	□Yes	ΩM6	□n/a	7.			
Sufficient Volume:		.⊒Yes	□No	□n/a	8.			
Correct Containers	Used:	.⊒Yes	□No	□n/a	9.			
-Pace Container	s Used:	ÆYES	□No	□n/a			i	
Containers Intact:		.⊒∀es	□No	□n/a	10.			
Filtered volume rece	eved for Dissolved tests	□Yes	□No	_ □N/A	11.			
Sample Labels mate	ch COC:	-ETYES	□No	□n/a	12.			
-Includes date/tir	ne/ID/Analysis Matrix:	4	ω	_			i.	
All containers needing p	reservation have been checked.	Z Yes	□No	□n/a	13.			
All containers needing compliance with EPA	preservation are found to be in ecommendation.	ÆTY#s	□No	□n/a			:	
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	□Yes	J⊒Nô		Initial when completed		Lot # of added preservative	
Samples checked for	r dechlorination:	□Yes	□No	_⊒N/A	14.			
Headspace in VOA	Vials (>6mm):	□Yes	□No	□M/A	15.			
Trip Blank Present:		□Yes	□No	ÆN/A	16.			
Trip Blank Custody	Seals Present	□Yes	□No	DIMA				
Pace Trip Blank Lot	# (if purchased):						.,i	
Client Notification	Resolution:						Field Data Required	P Y / N
Person Conta	11			Date/	Time:			
Comments/ Resol	ution:			-			:	
								
		-				-	i	
		_					· 	
		-				<u> </u>		
Project Manager	Review:						Date:	
Note: Whenever there Certification Office (1)	is a discrepancy affecting North Ca	rolina d	omplia	nce san	nples, a copy of this for	n wil	be sent to the North	Carolina DEHNR

F-ALLC003rev.3, 11September2006





April 10, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616933

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta







CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616933

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616933

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616933001	MW-29	Water	04/02/19 14:05	04/03/19 11:10
2616933002	MW-20	Water	04/02/19 15:54	04/03/19 11:10
2616933003	MW-28D	Water	04/02/19 16:30	04/03/19 11:10
2616933004	HGWC-7	Water	04/02/19 17:15	04/03/19 11:10



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616933

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616933001	MW-29	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616933002	MW-20	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616933003	MW-28D	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616933004	HGWC-7	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

Sample: MW-29	Lab ID:	2616933001	Collecte	ed: 04/02/19	14:05	Received: 04/	03/19 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 19:46	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 19:46	7440-38-2	
Barium	0.078	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 19:46	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 19:46	7440-41-7	
Boron	1.2	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 19:46	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 19:46	7440-43-9	
Calcium	131	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 19:51	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 19:46	7440-47-3	
Cobalt	0.00084J	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 19:46	7440-48-4	
Lithium	0.0021J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 19:46	7439-93-2	
Molybdenum	0.0028J	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 19:46	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 19:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 19:46	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	548	mg/L	25.0	10.0	1		04/09/19 18:49		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	80.9	mg/L	2.5	0.24	10		04/08/19 18:53	16887-00-6	
Fluoride	0.045J	mg/L	0.30	0.029	1		04/05/19 20:15	16984-48-8	
Sulfate	151	mg/L	10.0	0.17	10		04/08/19 18:53	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

Sample: MW-20	Lab ID:	2616933002	Collecte	ed: 04/02/19	15:54	Received: 04/	03/19 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical I	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 19:57	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 19:57	7440-38-2	
Barium	0.080	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 19:57	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 19:57	7440-41-7	
Boron	0.11	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 19:57	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 19:57	7440-43-9	
Calcium	109	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 20:03	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 19:57	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 19:57	7440-48-4	
_ithium	0.0015J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 19:57	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 19:57	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 19:57	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 19:57	7440-28-0	
2540C Total Dissolved Solids	Analytical I	Method: SM 2	540C						
Total Dissolved Solids	435	mg/L	25.0	10.0	1		04/09/19 18:49		
300.0 IC Anions 28 Days	Analytical I	Method: EPA	300.0						
Chloride	27.5	mg/L	0.25	0.024	1		04/05/19 22:17	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/05/19 22:17	16984-48-8	
Sulfate	122	mg/L	10.0	0.17	10		04/08/19 19:15	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

Sample: MW-28D	Lab ID:	2616933003	Collecte	ed: 04/02/19	16:30	Received: 04/	03/19 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: Ef	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 20:08	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 20:08	7440-38-2	
Barium	0.37	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 20:08	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 20:08	7440-41-7	
Boron	0.17	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 20:08	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 20:08	7440-43-9	
Calcium	64.6	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 20:14	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 20:08	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 20:08	7440-48-4	
Lithium	0.0052J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 20:08	7439-93-2	
Molybdenum	0.028	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 20:08	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 20:08	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 20:08	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	350	mg/L	25.0	10.0	1		04/09/19 18:49		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Chloride	44.0	mg/L	0.25	0.024	1		04/05/19 22:42	16887-00-6	
Fluoride	0.18J	mg/L	0.30	0.029	1		04/05/19 22:42	16984-48-8	
Sulfate	67.7	mg/L	10.0	0.17	10		04/08/19 19:38	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

Sample: HGWC-7	Lab ID:	2616933004	Collecte	ed: 04/02/19	17:15	Received: 04/	03/19 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: Ef	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 20:31	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 20:31	7440-38-2	
Barium	0.072	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 20:31	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 20:31	7440-41-7	
Boron	0.99	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 20:31	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 20:31	7440-43-9	
Calcium	101	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 20:37	7440-70-2	M6
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 20:31	7440-47-3	
Cobalt	0.00069J	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 20:31	7440-48-4	
Lithium	0.0020J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 20:31	7439-93-2	
Molybdenum	0.041	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 20:31	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 20:31	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 20:31	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	428	mg/L	25.0	10.0	1		04/09/19 18:49		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	55.5	mg/L	2.5	0.24	10		04/06/19 04:05	16887-00-6	
Fluoride	0.097J	mg/L	0.30	0.029	1		04/05/19 23:31	16984-48-8	
Sulfate	127	mg/L	10.0	0.17	10		04/06/19 04:05	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

QC Batch: 25906 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

METHOD BLANK: 116817 Matrix: Water
Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND ND	0.0030	0.00078	04/09/19 18:14	
Arsenic	mg/L	ND	0.0050	0.00057	04/09/19 18:14	
Barium	mg/L	ND	0.010	0.00078	04/09/19 18:14	
Beryllium	mg/L	ND	0.0030	0.000050	04/09/19 18:14	
Boron	mg/L	ND	0.040	0.0039	04/09/19 18:14	
Cadmium	mg/L	ND	0.0010	0.000093	04/09/19 18:14	
Calcium	mg/L	ND	0.50	0.014	04/09/19 18:14	
Chromium	mg/L	ND	0.010	0.0016	04/09/19 18:14	
Cobalt	mg/L	ND	0.010	0.00052	04/09/19 18:14	
Lithium	mg/L	ND	0.050	0.00097	04/09/19 18:14	
Molybdenum	mg/L	ND	0.010	0.0019	04/09/19 18:14	
Selenium	mg/L	ND	0.010	0.0014	04/09/19 18:14	
Thallium	mg/L	ND	0.0010	0.00014	04/09/19 18:14	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
ntimony	mg/L	0.1	0.10	102	80-120	
rsenic	mg/L	0.1	0.10	100	80-120	
arium	mg/L	0.1	0.098	98	80-120	
eryllium	mg/L	0.1	0.096	96	80-120	
oron	mg/L	1	0.94	94	80-120	
admium	mg/L	0.1	0.10	100	80-120	
alcium	mg/L	1	0.97	97	80-120	
Chromium	mg/L	0.1	0.10	101	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
ithium	mg/L	0.1	0.096	96	80-120	
1olybdenum	mg/L	0.1	0.10	102	80-120	
elenium	mg/L	0.1	0.10	101	80-120	
hallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIK	E DUPLIC	CATE: 116819	9		116820							
			MS	MSD								
		2616933004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	108	105	75-125	3	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Barium	mg/L	0.072	0.1	0.1	0.18	0.18	109	105	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.



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	ATE: 116819	9		116820							
Parameter	Units	2616933004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qua
Beryllium	mg/L	ND	0.1	0.1	0.092	0.092	92	92	75-125	1	20	
Boron	mg/L	0.99	1	1	1.9	2.0	92	96	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20	
Calcium	mg/L	101	1	1	140	115	3930	1380	75-125	20	20	M6
Chromium	mg/L	ND	0.1	0.1	0.11	0.10	105	103	75-125	2	20	
Cobalt	mg/L	0.00069J	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Lithium	mg/L	0.0020J	0.1	0.1	0.094	0.095	91	93	75-125	2	20	
Molybdenum	mg/L	0.041	0.1	0.1	0.15	0.15	112	110	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	105	102	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.097	0.096	97	95	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.



Project:

Plant Hammond

Pace Project No.:

2616933

QC Batch: QC Batch Method: 26059

Analysis Method:

SM 2540C

SM 2540C

Analysis Description:

540

728

2540C Total Dissolved Solids

Associated Lab Samples:

2616933001, 2616933002, 2616933003, 2616933004

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Parameter

Spike

LCS

LCS

% Rec

Qualifiers

10 D6

10

Total Dissolved Solids

Units mg/L

mg/L

Units

mg/L

Conc. 400 Result 407 % Rec 102 Limits 84-108

SAMPLE DUPLICATE: 117668

2616931001 Units Result

Dup Result

670

766

RPD

21

5

Max RPD

Qualifiers

SAMPLE DUPLICATE:

Total Dissolved Solids

Date: 04/10/2019 06:00 PM

Total Dissolved Solids

117669

2617082006 Result

Dup Result

RPD

Max RPD

Qualifiers

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.



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

QC Batch: 25882 Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

METHOD BLANK: 116732 Matrix: Water
Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.029J	0.25	0.024	04/05/19 15:47	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 15:47	
Sulfate	mg/L	ND	1.0	0.017	04/05/19 15:47	

LABORATORY CONTROL SAMPLE:	116733					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	10	10.5	105	90-110	
Fluoride	mg/L	10	10.4	104	90-110	
Sulfate	mg/L	10	10.2	102	90-110	

MATRIX SPIKE & MATRIX SPIR	(E DUPLIC	CATE: 11673	4		116735							
		2616927001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD		Qual
Chloride	mg/L	4.4	10	10	14.5	14.6	101	102	90-110	0	15	
Fluoride	mg/L	ND	10	10	10.6	10.6	106	106	90-110	0	15	
Sulfate	mg/L	4.9	10	10	14.3	14.4	94	95	90-110	0	15	

MATRIX SPIKE SAMPLE:	116736						
Parameter	Units	2616927002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1.7	10	11.3	96	90-110	
Fluoride	mg/L	0.12J	10	10.4	103	90-110	
Sulfate	mg/L	23.8	10	30.8	70	90-110 N	<i>I</i> 11

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616933

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

Date: 04/10/2019 06:00 PM

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

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

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616933001	MW-29	EPA 3005A	25906	EPA 6020B	 25928
2616933002	MW-20	EPA 3005A	25906	EPA 6020B	25928
2616933003	MW-28D	EPA 3005A	25906	EPA 6020B	25928
2616933004	HGWC-7	EPA 3005A	25906	EPA 6020B	25928
2616933001	MW-29	SM 2540C	26059		
2616933002	MW-20	SM 2540C	26059		
2616933003	MW-28D	SM 2540C	26059		
2616933004	HGWC-7	SM 2540C	26059		
2616933001	MW-29	EPA 300.0	25882		
2616933002	MW-20	EPA 300.0	25882		
2616933003	MW-28D	EPA 300.0	25882		
2616933004	HGWC-7	EPA 300.0	25882		

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Sampler Name & Si	gnature on COC:			□n/a				
Samples Arrived wit	hin Hold Time:	₽₩s	□No	□n/a	5.	:		
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Filtered volume rece	ived for Dissolved tests	□Yes	□No	N/A	11.			
Sample Labels mate	h COC:	_EYes	□No	□n/a	12.			
-Includes date/tim	re/ID/Analysis Matrix:		<u>W</u> _	_				
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All containers needing compliance with EPA re	preservation are found to be in ecommendation.	27 Y#	□No	□n/a		:		
exceptions: VOA, coliform	, TOC, O&G, WI-DRO (water)	□Yes	₽ ₩6		Initial when completed		of added	
Samples checked for	dechlorination:	□Yes	□No	_DMA	14.			
Headspace in VOA V	fials (>6mm):	□Yes	□No	□N/A	15.	i		
Trip Blank Present:		□Yes	□No .	ÆN/A	16.			
Trip Blank Custody S	eals Present	□Yes	□No	DN/A				
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Note: Whenever there i	s a discrepancy affecting North Ca	rolina co	mplian	ce sam	ples, a copy of this form	will be se	ent to the North	arolina DEHNR

Page 18 of 18 F-ALLC003rev.3, 11September2006





April 25, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616935

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616935

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

North Dakota Certification #: R-190

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

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616935

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616935001	MW-29	Water	04/02/19 14:05	04/03/19 11:10
2616935002	MW-20	Water	04/02/19 15:54	04/03/19 11:10
2616935003	MW-28D	Water	04/02/19 16:30	04/03/19 11:10
2616935004	HGWC-7	Water	04/02/19 17:15	04/03/19 11:10



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616935

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616935001	MW-29	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616935002	MW-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616935003	MW-28D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616935004	HGWC-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: Plant Hammond
Pace Project No.: 2616935

Calculation

Sample: MW-29 PWS:	Lab ID: 26169350 0 Site ID:	O1 Collected: 04/02/19 14:05 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.218 ± 0.272 (0.567) C:86% T:NA	pCi/L	04/12/19 08:04	13982-63-3	
Radium-228		0.402 ± 0.408 (0.847) C:76% T:82%	pCi/L	04/16/19 16:2	1 15262-20-1	
Total Radium	Total Radium	0.620 ± 0.680 (1.41)	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616935

Sample: MW-20 PWS:	Lab ID: 26169350 Site ID:	O2 Collected: 04/02/19 15:54 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.780 ± 0.360 (0.385) C:89% T:NA	pCi/L	04/12/19 08:05	13982-63-3	
Radium-228		0.238 ± 0.422 (0.922) C:73% T:76%	pCi/L	04/16/19 16:2	1 15262-20-1	
Total Radium	Total Radium Calculation	1.02 ± 0.782 (1.31)	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616935

Sample: MW-28D PWS:	Lab ID: 26169350 Site ID:	Collected: 04/02/19 16:30 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.312 ± 0.266 (0.489) C:95% T:NA	pCi/L	04/12/19 08:07	7 13982-63-3	
Radium-228		0.167 ± 0.434 (0.966) C:70% T:88%	pCi/L	04/16/19 16:2	1 15262-20-1	
Total Radium	Total Radium Calculation	$0.479 \pm 0.700 (1.46)$	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616935

Sample: HGWC-7 PWS:	Lab ID: 26169350 Site ID:	O4 Collected: 04/02/19 17:15 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.445 ± 0.341 (0.626) C:88% T:NA	pCi/L	04/12/19 08:08	13982-63-3	
Radium-228		0.420 ± 0.405 (0.834) C:76% T:85%	pCi/L	04/16/19 16:22	2 15262-20-1	
Total Radium	Total Radium Calculation	0.865 ± 0.746 (1.46)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337392 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616935003, 2616935004

METHOD BLANK: 1642069 Matrix: Water

Associated Lab Samples: 2616935003, 2616935004

Parameter Act \pm Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-226 0.117 \pm 0.178 (0.382) C:94% T:NA pCi/L 04/12/19 08:07

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



Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337341 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616935001, 2616935002, 2616935003

METHOD BLANK: 1641952 Matrix: Water

Associated Lab Samples: 2616935001, 2616935002, 2616935003

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-228 0.438 \pm 0.343 (0.679) C:77% T:88% pCi/L 04/16/19 13:06

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



Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337342 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616935004

METHOD BLANK: 1641953 Matrix: Water

Associated Lab Samples: 2616935004

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 -0.245 ± 0.294 (0.748) C:78% T:79%
 pCi/L
 04/16/19 16:22

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.



Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337391 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616935001, 2616935002

METHOD BLANK: 1642068 Matrix: Water

Associated Lab Samples: 2616935001, 2616935002

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-226 0.148 \pm 0.194 (0.401) C:93% T:NA pCi/L 04/12/19 08:12

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616935

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

Date: 04/25/2019 03:53 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616935

Date: 04/25/2019 03:53 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616935001	MW-29	EPA 9315	337391		
2616935002	MW-20	EPA 9315	337391		
2616935003	MW-28D	EPA 9315	337392		
2616935004	HGWC-7	EPA 9315	337392		
2616935001	MW-29	EPA 9320	337341		
2616935002	MW-20	EPA 9320	337341		
2616935003	MW-28D	EPA 9320	337341		
2616935004	HGWC-7	EPA 9320	337342		
2616935001	MW-29	Total Radium Calculation	338683		
2616935002	MW-20	Total Radium Calculation	338683		
2616935003	MW-28D	Total Radium Calculation	338683		
2616935004	HGWC-7	Total Radium Calculation	338683		

Section A		Section B	Section C	
Require	Clent Information:	21	Involce Information:	Page: 1 Of 3
Company	Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com	
Address	2480 Maner Road	py 10: Lauren Petty, Geosyntec	y Name:	
Attanta,				Regulate of Aperica
	papranamgsouthernco.com			
900	(404)506-7239 Pax	Project Name: Plant Hammond	anager: betsy, modaniel@pacelabs.com,	The Transport of the State of t
Kednes	Kequested Due Date: State 677 Thy	Project #.		GA
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e 15 c	e 15 c	SIGNATURE of SAMPLER:	R: Xrand Warred DATE Signed: 04/03/19	TEMP ii (Y/N) (Y/N) (Y/N) (Senple Semple All (Y/N)
of 18				

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) h Due Date: 05/01/19 saidwas (Y/N) ŏ pelees (N/A)WO# : 2616935 Received on Residual Chlorine (YM) 1 Page: TEMP in C CLIENT: GAPower-CCR 19x9 2500 そさ 4/2/14 61/4 PH: BM DATE Signad: 119 LDS' CI' E' 204 (O.80 & III . qqA) sisteM betsy.mcdaniel@pacelabs.com 77 Mata (App. III, App. IV, D&O Gamphec Munpon Vetals (App. III & App. IV) Anderson NX Attention: scsinvoices@southernco.com 327 (AP) or 328 (Huff) Jeuno Methanol Preservatives Ne2S2O3 מהצום HÖBN Pace Project Manager: invoice information: ЮН EONH Q 3 PRINT Name of SAMPLER: Dalton Pace Profile #: Pace Quote: HS2O4 2-20-100)4/2/19 17:45 4240 Section C 75.67 beviesergnU SAMPLER WALLEAND SIGNATURE AT # OF CONTAINERS SAMPLE TEMP AT COLLECTION SIGNATURE of SAMPLER: 412/19 4/2/19 200 DATE COLLECTED 19.00 19.00 EME Lauren Petty, Geosyntec Purchase Order #: SCS10348606.
Project Name: Plant Hammond
Project #:) C START THE TO Required Project Information: DATE Report To: Joju Abraham Valle (G=GRAB C=COMP) SAMPLE TYPE MATRIX CODE (see valid codes to left) Copy To: Section B Cobout, Finant de, Lithium, Molyblande MATRIX
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Chee APPIL (2) Antimony Arsent, Buchen Beentlinen Cadition, Chronism, Georgia Power - Coal Combustion Residuals 131 One Character per box. (A-2, 0-9 / , -) Sample Ids must be unique Selephon, Thalling SAMPLE ID WM-28D jabraham@southernco.com 2480 Maner Road Requested Due Date: Manta, GA 30339 company: # MBTI Page 16 of 18

MATRIX CODY To: Lauren Petty, Georgest Copy To: Lauren Petty, Georgest Copy To: Lauren Petty, Georgest Copy To: Lauren Petty, Georgest Copy To: Lauren Petty, Georgest Copy To: Lauren Petty, Georgest Copy To: Lauren Petty, Georgest Copy To: Lauren Petty, Georgest Copy To: Lauren Petty, Georgest Copy To: Lauren Petty, Georgest Copy To: Lauren Petty, Copy To: Lauren La	Company Comp	Copyright Copy	Section A Required Client Information:		Section B Required Project Information:	roject	Informa	tion:				" -	Section C Invoice in	o in	Section C Invoice Information:	اء									r		à	Page:	7		ŏ	2
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and the same of th	Sample	e Condition	Opon Receipt		1
Face Analy	rtical Client Name:	BIA	Power	Project #	
Courier: Fed E	x 🗌 UPS 🗍 USPS 🗍 Client [Commercial	Pace Other	WO#:26	16935
	ooler/Box Present: yes	no Seals	intact: yes	PM: BM CLIENT: GAPe	Due Date: 05/01/1
	☐ Bubble Wrap ☐ Bubble Bag	_		CLIENT: GARGE	
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Sufficient Volume:		es □No □N/A			
Correct Containers		es □No □N/A			
-Pace Container	s Used: ∠	es □No □N/A			
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Filtered volume rec	eived for Dissolved tests	res 🗆 No 🔎 MTA	11.		
Sample Labels mat	ch COC:	es □No □N/A	12.		
-Includes date/ti		ω			
All containers needing	reservation have been checked.	ves □No □N/A	13.		
All containers needing compliance with EPA	preservation are found to be in ecommendation.	res □No □N/A			
exceptions: VOA, colifor	m, TOC. O&G. WI-DRO (water)	Yes _DINO	Initial when completed	Lot # of added preservative	
Samples checked for	or dechlorination:	res □No □N/A	14.	- ::	
Headspace in VOA		mes □No □M/A			
Trip Blank Present:		mes □No ÆN/A	1		
Trip Blank Custody	Seals Present	Yes □No □NTA			
Pace Trip Blank Lot	# (if purchased):				
Client Notification	Pesalution			Field Date Device	
	acted:	Date/	Time:	Field Data Required	? Y / N
Comments/ Reso		Date	riirie.		
Project Manage	Review:			Date:	
Note: Whenever then	e is a discrepancy affecting North Caroli	a compliance san	noles, a copy of this for	m will be sent to the North	Carolina DEHNR
Certification Office (i.	out of hold, incorrect preservative, out	of temp, incorrect	t containers)	!	
				F-ALLC00	3rev.3, 11September 2006 8 of 18





April 11, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616997

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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta







CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616997

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616997

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616997001	HGWC-9	Water	04/03/19 10:05	04/04/19 11:00
2616997002	MW-26D	Water	04/03/19 11:38	04/04/19 11:00
2616997003	MW-19	Water	04/03/19 14:50	04/04/19 11:00
2616997004	MW-5	Water	04/03/19 13:12	04/04/19 11:00
2616997005	HGWC-8	Water	04/03/19 11:24	04/04/19 11:00
2616997006	HGWC-10	Water	04/03/19 13:38	04/04/19 11:00
2616997007	MW-6	Water	04/03/19 15:10	04/04/19 11:00
2616997008	MW-7	Water	04/03/19 10:45	04/04/19 11:00
2616997009	HGWC-11	Water	04/03/19 12:40	04/04/19 11:00
2616997010	HGWC-12	Water	04/03/19 14:20	04/04/19 11:00
2616997011	MW-25D	Water	04/03/19 16:15	04/04/19 11:00



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616997

2616997001 HGWC-9 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997002 MW-26D EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997003 MW-19 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997004 MW-5 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997005 HGWC-8 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997006 HGWC-10 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997007 MW-6 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997008 MW-7 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC EPA 300.0 RLC EPA 300.0 RLC EPA 50	13 1 3 13 1 3 13 13
EPA 300.0 RLC EPA 300.0 RLC EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC EPA 300.0 RLC EPA 300.0 RLC EPA 300.0 RLC EPA 300.0 RLC EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC EPA 400.0 3 13 1 3 13	
2616997002 MW-26D EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997003 MW-19 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997004 MW-5 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC <td>13 1 3 13</td>	13 1 3 13
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BPA 300.0 RLC	3 13
2616997003 MW-19 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997004 MW-5 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997005 HGWC-8 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC EPA 300.0 RLC 2616997007 MW-6 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997008 MW-7 EPA 6020B CSW SM 2540C RLC EPA 6020B CSW EPA 6020B CS	13
SM 2540C RLC	
PA 300.0 RLC	1
2616997004 MW-5 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997005 HGWC-8 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC EPA 300.0 RLC EPA 6020B CSW SM 2540C RLC EPA 6020B CSW	ı
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EPA 300.0 RLC	13
2616997005 HGWC-8 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997006 HGWC-10 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997007 MW-6 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997008 MW-7 EPA 6020B CSW SM 2540C RLC SM 2540C RLC EPA 300.0 RLC	1
SM 2540C RLC	3
EPA 300.0 RLC	13
2616997006 HGWC-10 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997007 MW-6 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997008 MW-7 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC EPA 300.0 RLC	1
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EPA 300.0 RLC 2616997008 MW-7 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC	13
2616997008 MW-7 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC	1
SM 2540C RLC EPA 300.0 RLC	3
EPA 300.0 RLC	13
	1
2616997009 HGWC-11 EPA 6020B CSW	3
	13
SM 2540C RLC	1
EPA 300.0 RLC	3
2616997010 HGWC-12 EPA 6020B CSW	13
SM 2540C RLC	1
EPA 300.0 RLC	3
2616997011 MW-25D EPA 6020B CSW	13
SM 2540C RLC	1
EPA 300.0 RLC	3



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: HGWC-9	Lab ID:	2616997001	Collecte	ed: 04/03/19	10:05	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: El	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:09	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:09	7440-38-2	
Barium	0.12	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:09	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:09	7440-41-7	
Boron	2.3	mg/L	2.0	0.20	50	04/05/19 15:23	04/09/19 22:14	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:09	7440-43-9	
Calcium	164	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 22:14	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:09	7440-47-3	
Cobalt	0.00069J	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:09	7440-48-4	
Lithium	0.0040J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:09	7439-93-2	
Molybdenum	0.030	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:09	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:09	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:09	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM	2540C						
Total Dissolved Solids	673	mg/L	25.0	10.0	1		04/10/19 16:41		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	130	mg/L	2.5	0.24	10		04/05/19 20:32	16887-00-6	M1
Fluoride	0.14J	mg/L	0.30	0.029	1		04/05/19 14:08	16984-48-8	
Sulfate	214	mg/L	10.0	0.17	10		04/05/19 20:32	14808-79-8	M1



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-26D	Lab ID:	2616997002	Collecte	ed: 04/03/19	9 11:38	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:20	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:20	7440-38-2	
Barium	0.12	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:20	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:20	7440-41-7	
Boron	1.5	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 22:20	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:20	7440-43-9	
Calcium	122	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 22:26	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:20	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:20	7440-48-4	
Lithium	0.0034J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:20	7439-93-2	
Molybdenum	0.0083J	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:20	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:20	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:20	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
Total Dissolved Solids	493	mg/L	25.0	10.0	1		04/10/19 16:41		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	90.6	mg/L	2.5	0.24	10		04/11/19 13:12	16887-00-6	
Fluoride	0.044J	mg/L	0.30	0.029	1		04/05/19 15:12	16984-48-8	
Sulfate	131	mg/L	10.0	0.17	10		04/11/19 13:12	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-19	Lab ID:	2616997003	Collecte	ed: 04/03/19	14:50	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:43	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:43	7440-38-2	
Barium	0.050	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:43	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:43	7440-41-7	
Boron	0.63	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 22:43	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:43	7440-43-9	
Calcium	74.9	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 22:49	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:43	7440-47-3	
Cobalt	0.036	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:43	7440-48-4	
Lithium	0.0061J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:43	7439-93-2	
Molybdenum	0.040	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:43	7439-98-7	
Selenium	0.0070J	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:43	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:43	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	310	mg/L	25.0	10.0	1		04/10/19 16:41		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	19.5	mg/L	0.25	0.024	1		04/05/19 15:34	16887-00-6	
Fluoride	0.19J	mg/L	0.30	0.029	1		04/05/19 15:34	16984-48-8	
Sulfate	105	mg/L	10.0	0.17	10		04/11/19 13:34	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-5	Lab ID:	2616997004	Collecte	ed: 04/03/19	3 13:12	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:55	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:55	7440-38-2	
Barium	0.049	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:55	7440-41-7	
Boron	0.030J	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 22:55	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:55	7440-43-9	
Calcium	82.0	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 23:00	7440-70-2	
Chromium	0.0030J	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:55	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:55	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:55	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:55	7439-98-7	
Selenium	0.0027J	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:55	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:55	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	396	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	1.8	mg/L	0.25	0.024	1		04/05/19 15:55	16887-00-6	
Fluoride	0.049J	mg/L	0.30	0.029	1		04/05/19 15:55	16984-48-8	
Sulfate	218	mg/L	10.0	0.17	10		04/11/19 13:57	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: HGWC-8	Lab ID:	2616997005	Collecte	ed: 04/03/19	9 11:24	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: El	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 23:06	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 23:06	7440-38-2	
Barium	0.066	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 23:06	7440-39-3	
Beryllium	0.000074J	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 23:06	7440-41-7	
Boron	2.8	mg/L	2.0	0.20	50	04/05/19 15:23	04/09/19 23:12	7440-42-8	
Cadmium	0.00032J	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 23:06	7440-43-9	
Calcium	125	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 23:12	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 23:06	7440-47-3	
Cobalt	0.0019J	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 23:06	7440-48-4	
Lithium	0.0025J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 23:06	7439-93-2	
Molybdenum	0.50	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 23:06	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 23:06	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 23:06	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	543	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	91.6	mg/L	2.5	0.24	10		04/05/19 20:53	16887-00-6	
Fluoride	0.63	mg/L	0.30	0.029	1		04/05/19 16:16	16984-48-8	
Sulfate	194	mg/L	10.0	0.17	10		04/05/19 20:53	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: HGWC-10	Lab ID:	2616997006	Collecte	ed: 04/03/19	13:38	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 23:17	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 23:17	7440-38-2	
Barium	0.076	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 23:17	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 23:17	7440-41-7	
Boron	0.66	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 23:17	7440-42-8	
Cadmium	0.00010J	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 23:17	7440-43-9	
Calcium	137	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 23:23	7440-70-2	
Chromium	0.020	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 23:17	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 23:17	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 23:17	7439-93-2	
Molybdenum	0.0021J	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 23:17	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 23:17	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 23:17	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	525	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	49.3	mg/L	0.25	0.024	1		04/05/19 16:37	16887-00-6	
Fluoride	0.082J	mg/L	0.30	0.029	1		04/05/19 16:37	16984-48-8	
Sulfate	159	mg/L	10.0	0.17	10		04/05/19 21:15		



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-6	Lab ID:	2616997007	Collecte	ed: 04/03/19	15:10	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:00	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:00	7440-38-2	
Barium	0.090	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:00	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:00	7440-41-7	
Boron	0.67	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:00	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:00	7440-43-9	
Calcium	178	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:12	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:00	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:00	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:00	7439-93-2	
Molybdenum	0.0021J	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:00	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:00	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:00	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
Total Dissolved Solids	437	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	60.9	mg/L	2.5	0.24	10		04/11/19 14:20	16887-00-6	
Fluoride	0.15J	mg/L	0.30	0.029	1		04/05/19 16:59	16984-48-8	
Sulfate	228	mg/L	10.0	0.17	10		04/11/19 14:20	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-7	Lab ID:	2616997008	Collecte	ed: 04/03/19	9 10:45	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:23	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:23	7440-38-2	
Barium	0.058	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:23	7440-39-3	
Beryllium	0.000051J	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:23	7440-41-7	
Boron	0.094	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:23	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:23	7440-43-9	
Calcium	50.2	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:29	7440-70-2	
Chromium	0.0023J	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:23	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:23	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:23	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:23	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:23	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:23	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
Total Dissolved Solids	213	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	5.6	mg/L	0.25	0.024	1		04/05/19 17:20	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/05/19 17:20	16984-48-8	
Sulfate	75.3	mg/L	10.0	0.17	10		04/11/19 13:18	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: HGWC-11	Lab ID:	2616997009	Collecte	ed: 04/03/19	12:40	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:29	7440-36-0	
Arsenic	0.00094J	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:29	7440-38-2	
Barium	0.023	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:29	7440-39-3	
Beryllium	0.00017J	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:29	7440-41-7	
Boron	0.23	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:29	7440-42-8	
Cadmium	0.000096J	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:29	7440-43-9	
Calcium	112	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:35	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:29	7440-47-3	
Cobalt	0.0018J	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:29	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:29	7439-93-2	
Molybdenum	0.010	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:29	7439-98-7	
Selenium	0.016	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:29	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:29	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	483	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	4.6	mg/L	0.25	0.024	1		04/05/19 19:07	16887-00-6	
Fluoride	0.43	mg/L	0.30	0.029	1		04/05/19 19:07	16984-48-8	
Sulfate	298	mg/L	10.0	0.17	10		04/11/19 14:52	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: HGWC-12	Lab ID:	2616997010	Collecte	ed: 04/03/19	9 14:20	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: Ef	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:35	7440-36-0	
Arsenic	0.0022J	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:35	7440-38-2	
Barium	0.077	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:35	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:35	7440-41-7	
Boron	1.8	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:35	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:35	7440-43-9	
Calcium	114	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:40	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:35	7440-47-3	
Cobalt	0.0011J	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:35	7440-48-4	
Lithium	0.0066J	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:35	7439-93-2	
Molybdenum	0.049	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:35	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:35	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:35	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	462	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	62.8	mg/L	1.2	0.12	5		04/05/19 21:57	16887-00-6	
Fluoride	0.30J	mg/L	0.30	0.029	1		04/05/19 19:28	16984-48-8	
Sulfate	176	mg/L	5.0	0.085	5		04/05/19 21:57	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-25D	Lab ID:	2616997011	Collecte	ed: 04/03/19	16:15	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:41	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:41	7440-38-2	
Barium	0.38	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:41	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:41	7440-41-7	
Boron	0.37	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:41	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:41	7440-43-9	
Calcium	25.4	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:46	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:41	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:41	7440-48-4	
Lithium	0.047J	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:41	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:41	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:41	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:41	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	15.0J	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	32.0	mg/L	0.25	0.024	1		04/05/19 20:11	16887-00-6	
Fluoride	1.6	mg/L	0.30	0.029	1		04/05/19 20:11	16984-48-8	
Sulfate	53.0	mg/L	10.0	0.17	10		04/11/19 15:13	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

QC Batch: 25906 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006

METHOD BLANK: 116817 Matrix: Water

Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	04/09/19 18:14	
Arsenic	mg/L	ND	0.0050	0.00057	04/09/19 18:14	
Barium	mg/L	ND	0.010	0.00078	04/09/19 18:14	
Beryllium	mg/L	ND	0.0030	0.000050	04/09/19 18:14	
Boron	mg/L	ND	0.040	0.0039	04/09/19 18:14	
Cadmium	mg/L	ND	0.0010	0.000093	04/09/19 18:14	
Calcium	mg/L	ND	0.50	0.014	04/09/19 18:14	
Chromium	mg/L	ND	0.010	0.0016	04/09/19 18:14	
Cobalt	mg/L	ND	0.010	0.00052	04/09/19 18:14	
Lithium	mg/L	ND	0.050	0.00097	04/09/19 18:14	
Molybdenum	mg/L	ND	0.010	0.0019	04/09/19 18:14	
Selenium	mg/L	ND	0.010	0.0014	04/09/19 18:14	
Thallium	mg/L	ND	0.0010	0.00014	04/09/19 18:14	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.096	96	80-120	
Boron	mg/L	1	0.94	94	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	0.97	97	80-120	
Chromium	mg/L	0.1	0.10	101	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.096	96	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIK	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116819 116820											
			MS	MSD								
		2616933004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	108	105	75-125	3	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Barium	mg/L	0.072	0.1	0.1	0.18	0.18	109	105	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.



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 116819)		116820							
Parameter	Units	2616933004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Beryllium	mg/L	ND	0.1	0.1	0.092	0.092	92	92	75-125	1	20	
Boron	mg/L	0.99	1	1	1.9	2.0	92	96	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20	
Calcium	mg/L	101	1	1	140	115	3930	1380	75-125	20	20	M6
Chromium	mg/L	ND	0.1	0.1	0.11	0.10	105	103	75-125	2	20	
Cobalt	mg/L	0.00069J	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Lithium	mg/L	0.0020J	0.1	0.1	0.094	0.095	91	93	75-125	2	20	
Molybdenum	mg/L	0.041	0.1	0.1	0.15	0.15	112	110	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	105	102	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.097	0.096	97	95	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.



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

 QC Batch:
 25997
 Analysis Method:
 EPA 6020B

 QC Batch Method:
 EPA 3005A
 Analysis Description:
 6020B MET

 Associated Lab Samples:
 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

METHOD BLANK: 117367 Matrix: Water

Associated Lab Samples: 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L		0.0030	0.00078	04/09/19 23:46	
Arsenic	mg/L	ND	0.0050	0.00057	04/09/19 23:46	
Barium	mg/L	ND	0.010	0.00078	04/09/19 23:46	
Beryllium	mg/L	ND	0.0030	0.000050	04/09/19 23:46	
Boron	mg/L	ND	0.040	0.0039	04/09/19 23:46	
Cadmium	mg/L	ND	0.0010	0.000093	04/09/19 23:46	
Calcium	mg/L	ND	0.50	0.014	04/09/19 23:46	
Chromium	mg/L	ND	0.010	0.0016	04/09/19 23:46	
Cobalt	mg/L	ND	0.010	0.00052	04/09/19 23:46	
Lithium	mg/L	ND	0.050	0.00097	04/09/19 23:46	
Molybdenum	mg/L	ND	0.010	0.0019	04/09/19 23:46	
Selenium	mg/L	ND	0.010	0.0014	04/09/19 23:46	
Thallium	mg/L	ND	0.0010	0.00014	04/09/19 23:46	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.096	96	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.094	94	80-120	
Boron	mg/L	1	0.95	95	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	0.98	98	80-120	
Chromium	mg/L	0.1	0.10	104	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.094	94	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Thallium	mg/L	0.1	0.096	96	80-120	

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	CATE: 117369	9		117370							
Parameter	Units	2616997007 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	102	102	75-125	0	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	100	99	75-125	1	20	
Barium	mg/L	0.090	0.1	0.1	0.18	0.18	90	93	75-125	1	20	

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



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	ATE: 117369	9		117370							
Parameter	Units	2616997007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Beryllium	mg/L	ND	0.1	0.1	0.090	0.088	90	88	75-125	2	20	
Boron	mg/L	0.67	1	1	1.5	1.5	85	86	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Calcium	mg/L	178	1	1	173	179	-513	1	75-125	3	20	
Chromium	mg/L	ND	0.1	0.1	0.099	0.10	99	102	75-125	3	20	
Cobalt	mg/L	ND	0.1	0.1	0.096	0.097	95	97	75-125	2	20	
Lithium	mg/L	ND	0.1	0.1	0.090	0.091	90	90	75-125	0	20	
Molybdenum	mg/L	0.0021J	0.1	0.1	0.10	0.11	103	104	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.097	0.10	97	100	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.092	0.094	92	94	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.



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

QC Batch: 26129 Analysis Method: SM 2540C

QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006, 2616997007, 2616997008,

2616997009, 2616997010, 2616997011

LABORATORY CONTROL SAMPLE:	117954					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	412	103	84-108	
SAMPLE DUPLICATE: 118270						
		2616972001	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
otal Dissolved Solids	mg/L	29	0 30	3	4	10
AMPLE DUPLICATE: 118610						
		2616992002	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solids	mg/L	369	9 35	 i9	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.



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

QC Batch: 25883 Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006, 2616997007, 2616997008,

2616997009, 2616997010, 2616997011

METHOD BLANK: 116739 Matrix: Water

Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006, 2616997007, 2616997008,

2616997009, 2616997010, 2616997011

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.057J	0.25	0.024	04/05/19 13:26	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 13:26	
Sulfate	mg/L	0.026J	1.0	0.017	04/05/19 13:26	

LABORATORY CONTROL SAMPLE:	116740					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	10.1	101	90-110	
Sulfate	mg/L	10	10.0	100	90-110	

MATRIX SPIKE & MATRIX SPIR	(E DUPLIC	CATE: 11674	1		116742							
			MS	MSD								
		2616997001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	130	10	10	111	111	-190	-190	90-110	0	15	E,M1
Fluoride	mg/L	0.14J	10	10	10.4	10.2	103	100	90-110	2	15	
Sulfate	mg/L	214	10	10	165	165	-494	-494	90-110	0	15	E,M1

MATRIX SPIKE SAMPLE:	116743						
		2616997002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	90.6	10	90.3	-2	90-110 E	
Fluoride	mg/L	0.044J	10	9.2	92	90-110	
Sulfate	mg/L	131	10	122	-98	90-110 E	Ī

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616997

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

Date: 04/11/2019 06:23 PM

E Analyte concentration exceeded the calibration range. The reported result is estimated.

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

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616997001	HGWC-9	EPA 3005A	 25906	EPA 6020B	 25928
2616997002	MW-26D	EPA 3005A	25906	EPA 6020B	25928
2616997003	MW-19	EPA 3005A	25906	EPA 6020B	25928
2616997004	MW-5	EPA 3005A	25906	EPA 6020B	25928
2616997005	HGWC-8	EPA 3005A	25906	EPA 6020B	25928
2616997006	HGWC-10	EPA 3005A	25906	EPA 6020B	25928
2616997007	MW-6	EPA 3005A	25997	EPA 6020B	26011
2616997008	MW-7	EPA 3005A	25997	EPA 6020B	26011
2616997009	HGWC-11	EPA 3005A	25997	EPA 6020B	26011
2616997010	HGWC-12	EPA 3005A	25997	EPA 6020B	26011
2616997011	MW-25D	EPA 3005A	25997	EPA 6020B	26011
2616997001	HGWC-9	SM 2540C	26129		
2616997002	MW-26D	SM 2540C	26129		
2616997003	MW-19	SM 2540C	26129		
2616997004	MW-5	SM 2540C	26129		
2616997005	HGWC-8	SM 2540C	26129		
2616997006	HGWC-10	SM 2540C	26129		
2616997007	MW-6	SM 2540C	26129		
2616997008	MW-7	SM 2540C	26129		
2616997009	HGWC-11	SM 2540C	26129		
2616997010	HGWC-12	SM 2540C	26129		
2616997011	MW-25D	SM 2540C	26129		
2616997001	HGWC-9	EPA 300.0	25883		
2616997002	MW-26D	EPA 300.0	25883		
2616997003	MW-19	EPA 300.0	25883		
2616997004	MW-5	EPA 300.0	25883		
2616997005	HGWC-8	EPA 300.0	25883		
2616997006	HGWC-10	EPA 300.0	25883		
2616997007	MW-6	EPA 300.0	25883		
2616997008	MW-7	EPA 300.0	25883		
2616997009	HGWC-11	EPA 300.0	25883		
2616997010	HGWC-12	EPA 300.0	25883		
2616997011	MW-25D	EPA 300.0	25883		

Face Analytical

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

Section A Required	Cilent Information:	Section B Required Project Information:	lect Inf	ormation:				Sect	Section C	Section C Invoice Information:									I				ł	[,	
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Address:	2480 Maner Road		Lauren	Lauren Petty, Geosyntec	syntec			ဦ	Company Name:	E E				İ			İ	_							
Atlanta								Add	Address:												Norde A	Reculatory Afterna		200	_
ig E	jabraham@southernco.com	Purchase Order #: SC310348608	#. Bu	SC3103	18606			- B	Pace Quoter					i											
Phone	(404)506-7239 Fax	Project Name:		Plant Hammond	, Jud			Pac	Projec	Pace Project Manager.	İ	betsy.modaniel@pacelabs.com,	daniel@	pacelab	S.COM.				1000		S. T. A. B.	State (Location)			
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L			ł				ľ	Ī					<u> </u>		Reques	ested Analysis/Filered (YM)	(ABE)	(Pereil	, (NI	3	X.				
	AIGASSA	June		1	COLLECT	OTE		_		D	Presenvatives	v	LINIA												
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Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Due Date: 04/11/19 (N/A) Semples · Regulatory Ayancy (N/A) ŏ Coolar State Mocellan perces Custos MO#: 2616997 (N/λ) 8 Received on CLIENT: GRPouer-CCR Residual Chlorine (Y/N) Page: is TEMP in C 2998 1000 450 4/2/19 119 112/16 É × Redium 226/228 DATE Signed: 7 TDS, CI, F, SO4 betsy.mcdaniet@pacelabs.com Metals (App. III & D&O) nexu Wats (App. III, App. IV, D&O rearente VI .qqA & III .qqA) alsteM ァ Pace EN/A dseT sesylanA Attention: scsinvoices@southernco.com Pace Project Manager: betsy modari Pace Profile #: 327 (AP) or 328 (Huff) Other Much Musius Methanol Nezszos SLAK HOBN ЮН nvoice information: ᡯ 4 EONH Company Name Noelia Nortia HS204 Section C Hadin representan tan Holla 1900 Address: Unpreserved 4 4/2/10 1318 4/2/10 133819 5 b # OF CONTAINERS 2 G 4/3/10/1450 4/3/19 1510 20 SAMPLE TEMP AT COLLECTION 学 PRINT Name of SAMPLER: SKGNATURE of SAMPLER: FIGURE . 414/14 8 C 4/2/10 1054 4/2/10 DATE COLLECTED Comore contract Copy To: Lauren Petty, Geosyntec SCS10348606 Plant Hammond START Required Project Information: Joju Abraham SAMPLE TYPE (G-GRAB C-COMP) W. Jawol Purchase Order #: Project Name: p Project #: 3 7 MATRIX CODE (see valid codes to left) Section B Becyllium, Calmium, Chronium, Chall MATRUX
Drinking Water
Water
Waste Water
Waste Water
Product
SoarSould
Oil
Wape
Air
Other
Tissue Nos IV (2): Antimoughbroanic, Barn worder, affirm, Maybalaum, Sale sice Georgia Power - Coal Combustion Residuals Profile: (404)506-7239 Fax. Requested Due Date: Standard TAT One Character per box. (A.Z. 0.9 / , .) Sample Ids must be unique SAMPLE ID HGWC-10 mail: jabraham@southernco.com HGWC-B 2480 Maner Road Required Client Information: MM-M Thallium ÷U. gE S Page 25 of 27 # Mati

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

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Address	2480 Maner Road	Copy To:	Lau	ren P.	Lauren Petty, Geosyntec	syntec				Com	Company Name:	lame:																	
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	Sampi	e Conditior	i Upon Receipi		1
Face Anal	vtical Client Name: _	GA	Power	Project #	
Tracking #:	x UPS USPS Client	☐ Commercial	Pace Other	WO#:26	16997
Custody Seal on (cooler/Box Present: yes	no Seals	intact: 🖵 Ves	PM: BM	Due Date: 04/11/19
	☐ Bubble Wrap ☐ Bubble Bag			CLIENT: GAPON	er-CCR
Thermometer Use				 	
Cooler Temperatu	I.I	•	is Frozen: Yes No	Date and Initia	ling process/has begun
Temp should be abov			Comments:	contents:	+/4/19 M
Chain of Custody P	resent:	1 es □No □N/A	1.		' '
Chain of Custody F		es 🗆 No 🗆 N/A			
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Sampler Name & S		es 🗆 No 🗆 N/A			
Samples Arrived wi		es 🗆 No 🗆 N/A			
Short Hold Time A		es DM6 □N/A			
Rush Turn Around		es ☑N⁄A			
Sufficient Volume:		ēs □No □N/A			
Correct Containers		ēs □No □N/A			
-Pace Container	Used:	? es □No □N/A			
Containers Intact:	25	es 🗆 No 🗆 N/A	10.		
Filtered volume rece	sived for Dissolved tests	es 🗆 No 🛨 N/A	11.		
Sample Labels mate	ch COC:	es □No □N/A	12.		
-Includes date/tir	ne/ID/Analysis Matrix:	ω			
All containers needing p	reservation have been checked.	7 es □No □N/A	13.		
All containers needing compliance with EPA	preservation are found to be in ecommendation.	és □No □N/A			
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es ÆNO	Initial when completed	Lot # of added preservative	
Samples checked for		BS □NO □NTA			
Headspace in VOA		es 🗆 No 🔎 NÃ			
Trip Blank Present:		es 🗆 No 🗗 N/A			
Trip Blank Custody		es ONO ONA			
Pace Trip Blank Lot	# (if purchased):				
Client Notification/	Resolution				
	cted:	Date/1		Field Data Required	P Y / N
Comments/ Resolu		Dater	mae.	<u> </u>	
_					
Project Manager	Review:			Date:	
Note: Whenever there	is a discrepancy affecting North Carolina	compliance sam	ples, a copy of this forn	n will be sent to the North	Carolina DEHNR
Sertification Office (i.e	out of hold, incorrect preservative, out of	f temp, incorrect	containers)		
				F-ALLC003	rev.3, 11September2006





April 26, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616998

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

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616998

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

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

Ohio EPA Rad Approval: #41249

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616998

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616998001	HGWC-9	Water	04/03/19 10:05	04/04/19 11:00
2616998002	MW-26D	Water	04/03/19 11:38	04/04/19 11:00
2616998003	MW-19	Water	04/03/19 14:50	04/04/19 11:00
2616998004	MW-5	Water	04/03/19 13:12	04/04/19 11:00
2616998005	HGWC-8	Water	04/03/19 11:24	04/04/19 11:00
2616998006	HGWC-10	Water	04/03/19 13:38	04/04/19 11:00
2616998007	MW-6	Water	04/03/19 15:10	04/04/19 11:00
2616998008	MW-7	Water	04/03/19 10:45	04/04/19 11:00
2616998009	HGWC-11	Water	04/03/19 12:40	04/04/19 11:00
2616998010	HGWC-12	Water	04/03/19 14:20	04/04/19 11:00
2616998011	MW-25D	Water	04/03/19 16:15	04/04/19 11:00



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616998

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616998001	HGWC-9	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998002	MW-26D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998003	MW-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998004	MW-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998005	HGWC-8	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998006	HGWC-10	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998007	MW-6	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998008	MW-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998009	HGWC-11	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998010	HGWC-12	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998011	MW-25D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: Plant Hammond

Pace Project No.: 2616998

Sample: HGWC-9 PWS:	Lab ID: 26169980 Site ID:	O1 Collected: 04/03/19 10:05 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.147 ± 0.211 (0.452) C:86% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228		0.00881 ± 0.442 (1.03) C:76% T:82%	pCi/L	04/16/19 18:33	3 15262-20-1	
Total Radium	Total Radium Calculation	0.156 ± 0.653 (1.48)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond

Calculation

Pace Project No.: 2616998

Sample: MW-26D PWS:	Lab ID: 2616998 (Site ID:	O02 Collected: 04/03/19 11:38 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.205 ± 0.207 (0.378) C:94% T:NA	pCi/L	04/12/19 09:36	13982-63-3	
Radium-228	EPA 9320	-0.0700 ± 0.421 (1.00) C:77% T:80%	pCi/L	04/16/19 18:37	7 15262-20-1	
Total Radium	Total Radium	0.205 ± 0.628 (1.38)	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond Pace Project No.: 2616998

Sample: MW-19 Lab ID: 2616998003 Collected: 04/03/19 14:50 Received: 04/04/19 11:00 Matrix: Water

PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.276 ± 0.229 (0.387) C:89% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	0.608 ± 0.805 (1.72) C:77% T:83%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	0.884 ± 1.03 (2.11)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616998

Sample: MW-5 PWS:	Lab ID: 26169980 Site ID:	O4 Collected: 04/03/19 13:12 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.607 ± 0.360 (0.575) C:92% T:NA	pCi/L	04/12/19 09:37	7 13982-63-3	
Radium-228		0.325 ± 0.807 (1.79) C:79% T:83%	pCi/L	04/16/19 21:13	3 15262-20-1	
Total Radium	Total Radium Calculation	0.932 ± 1.17 (2.37)	pCi/L	04/17/19 13:1	5 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616998

Sample: HGWC-8 PWS:	Lab ID: 26169980 Site ID:	O5 Collected: 04/03/19 11:24 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.291 ± 0.241 (0.415) C:92% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228		0.594 ± 0.544 (1.11) C:77% T:79%	pCi/L	04/16/19 18:37	7 15262-20-1	
Total Radium	Total Radium Calculation	$0.885 \pm 0.785 (1.53)$	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond

Calculation

Pace Project No.: 2616998

Sample: HGWC-10 PWS:	Lab ID: 261699 Site ID:	8006 Collected: 04/03/19 13:38 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.80 ± 0.587 (0.524) C:83% T:NA	pCi/L	04/12/19 09:3	9 13982-63-3	
Radium-228	EPA 9320	0.0170 ± 0.700 (1.61) C:80% T:80%	pCi/L	04/16/19 21:13	3 15262-20-1	
Total Radium	Total Radium	1.82 ± 1.29 (2.13)	pCi/L	04/17/19 13:1	5 7440-14-4	



Project: Plant Hammond Pace Project No.: 2616998

Sample: MW-6 Lab ID: 2616998007 Collected: 04/03/19 15:10 Received: 04/04/19 11:00 Matrix: Water

PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.789 ± 0.376 (0.497) C:91% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	0.0827 ± 0.817 (1.86) C:79% T:80%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	0.872 ± 1.19 (2.36)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond Pace Project No.: 2616998

Sample: MW-7 PWS:	Lab ID: 26169980 Site ID:	O8 Collected: 04/03/19 10:45 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.310 ± 0.233 (0.379) C:99% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228		0.741 ± 0.545 (1.07) C:75% T:84%	pCi/L	04/16/19 18:35	5 15262-20-1	
Total Radium	Total Radium Calculation	1.05 ± 0.778 (1.45)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616998

Sample: HGWC-11 PWS:	Lab ID: 26169980 Site ID:	O9 Collected: 04/03/19 12:40 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.302 ± 0.263 (0.475) C:90% T:NA	pCi/L	04/12/19 09:37	7 13982-63-3	
Radium-228		0.0575 ± 0.452 (1.04) C:79% T:82%	pCi/L	04/16/19 18:37	7 15262-20-1	
Total Radium	Total Radium Calculation	$0.360 \pm 0.715 (1.52)$	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616998

Sample: HGWC-12 PWS:	Lab ID: 26169980 Site ID:	Collected: 04/03/19 14:20 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.344 ± 0.249 (0.412) C:94% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228		0.390 ± 0.755 (1.66) C:76% T:83%	pCi/L	04/16/19 21:13	3 15262-20-1	
Total Radium	Total Radium Calculation	0.734 ± 1.00 (2.07)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond

Calculation

Pace Project No.: 2616998

Sample: MW-25D PWS:	Lab ID: 26169980 1 Site ID:	Collected: 04/03/19 16:15 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.361 ± 0.333 (0.652) C:82% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228		0.301 ± 0.482 (1.05) C:74% T:77%	pCi/L	04/25/19 11:04	15262-20-1	
Total Radium		0.662 ± 0.815 (1.70)	pCi/L	04/26/19 09:32	2 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 337393 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616998003, 2616998004, 2616998006, 2616998007, 2616998009, 2616998010, 2616998011

METHOD BLANK: 1642070 Matrix: Water

Associated Lab Samples: 2616998003, 2616998004, 2616998006, 2616998007, 2616998009, 2616998010, 2616998011

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-226 0.123 \pm 0.274 (0.633) C:65% T:NA pCi/L 04/12/19 09:37

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.



Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 337392 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616998001, 2616998002, 2616998005, 2616998008

METHOD BLANK: 1642069 Matrix: Water

Associated Lab Samples: 2616998001, 2616998002, 2616998005, 2616998008

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-226 0.117 \pm 0.178 (0.382) C:94% T:NA pCi/L 04/12/19 08:07

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



Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 337342 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616998001, 2616998002, 2616998003, 2616998004, 2616998005, 2616998006, 2616998007, 2616998008,

2616998009, 2616998010

METHOD BLANK: 1641953 Matrix: Water

Associated Lab Samples: 2616998001, 2616998002, 2616998003, 2616998004, 2616998005, 2616998006, 2616998007, 2616998008,

2616998009, 2616998010

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 -0.245 ± 0.294 (0.748) C:78% T:79%
 pCi/L
 04/16/19 16:22

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.



EPA 9320

Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 338745

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616998011

METHOD BLANK: 1648702 Matrix: Water

Associated Lab Samples: 2616998011

 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

Analysis Method:

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616998

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

Date: 04/26/2019 03:11 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616998

Date: 04/26/2019 03:11 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616998001	HGWC-9	EPA 9315	337392		
2616998002	MW-26D	EPA 9315	337392		
2616998003	MW-19	EPA 9315	337393		
2616998004	MW-5	EPA 9315	337393		
2616998005	HGWC-8	EPA 9315	337392		
2616998006	HGWC-10	EPA 9315	337393		
2616998007	MW-6	EPA 9315	337393		
2616998008	MW-7	EPA 9315	337392		
2616998009	HGWC-11	EPA 9315	337393		
2616998010	HGWC-12	EPA 9315	337393		
2616998011	MW-25D	EPA 9315	337393		
2616998001	HGWC-9	EPA 9320	337342		
2616998002	MW-26D	EPA 9320	337342		
2616998003	MW-19	EPA 9320	337342		
2616998004	MW-5	EPA 9320	337342		
2616998005	HGWC-8	EPA 9320	337342		
2616998006	HGWC-10	EPA 9320	337342		
2616998007	MW-6	EPA 9320	337342		
2616998008	MW-7	EPA 9320	337342		
2616998009	HGWC-11	EPA 9320	337342		
2616998010	HGWC-12	EPA 9320	337342		
2616998011	MW-25D	EPA 9320	338745		
2616998001	HGWC-9	Total Radium Calculation	338684		
2616998002	MW-26D	Total Radium Calculation	338684		
2616998003	MW-19	Total Radium Calculation	338684		
2616998004	MW-5	Total Radium Calculation	338684		
616998005	HGWC-8	Total Radium Calculation	338684		
616998006	HGWC-10	Total Radium Calculation	338684		
616998007	MW-6	Total Radium Calculation	338684		
616998008	MW-7	Total Radium Calculation	338684		
2616998009	HGWC-11	Total Radium Calculation	338684		
2616998010	HGWC-12	Total Radium Calculation	338684		
2616998011	MW-25D	Total Radium Calculation	340066		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

State of the State of the State of Stat Regulation Against (N/A) 4 (N/A) ŏ Sealed Cooler Custo (N/A) **40# · 2616998** Received on Residual Chlorine (Y/N) • Page: TEMP IN C 4 2040 1900 1000 0181 4/2/19 6)'K'5 4/5/19 DATE Signed: O4/03/19 2616998 Redium 226/228 Geosyate D2' Cl' E' 204 betsy.mcdaniel@pacelabs.com, (OSC & III .qqA) sletsh Jan Synta OSO ,VI .qqA ,III .qqA) steM Metals (App. III & App. IV) NI (company) Invoice Information: Attention: scsinvoices@southernco.com Pace Profile #: 327 (AP) or 328 (Huff) 1941O sout Wather lonariteM Preservatives EOSSZ6N Grand Weater HOBN Pace Project Manager: ЮН M EONH 3 ~ Company Name 1010 Pace Quote: 452O4 Section C 1900 Address pevieserdun d S Ð S S # OF CONTAINERS SAMPLE WANTE AND SIGNATUR Marin Muha Kaewy. 4/3/19 WT 6 0463 14:27 04/09 14:50 19 G 0403 12:55 04/03 13:12 19 81 85:11 EO/HO Grant Walter/Gerssafec 041031 2 PRINT Name of SAMPLER: SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION 4/4/16 SOS 8 ろ ろ DATE ones and some COLLECTED 1 extratec TEACH. 6 04/03 11:15 Copy To: Lauren Petty, Geosyntec START Required Project Information: Report To: Joju Abraham DATE 3 (GMOD=D 8ARD=D) BAYT BLAMAS 5 MATRIX CODE (see valid codes to left) Section B MATRUX
Drunking Water
Waste Water
Waste Water
Product
Soi/JSold
Oil
Wipe
Au
Ober
Tissue Ap II (2): Antimony, Assenic, Berium, Slevium, Thallium Caelvium, chronium Georgia Power - Coal Combustion Residual Fluoride, [19thium. (A-Z, 0-9 / , -) Sample Ids must be unique Phone: (404)506-7239 Fac Requested Due Date: Standard SAMPLE ID One Character per box. 2480 Maner Road HGWC-9 092-MM MW-5 Required Client Information: MW-19 Molubolenum Berylium. Wanta, GA 30339 Address: 10 # MaTi Page 22 of 25

Pace Arabitical

CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) Due Date: 05/02/19 ISBIU And the State of Location Control of the Samples Cooter (Y/N) ð poleos Custod **JO#:2616998** (YW) g Received on Residuel Chlorine (Y/N) CLIENT: GAPower-CCR Ó TEMP IN C 1100 2995 1985 6112/10 14/19 44.19 DIE 4/2/19 PH: BH Radium 226/226 DATE Signed: 102' Cl' E' 204 betsy modaniel@pacelabs.com (O30 3 III cqA) stateM nen ACCEPTED BY JAFFILLATION Mets (App. III, App. IV, D&O Jersey J Metals (App. III & App. IV) ァ Paces NX Analyse TestienA Attention: scsinvoices@southernco.com Company Name: 327 (AP) or 328 (Huff) Musius tonsitioM ⋖ Preservatives Na2S203 Slow HOBN Pace Quote: Pace Project Manager: Invoice Information: нсі 4 4 EONH Noelia Pace Profile #: Nortia HSSO4 Dop. W. (2): Antimout, Brain, Buther setting returning / Jan 4/3/19 1700 4 Unpreserved p 6 4/2/10 1310 1/2/10 133419 5 # OF CONTAINERS 'n 121020 SAMPLE TEMP AT COLLECTION œ PRINT Name of SAMPLER: SIGNATURE of SAMPLER: 4/4/19 ᅙ TIME END C 4/3/10/ 1054 4/3/10 G 4/3/10/1450 4/3/10 DATE COLLECTED م المعامد ، بعداد TIME Copy To: Lauren Petty, Geosyntec SCS10348606 START Plant Hammond Required Project Information: DATE Joju Abraham SAMPLE TYPE (G-GRAB C-COMP) Purchase Order #: (Rel at seboo bilay eas) SCOO XIRTAM Project Name: Project #: Section B Becyllium, Calmium, Chronium, Charle MATRUX
Denting Water
Water
Water
Water
Water
Product
SoutSodd
Od
Wipe
Wipe
Tissue Georgia Power - Coal Combustion Residuals Phone: (404)505-7239 Fax Requested Due Date: Standard TAT One Character per box. (A-2, 0-9 / , -). Sample Ids must be unique SAMPLE ID HGWC-10 Email: jabraham@southernco.com Hawc-8 2480 Maner Road MW-G Required Client Information: Atlanta, GA 30339 Traffirm Сопралу: , 9 # MaTI Page 23 of 25

Pace Arethical

CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) Due Date: 05/02/19 ntact saldmag (V/V) ŏ pelees (V/V) **JOH: 2616998** 8 Received on Residual Chlorine (Y/N) Раде: 6 CLIENT: GRPower-CCR TEMP IN C FOOT o/aj 9000 1100 4/19 Martin Muster lacounte 413/19 4413 71/2/4 P. . HOCKNOW DATE SPOTS /19 825/955 muiba5 TDS, CI, F, SO4 Metals (App. III & D&O) betsy modaniel@pacelabs.com Mets (App. III, App. IV, D&O man Pare (VI .qqA iš III .qqA) alisteM N/A Attention: scsinvoices@southernco.com 327 (AP) or 328 (Huff) lonsitieM Preservatives ROSSZBN HOBN Pace Project Manager: Pace Profile #: 327 (ЮН Invoice Information: Dalton M M EONH ~ Company Name: HSSO4 Pace Quote: Anderson(60) 4/5/19/18:10 Address DevresendnU ئم 7 64/3/A15:34/3/9/4:2965 541911.21. AKE 1910.12. 17. 1818 # OF CONTAINERS 5 6 4151 12:10 13 11 2:10 13 SIGNATURE of SAPPLER: 413614 PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 31/4/4 641211 57:0 12/11/0:00 TIME T 200 usten (Georgiada) DATE ሄ COLLECTED Corsent. Ţ Copy To: Lauren Petty, Geosyntec Purchase Order #: SCS10348506 Project Name: Plant Hammond Project #: 4 START DATE Required Project Information: Report To: Joju Abraham DAITED Notice and Morelow (G=GRAB C=COMP) **BAYT BJAMA2** 13 15 MATRIX CODE (see valid codes to left) Section B CODE WW WY OP P WW TS MATRIX
Dinking Water
Water
Water
Water
Water
Water
Water
Water
Product
On
Wipe
Au
Au
Citye APP III + IX (2): Antimody, Ac scale Flueride, Lithium Malyboknum, Sedevium, Admin . Georgia Power - Coal Combustion Residuals E (A-Z, 0-9 / , -) Sample Ids must be unique **ゴラシロー17** NN-250 Backmy Berylling One Character per box. SAMPLE ID H COMIC. Phone: (404)505-7239 F mail: jabraham@southemco.com 2480 Maner Road Required Cllent Information: Cherrynians # age 24 of 25 Ulanta, GA 30339 Company: Address: # Mari

ومعصي			Sample	: Co	nd	ition	Upon Receipt				1	
Face Analy	⁄tical [^]	Client I	Name:	G	Æ	₹,	Power	F	Project	#		
Courier: Fed E	x 🗌 UPS	USPS	Client [] Cor	nme	ercial	Pace Other		#O#	: 26	1699	***
Custody Seal on C	ooler/Box	Present: _	yes [no		Seals	intact:	11	M: BM		I	e: 05/02/:
Packing Material:		•					-		LIENT:	GAPo	er-CCR	
Thermometer Use		33					Blue None	t_{\Box}	Samples of	l on ice, co	ling process/ha	s beaun
Cooler Temperatu	re	3.5				<	is Frozen: Yes No	1	Date a	nd Initia	s of person ex	amining
Temp should be abov		6°C	_				Comments:	<u> </u>	cont	ents:	777	M
Chain of Custody P	resent:		Ą	es □	No	□n/a	1.					
Chain of Custody F	illed Out:		Æ	Ţ.es	No	□n/a	2.			:		
Chain of Custody R	elinquished	l:	Æ	és 🗆	No	□n/a	3.			:		
Sampler Name & S	gnature on	COC:	Ę.	es 🗆	No	□n/a	4.					
Samples Arrived wi	lhin Hold Ti	me:	1	\ \&	No	□n/a	5.					
Short Hold Time A	nalysis (<7	/2hr):	,	es 📮	140	□n/a	6.					
Rush Turn Around	Time Req	uested:		es 📮	10	□n/a	7.					
Sufficient Volume:			4	es □	No	□n/a	8.					
Correct Containers	Used:		4	ēs □	No	□n/a	9.					
-Pace Container	s Used:		₹	Çes 🗆	No	□n/a		li				
Containers Intact:			4	\ \e	No	□n/A	10.	İ				
Filtered volume rec	eived for Di	ssolved tes	its 🗅	es 🗆	No	-EIN/A	11.					
Sample Labels mate		vsis Ma	atrix:	es U		□n/a	12.					
All containers needing			ackad		No	□N/A	13.					
All containers needing compliance with EPA			o be in	es 🗆	No	□n/a						
exceptions: VOA, colifor			,	es 🔎			Initial when completed		Lot # of ad preservati			
Samples checked for	r dechlorin	ation:	ים	'es □	No	_DN/A	14.	ļ	***	i		
Headspace in VOA	Vials (>6n	nm):	ים	′es □	No	.⊒N/A	15.	<u> </u>				
Trip Blank Present:			ים	′es □	No	-EIN/A	16.					
Trip Blank Custody	Seals Pres	ent	ים	'es 🗆	No	-EIN/A						
Pace Trip Blank Lot	# (if purch	ased):				-		<u> </u>		İ		
Client Notification	Resolutio	n:							Field Data	Require	? Y /	N
Person Cont	acted:					Date/	Time:			!		
Comments/ Reso	lution:											
	<u> </u>							<u> </u>	<u>-</u>			
	<u> </u>									<u> </u>		
			-						 			
Project Manage	r Review:								D	ate:		
		•	-						_			
Note: Whenever ther Certification Office (i.							mples, a copy of this fo t containers)	ţṁ wi	ill be sent to	the Nort	n Carolina DEH	NR

F-ALLC003rev.3, 11Septemberge085 of 25





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617067

Dear Joju Abraham:

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

This revised report replaces the one issued on 4/12/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,

Betsy McDaniel

Beton Moamed

betsy.mcdaniel@pacelabs.com

(770)734-4200

Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta





CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617067

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812 Georgia DW Microbiology Certification #: 812 North Carolina Certification #: 381 South Carolina Certification #: 98011001

Virginia Certification #: 460204

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617067

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617067001	MW-27D	Water	04/04/19 09:48	04/05/19 11:20



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617067

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory	
	.	•		`		•
2617067001	MW-27D	EPA 6020B	JMW1	13	PASI-A	
		SM 2540C	RLC	1	PASI-GA	
		EPA 300.0	RLC	3	PASI-GA	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617067

Date: 05/01/2019 03:10 PM

Sample: MW-27D	Lab ID:	2617067001	Collecte	ed: 04/04/19	9 09:48	Received: 04/	05/19 11:20 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: EF	PA 3010A			
Antimony	0.00016J	mg/L	0.0030	0.00011	1	04/09/19 10:55	04/10/19 02:00	7440-36-0	
Arsenic	0.00020J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:00	7440-38-2	
Barium	1.2	mg/L	0.050	0.00030	5	04/09/19 10:55	04/11/19 01:16	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:00	7440-41-7	
Boron	0.12J	mg/L	0.20	0.0051	2	04/09/19 10:55	04/11/19 01:12	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:00	7440-43-9	
Calcium	26.3	mg/L	2.5	0.10	5	04/09/19 10:55	04/11/19 01:16	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:00	7440-47-3	
Cobalt	0.000091J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:00	7440-48-4	
Lithium	0.0069J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:00	7439-93-2	
Molybdenum	0.0018J	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:00	7439-98-7	
Selenium	0.00012J	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:00	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:00	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	203	mg/L	25.0	10.0	1		04/11/19 19:34		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	26.9	mg/L	0.25	0.024	1		04/09/19 09:48	16887-00-6	
Fluoride	0.26J	mg/L	0.30	0.029	1		04/09/19 09:48	16984-48-8	
Sulfate	11.8	mg/L	1.0	0.017	1		04/09/19 09:48	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2617067

Date: 05/01/2019 03:10 PM

QC Batch: 468126 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617067001

METHOD BLANK: 2543175 Matrix: Water

Associated Lab Samples: 2617067001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1 diameter					Analyzed	- Qualificis
Antimony	mg/L	ND	0.0030	0.00011	04/10/19 00:56	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 00:58	
Barium	mg/L	ND	0.010	0.000060	04/11/19 00:58	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 00:56	
Boron	mg/L	ND	0.10	0.0026	04/11/19 00:58	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 00:58	
Calcium	mg/L	ND	0.50	0.021	04/11/19 00:58	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 00:58	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 00:58	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 00:58	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 00:58	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 00:58	
Γhallium	mg/L	ND	0.0010	0.000060	04/11/19 00:58	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	98	80-120	
Beryllium	mg/L	0.01	0.0095	95	80-120	
Boron	mg/L	0.05	0.047J	94	80-120	
Cadmium	mg/L	0.01	0.010	101	80-120	
Calcium	mg/L	0.62	0.63	101	80-120	
Chromium	mg/L	0.05	0.050	99	80-120	
Cobalt	mg/L	0.01	0.010J	100	80-120	
Lithium	mg/L	0.05	0.050J	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.050	99	80-120	
Thallium	mg/L	0.01	0.0099	99	80-120	

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	CATE: 25431	77		2543178							
Parameter	Units	2617072001 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	102	100	75-125	2	20	
Arsenic	mg/L	0.00017J	0.01	0.01	0.010	0.010	102	99	75-125	3	20	
Barium	mg/L	0.018	0.05	0.05	0.069	0.068	101	99	75-125	1	20	

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.



Project: Plant Hammond

Pace Project No.: 2617067

Date: 05/01/2019 03:10 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	ATE: 25431	77		2543178							
		2617072001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD		Qual
Beryllium	mg/L	ND	0.01	0.01	0.0088	0.0084	87	84	75-125	4	20	
Boron	mg/L	2.3	0.05	0.05	2.4	2.4	205	248	75-125	1	20	M6
Cadmium	mg/L	0.0018	0.01	0.01	0.012	0.011	97	96	75-125	1	20	
Calcium	mg/L	214	0.62	0.62	218	216	575	271	75-125	1	20	M6
Chromium	mg/L	ND	0.05	0.05	0.050	0.049	99	98	75-125	1	20	
Cobalt	mg/L	0.035	0.01	0.01	0.044	0.044	97	94	75-125	1	20	
Lithium	mg/L	0.00090J	0.05	0.05	0.046J	0.045J	90	88	75-125	2	20	
Molybdenum	mg/L	ND	0.05	0.05	0.052	0.052	104	103	75-125	1	20	
Selenium	mg/L	0.00021J	0.05	0.05	0.050	0.049	99	97	75-125	2	20	
Thallium	mg/L	ND	0.01	0.01	0.010	0.010	104	102	75-125	1	20	

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.



Project: Plant Hammond

Pace Project No.: 2617067

QC Batch: 26251 Analysis Method: SM 2540C

QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2617067001

LABORATORY CONTROL SAMPLE: 118507

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Total Dissolved Solids mg/L 400 404 101 84-108

SAMPLE DUPLICATE: 118508

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

SAMPLE DUPLICATE: 118509

Date: 05/01/2019 03:10 PM

2617069003 Dup Max Result RPD RPD Qualifiers Parameter Units Result 340 **Total Dissolved Solids** mg/L 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.



Project: Plant Hammond

Pace Project No.: 2617067

QC Batch: 25956 QC Batch Method: EPA 300.0

Associated Lab Samples: 2617067001

Parameter

Analysis Method:

Analysis Description:

EPA 300.0

300.0 IC Anions

METHOD BLANK: 117263

Matrix: Water

Associated Lab Samples:

Date: 05/01/2019 03:10 PM

2617067001

Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
0.066J	0.25	0.024	04/08/19 22:43	

Chloride Fluoride Sulfate

Chloride Fluoride Sulfate

Units

mg/L

mg/L

mg/L

ND 0.30 0.045J 1.0

0.029 0.017 04/08/19 22:43

04/08/19 22:43

LABORATORY CONTROL SAMPLE: 117264

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

MATRIX SPIKE & MATRIX SPIK	E DUPLIC	CATE: 11726	5		117266							
			MS	MSD								
		2617035001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2617067

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville
PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

Date: 05/01/2019 03:10 PM

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617067

Date: 05/01/2019 03:10 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617067001	MW-27D	EPA 3010A	468126	EPA 6020B	468248
2617067001	MW-27D	SM 2540C	26251		
2617067001	MW-27D	EPA 300.0	25956		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Samples Intact (V/V) Requistory Agency Cooler (V/V) ŏ Custod (N/A) **JOH: 261706**7 Received on Page: Residual Chiptine (Y/N) TEMP in C 0873 2/19 1/20 4-4-19 180H 4/4/10 45.19 DATE Radium 226/228 Garage DATE Signed: TDS, CI, F, SO4 betsy.mcdaniel@pacelabs.com, (O.80 & III. qqA) alateM Wets (App. III, App. IV, D&O MACMMAN Parce Metals (App. III & App. IV) NX TEST SESVIEUS scsinvoices@southernco.com Missos Pace Project Manager: betsy modanie Pace Profile #: 327 (AP) or 328 (Huff) Modia Messer ICUBUIÐM Preservatives EOZSZ_PN HOBN Doelia нсі Involce information: HNO3 3 Company Name: 20933 Pace Quote: **H**S204 App-19 (12): Antimony, Associa, Borrow Walter Muchon Kausy 4/4/19 1804 Section C Address: Unpreserved J 5 # OF CONTAINERS G 4/4/19 0928 4/4/14 0948 18 SIGNATURE of SAMPLER: PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 4/5/19 DATE COLLECTED Cosypte TIME Lauren Petty, Geosyntec SCS10348606 START Purchase Order #: SCS103486 Project Name: Plant Hammond Project #: Required Project Information; DATE Joju Abraham Willow (G=GRAB C=COMP) SAMPLE TYPE MATRIX CODE (666 velid codes to left) Report To: Section B Copy To: Thorita , lithing , Adjetann, Stains Bacellism Cadenium, Chrosism, Capalle, Georgia Power - Coal Combustion Residuals +151 One Character per box. (A-Z, 0-9 /, -). Sample Ids must be unique Phone: (404)506-7239 Face Requested Due Date: Standard SAMPLE ID Allanta, GA 30339
Email: jabraham@southerrco.com 462 2480 Maner Road Required Client Information: 1 DAY Thelim Company: Address: 10 15 (4) 6 74 Page 12 of 1B # MaTI

	Sample	Condition	n Upon Receipt		
Pace Analy	<i>rtical</i> Client Name:	GCA	Powere	Project #	
	x 🗌 UPS 🗎 USPS 🗎 Client 🏾	Commercial .	Pace Other	WO#:26	17067
Tracking #:Custody Seal on C	ooler/Box Present: / yes	no Seals	s intact:	PM: BM	Due Date: 04/12/1 er-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None	Other		
Thermometer Used	<u> 83</u> туг	e of Ice: We	Blue None	Samples on ice, coo	ling process has begun
Cooler Temperatur	re Bio		is Frozen: Yes No	Date and Initial	s of person examining
Temp should be above			Comments:	<u> </u>	
Chain of Custody Pr		es ONO ON/A			
Chain of Custody Fi		es □No □N/A	2		
Chain of Custody R		es □No □N/A	3.		
Sampler Name & Si	gnature on COC:	es □No □N/A	4.		
Samples Arrived wit	hin Hold Time:	es □No □N/A	5.		
Short Hold Time A	nalysis (<72hr): □Y	es ⊟no □n/A	6.		
Rush Turn Around	Time Requested:	es ☑No □N/A	7.		
Sufficient Volume:	€IÝ	os □No □N/A	8.		
Correct Containers	Jsed: •⊡Ý	s □No □N/A	9.		
-Pace Containers		ES □No □N/A			
Containers Intact:		s □No □N/A	·		<u> </u>
	,	s DNo DATA			
Sample Labels mate		S DNo DN/A	1		
-Includes date/tin			12.		
All containers needing p	reservation have been checked		 		
		% □No □N/A	13.		
All containers needing compliance with EPA r	preservation are found to be in accommendation.	s □No □N/A			
exceptions: VOA, coliforn	, TOC, O&G, WI-DRO (water)	s-⊟No	Initial when completed	Lot # of added preservative	
Samples checked fo	r dechlorination:	s □No •□N/A	14		
Headspace in VOA		s 🗆 No 🗝 🗖 🗸			
Trip Blank Present:		s □No □N/A			
Trip Blank Custody \$		s DNo DNA	10.		
Pace Trip Blank Lot		3 LIND 2214/A	1		
T doo Trip Brain Lot	(ii purchaseu)				
Client Notification/	Resolution:			Field Data Required	Y / N
Person Conta		Date/	Time:		
Comments/ Resolu	tion:				
				:	
<u> </u>					
Project Manager	Review:			Date:	
Note: Whenever there	is a discrepancy affecting North Carolina	compliance ser	inles a conv of this form	will be sent to the North	Carolina DEHNR
	out of hold, incorrect preservative, out of			will be sent to the North	
				F-ALLC003	Page 13 of 13 rev.3, 11September2006





April 29, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617068

Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617068

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 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

Missouri Certification #: 235

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





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617068

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2617068001	MW-27D	Water	04/04/19 09:48	04/05/19 11:20	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617068

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617068001	MW-27D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: Plant Hammond

Pace Project No.: 2617068

Sample: MW-27D PWS:	Lab ID: 26170680 Site ID:	O1 Collected: 04/04/19 09:48 Sample Type:	Received:	04/05/19 11:20	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.983 ± 0.386 (0.350) C:98% T:NA	pCi/L	04/17/19 08:36	13982-63-3	
Radium-228		0.348 ± 0.348 (0.722) C:87% T:79%	pCi/L	04/18/19 12:29	15262-20-1	
Total Radium	Total Radium Calculation	1.33 ± 0.734 (1.07)	pCi/L	04/22/19 11:17	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2617068

QC Batch: 337911 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617068001

METHOD BLANK: 1644521 Matrix: Water

Associated Lab Samples: 2617068001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.526 ± 0.315 (0.569) C:87% T:76%
 pCi/L
 04/18/19 12:31

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



EPA 9315

9315 Total Radium

Project: Plant Hammond

Pace Project No.: 2617068

QC Batch: 337917

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

Associated Lab Samples: 2617068001

METHOD BLANK: 1644525 Matrix: Water

Associated Lab Samples: 2617068001

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

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



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2617068

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

Date: 04/29/2019 03:31 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617068

Date: 04/29/2019 03:31 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617068001	MW-27D	EPA 9315	337917		
2617068001	MW-27D	EPA 9320	337911		
2617068001	MW-27D	Total Radium Calculation	339290		

Pace Arralytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) Requisitory Apancy Samples (N/A) Cooler ö belse2 Custody (N/A) **40#:2617068** 8 Received on Residual Chlorine (Y/N) Page: TEMP in C 25,50 1120 H081 7 5/10 H-4-H **h/h** OATE でごらせ 10res ye 1 20 8SS/3SS muibe9 > DATE Signed: LD2' CI' E' 204 ACCEPTED BY / AFFILIATION ... betsy.mcdaniel@pacelabs.com. Metals (App. III & D&O) MACINAMAN Mets (App. III, App. IV, D&O Metals (App. III & App. IV) NX teeT seavisnA. Doelia Museus Altention: scsinvoices@southernco.com 327 (AP) or 328 (Huff) SIGNATURE OF SAMPLER: HORLIG MILESARON Methanol EOZSZBN HOPN Pace Project Manager Pace Profile #: 327 ЮН Invoice Information: 3 EONH Company Name: 22933 Pace Quote: #OSZH 1804 Address: SAMPLER NAME AND SIGNATURES Unpreserved 7 S OF CONTAINERS PRINT Name of SAMPLER: 8 SAMPLE TEMP AT COLLECTION DATE 4/5/19 Madia Mulan Kaenga 4/4/19 2460 SNO G 4/4/19 0928 4/4/19 COLLECTED * * "FREINDUSHED BY / AFFLIATION Comme TIME Joju Abraham Lauren Petty, Geosyntec Purchase Order # SCS10348606. Project Name: Plant Hammond Project #: START Required Project Information: (GMOD=D BARD=D) 34YT 3J4MA8 (fiel of seboo biley eas) BOOD XIRTAM Report To: Copy To: Section B Doo. T. Co): Antimony, Associa, Barren MATRIX
Upinking Wester
Waster
Waste Water
Product
SoadSoled
Oul
Wape
Air
Other
Tissue Boughisms Codonism Chronism (Colodity Thoride, lithing, Adole Baum, Shaine Abbinoval contents Georgia Power - Coal Combustion Residuals 121 (A-Z, 0-9 / , -) Sample Ids must be unique Phone: (404)506-7239 Fax Requested Due Date: Storil and One Character per box. SAMPLE ID mail jabraham@southernco.com 452 2480 Maner Road Required Client Information: 38 Manta, GA 30339 .**..** . 10 1 ූල Page 10 of 1 # MBTI

· Andrew	Sampli	e Condition	ı Upon Receipt		
Pace Anal	vtical Client Name:	GCA	Powere	Project #	
Courier: Fed E	x UPS USPS Client	Commercial .	Pace Other	****	17068
Custody Seal on C	ooler/Box Present:yes	l no Seals	intact: Tyes	PM: BM	Due Date: 05/03/1
Packing Material:	☐ Bubble Wrap ☐ Bubble Bag	None	Other	CLIENT: GRP	er-CCR
Thermometer Use	# <u>83</u> Tyr	e of Ice: Wet	Blue None	Samples on ice, co	oling process has begun
Cooler Temperatu Temp should be above		logical Tissue	is Frozen: Yes No Comments:	Date and Initia contents:	s of person examining
Chain of Custody P	resent:	es 🗆 No 🗆 N/A	1.		
Chain of Custody Fi		es □No □N/A			
Chain of Custody R		es 🗆 No 🗆 N/A			
Sampler Name & Si		os □No □N/A			
Samples Arrived with		es 🗆 No 🗆 N/A			
Short Hold Time A		es GNO DN/A			
Rush Turn Around		es DINO DN/A			
Sufficient Volume:		es ONO ON/A			
Correct Containers		S ONO ON/A			
-Pace Containers		ES DNO DN/A	9.		
Containers Intact:		es ONO ON/A	40	:	
Sample Labels mate		es Ono Onia	· 		
			12.		
-Includes date/tin All containers needing p	reservation have been checked.			:	
All containers pooding	preservation are found to be in	∄ □No □N/A	13.	:	
compliance with EPA r		s □No □N/A			
excentions: VOA coliforn	n, TOC, O&G, WI-DRO (water)	₽S - □ NO 1	Initial when completed	Lot # of added	
Samples checked for	,	es 🗆 No 🔎 N/A		preservative	
Headspace in VOA		es Ono AMA			
Trip Blank Present:		es Ono Data			
Trip Blank Custody S	<u></u>		10.		
Pace Trip Blank Lot		es □No ZHVA			
race Trip Blank Lot	# (ii purchased):				
Client Notification/				Field Data Required	? Y / N
Person Conta	·	Date/1	Гime:		
Comments/ Resolu	ution:				
				:	
		1-			
		- 1.5.4			
			A. A		
Project Manager	Review:			Date:	
Note: Whenever there	is a discrenancy affecting blooth Co	aamalia			O. I. BEING
Certification Office (i.e	is a discrepancy affecting North Carolina out of hold, incorrect preservative, out	f temp, incorrect	iples, a copy of this for containers)		
				F-ALLC00	Brev.3, 11September 2006





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617146

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

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

Sincerely,

Betsy McDaniel

Beton Moamed

betsy.mcdaniel@pacelabs.com

(770)734-4200

Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta





CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617146

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812 Georgia DW Microbiology Certification #: 812 North Carolina Certification #: 381 South Carolina Certification #: 98011001

Virginia Certification #: 460204

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617146

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2617146001	HGWC-13	Water	04/05/19 16:03	04/08/19 15:30	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617146

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617146001	HGWC-13	EPA 6020B	JMW1	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA



Date: 05/01/2019 03:26 PM

ANALYTICAL RESULTS

Project: Plant Hammond Pace Project No.: 2617146

Sample: HGWC-13	Lab ID:	2617146001	Collecte	ed: 04/05/19	16:03	Received: 04/	08/19 15:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3010A			
Antimony	0.00021J	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 09:34	7440-36-0	
Arsenic	0.36	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-38-2	
Barium	0.079	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 09:34	7440-41-7	
Boron	0.86J	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 23:20	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 09:34	7440-43-9	
Calcium	77.1	mg/L	10.0	0.41	20	04/10/19 19:59	04/11/19 23:20	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 09:34	7440-47-3	
Cobalt	0.0017J	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 09:34	7440-48-4	
Lithium	0.023J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 09:34	7439-93-2	
Molybdenum	0.030	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 09:34	7439-98-7	
Selenium	0.00018J	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 09:34	7782-49-2	
Thallium	0.00034J	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	331	mg/L	25.0	10.0	1		04/11/19 20:53		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	36.4	mg/L	0.25	0.024	1		04/10/19 09:10	16887-00-6	
Fluoride	0.83	mg/L	0.30	0.029	1		04/10/19 09:10	16984-48-8	
Sulfate	105	mg/L	10.0	0.17	10		04/10/19 13:29	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2617146

Date: 05/01/2019 03:26 PM

QC Batch: 468622 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617146001

METHOD BLANK: 2545263 Matrix: Water

Associated Lab Samples: 2617146001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/11/19 20:42	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:42	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:42	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:42	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:42	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:42	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:42	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:42	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:42	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:42	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:42	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:42	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.010	104	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.051	102	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

MATRIX SPIKE & MATRIX SPIK	E DUPLIC	CATE: 25452	65		2545266							
			MS	MSD								
		2617144001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L		0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Arsenic	mg/L		0.01	0.01	0.0091J	0.0089J	91	89	75-125	2	20	
Barium	mg/L		0.05	0.05	0.085	0.085	85	85	75-125	0	20	

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



Project: Plant Hammond

Pace Project No.: 2617146

Date: 05/01/2019 03:26 PM

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	ATE: 254526	65 MS	MSD	2545266							
Parameter	Units	2617144001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Beryllium	mg/L		0.01	0.01	0.0086	0.0089	86	89	75-125	4	20	
Boron	mg/L	1010J ug/L	0.05	0.05	1.0J	1.0J	67	48	75-125	1	20	M6
Cadmium	mg/L		0.01	0.01	0.011	0.011	99	99	75-125	0	20	
Calcium	mg/L	70000 ug/L	0.62	0.62	71.3	74.8	207	759	75-125	5	20	M6
Chromium	mg/L		0.05	0.05	0.048	0.048	96	95	75-125	1	20	
Cobalt	mg/L		0.01	0.01	0.015	0.015	97	96	75-125	1	20	
Lithium	mg/L		0.05	0.05	0.043J	0.044J	82	85	75-125	3	20	
Molybdenum	mg/L		0.05	0.05	0.050	0.049	99	99	75-125	1	20	
Selenium	mg/L		0.05	0.05	0.044	0.044	89	88	75-125	1	20	
Thallium	mg/L		0.01	0.01	0.0096	0.0096	96	96	75-125	0	20	

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



Project: Plant Hammond

Pace Project No.: 2617146

QC Batch: 26252 Analysis Method: SM 2540C

QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2617146001

LABORATORY CONTROL SAMPLE: 118510

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

SAMPLE DUPLICATE: 118512

Date: 05/01/2019 03:26 PM

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

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.



Project: Plant Hammond

Pace Project No.: 2617146

QC Batch: 26064 QC Batch Method: EPA 300.0

Analysis Description:

EPA 300.0

Associated Lab Samples:

Analysis Method:

300.0 IC Anions

METHOD BLANK: 117680

2617146001

Matrix: Water

Associated Lab Samples:

Date: 05/01/2019 03:26 PM

2617146001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	0.25	0.024	04/10/19 01:27	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 01:27	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 01:27	

LABORATORY CONTROL SAMPLE:	117681						
		Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Chloride	mg/L	10	10.1	101	90-110		
Fluoride	mg/L	10	10.2	102	90-110		
Sulfate	ma/L	10	10.1	101	90-110		

MATRIX SPIKE & MATRIX SPIK	E DUPLIC	CATE: 117682	2		117683							
			MS	MSD								
		2617086001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	4.2	10	10	14.3	14.3	101	101	90-110	0	15	
Fluoride	mg/L	0.047J	10	10	10.4	10.4	103	103	90-110	0	15	
Sulfate	mg/L	10.8	10	10	19.6	19.6	89	88	90-110	0	15	M1

MATRIX SPIKE SAMPLE:	117684						
Parameter	Units	2617086002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1.6	10	10.7	91	90-110	_
Fluoride	mg/L	ND	10	9.2	92	90-110	
Sulfate	mg/L	5.2	10	13.7	85	90-110 N	<i>I</i> 11

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2617146

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville
PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

Date: 05/01/2019 03:26 PM

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

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617146

Date: 05/01/2019 03:26 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617146001	HGWC-13	EPA 3010A	468622	EPA 6020B	468673
2617146001	HGWC-13	SM 2540C	26252		
2617146001	HGWC-13	EPA 300.0	26064		

Pace Arealytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Semples Intact (N/V) (N/A) ŏ Cooler Received on (Y/N) SHAN LOCAL 5 Residual Chlorine (YVI) TEMP in C 1530 1945 (u6 4/2/19 Salto 4/12/14 4.8.19 Ø Radium 226/228 ァ DATE Signed: 102' CI' E' 204 betsy.mcdaniel@pacetabs.com (O&G & III aqA) sisieM Mets (App. III, App. IV, D&O Caronte Part Matals (App. III & App. IV) EN/A ATRIVEOR TOST Attention: scsinvoices@southernco.com Company Name: Muskus 327 (AP) or 328 (Huff) Methanol N82S203 SIGNATURE OF SAMPLER, MOLICA AND WAY HOBN Pace Quote: Pace Project Manager: Invoice Information: ЮН Noelia EONH Pace Profile #: +OSZH Section C Address: 411 1945 Unpreserved # OF CONTAINERS 5 1603 20 PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 61/3/15 P 61/6/h TIME 욻 415/19 DATE unian locamin COLLECTED antheoryta 415/10 1553 TIME Report To: Joju Abraham Copy To: Lauren Petty, Geosyntec Purchase Order #: SCS10348606 Project Name: Plant Hammond START Required Project Information: S SAMPLE TYPE (G-GRAB C-COMP) MATRIX CODE (see valid codes to left) Project Name: Project #: Section B MATROX
Defining Wazer
Water
Waste Wazer
Product
SoluSoid
Oil
Wipe
Au
Other
Tissue Boxyllium, Cadmium, Chrosnium, Coball, Ilusid Dep. II(a) : Antimony, Assenic, Burum athium, Molybdanum, Selenium, Thallium Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax Requested Due Date: Stoudord TPT One Character per box. (A-Z, 0-97, -) Sample Ids must be unique SAMPLE ID) mail: jabraham@southernco.com 2480 Maner Road Required Client Information: W SH Atlanta, GA 30339 g , a Page 12 of 1B ITEM #

Courter: Fed Ex UPS USPS Client Commercial Pace Other Tracking #: Custody Seal on Cooler/Box Present: Ves no Seals intact: Ves Packing Material: Bubble Wrap Bubble Bags None Other Thermometer Used Tryle of Ice: Wef Blue None Coler Temperature Type of Ice: Wef Blue None Biological Tissue is Frozen: Ves No Comments: Chain of Custody Prised Out: Prosent: Prosent No Date and Initials of service examining Contents: Prosents No Date A 2. Chain of Custody Resent: Prosent: Prose No Date A 3. Samples Arrived within Hold Time: Prose No Date A 4. Samples Arrived within Hold Time: Prose No Date A 5. Short Hold Time Analysis (<72hr): Prose No Date A 8. Sufficient Volume: Prosent No Date A 9. Pace Containers Used: Prose No Date A 9. Pace Containers Used: Prose No Date A 9. Pace Containers Intact: Prosent No Date A 11. Sample Labels match COC: Prose No Date A 11. Sample Labels match COC	S	Sample	Condition	Opon Receipt		
Tracking 8:		tical Client Name:	GIA	power	Project #	
Custody Seal on Cooler/Box Present:		x 🗌 UPS 🗌 USPS 🗍 Client [Commercial	Pace Other	WO# : 26	
Packing Material: Bubble Wrap Bubble Bag None Other Thermometer Used Tyre of Ice: Well Blad None Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and initials of gerythn examining contents: Date and a limital state Date a		ooler/Box Present: Ves	no Seals	intact: yes		
Thermometer Used Cooler Temperature	Packing Material:	Bubble Wrap Bubble Bag	None	Other		
Cooler Temperature			,		Samples on ice. co	pling process has begun
Tongs should be above freezing to 6°C Chain of Custody Pessent: Chain of Custody Resinquished. All on Chain of Custody Resinquished. Sampler Name & Signature on COC: All of Custody Resinquished. All on Chain of Custody Resinquished. All on Chain of Subday Resinquished. All on Chain of Subday Resinquished. All containers used: In the Custody Resinquished. All containers used: In the Custody Resinquished. All containers used: In the Custody Resinquished. All containers used: In the Custody Resinquished. All containers used: In the Custody Resinquished. All containers used: In the Custody Resinquished. All containers needing preservation have been checked. All containers needing preservation have been checked. All containers needing preservation have been checked. All containers needing preservation are found to be in compliance with EPA eccommendation. All containers needing preservation are found to be in compliance with EPA eccommendation. All containers needing preservation are found to be in compliance with EPA eccommendation. All containers needing preservation are found to be in compliance with EPA eccommendation. All containers needing preservation are found to be in compliance with EPA eccommendation. All containers needing preservation are found to be in compliance with EPA eccommendation. All containers needing preservation are found to be in compliance with EPA eccommendation. All containers needing preservation are found to be in compliance with EPA eccommendation. All containers needing preservation are found to be in compliance. All containers needing preservation have been checked. All containers needing preservation have been checked. All containers needing preservation have been checked. All containers needing preservation have been checked. All containers needing preservation have been checked. All containers needing preservation have been checked. All containers needing preservation have been checked. All containers needing preservation have been checked.					Date and Initia	s of person examining
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Chain of Custody Retinquished: Sampler Name & Signature on COC: Samples Arrived within Hold Time: Property of the County of t	Chain of Custody F	illed Out:	es □No □N/A	2.		
Samples Arrived within Hold Time: Pes No DNA 4.	Chain of Custody R		1	-		
Samples Arrived within Hold Time:			es DNo DN/A	4.		
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Sufficient Volume: Proceed Containers Used: Proceed						
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Containers Intact: Pos No NiA 10.	Correct Containers		-			
Filtered volume received for Dissolved tests Sample Labels match COC:	-Pace Container	S Used: -△□↑	es □No □N/A			
Filtered volume received for Dissolved tests Sample Labels match COC:	Containers Intact:	æ	es □No □N/A	10.		
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All containers needing preservation are found to be in compliance with EPA recommendation. Nes	-Includes date/tid	me/ID/Analysis Matrix:				
compliance with EPA ecommendation. Second S	All containers needing	reservation have been checked.	es □no □n/a	13.		
exceptions: VOA, coliform, TOC, 08G, WI-DRO (water) Samples checked for dechlorination: Yes No ZMA			es □No □N/A			
Samples checked for dechlorination:	exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es 🗖 No			
Headspace in VOA Vials (>6mm):		<u> </u>	es □No ☑N/A	14.		
Trip Blank Present: Yes	Headspace in VOA					
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	Trip Blank Present:		es □No ØÑ/A	16.		
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	Trip Blank Custody	Seals Present	es 🗆 No 🗖 N/A			
Person Contacted:	Pace Trip Blank Lot					
Person Contacted:	Client Notification	Pagalutian			Field Data Bassina	12 V / N
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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			Dates			
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	Project Manage	Review:			Date:	
					m will be sent to the Nor	h Carolina DEHNR





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617147

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617147

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 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

Missouri Certification #: 235

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





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617147

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617147001	HGWC-13	Water	04/05/19 16:03	04/08/19 15:30



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617147

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617147001	HGWC-13	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617147

Sample: HGWC-13 PWS:	Lab ID: 26171470 Site ID:	O1 Collected: 04/05/19 16:03 Sample Type:	Received:	04/08/19 15:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.422 ± 0.319 (0.565) C:87% T:NA	pCi/L	04/18/19 08:06	13982-63-3	
Radium-228		-0.0205 ± 0.300 (0.711) C:85% T:69%	pCi/L	04/18/19 12:3	1 15262-20-1	
Total Radium	Total Radium Calculation	0.422 ± 0.619 (1.28)	pCi/L	04/22/19 11:27	7 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

EPA 9320

Project: Plant Hammond

Pace Project No.: 2617147

QC Batch: 337915

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617147001

METHOD BLANK: 1644524 Matrix: Water

Associated Lab Samples: 2617147001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.664 ± 0.303 (0.504) C:90% T:91%
 pCi/L
 04/18/19 12:31

Analysis Method:

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.



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617147

QC Batch: 337923

Analysis Method: EPA 9315

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

Associated Lab Samples: 2617147001

METHOD BLANK: 1644541 Matrix: Water

Associated Lab Samples: 2617147001

Parameter Act ± Unc (MDC) Carr Trac Qualifiers Units Analyzed Radium-226 0.170 ± 0.213 (0.439) C:94% T:NA pCi/L 04/18/19 08:05

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2617147

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

Date: 05/01/2019 02:10 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617147

Date: 05/01/2019 02:10 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617147001	HGWC-13	EPA 9315	337923		
2617147001	HGWC-13	EPA 9320	337915		
2617147001	HGWC-13	Total Radium Calculation	339294		

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

(N/A) SAMPLE CONDITIONS losin' Samples (N/A) Cooter ŏ Del895 Custod Regulatory Agency (N/A) GA Received on JO#:2617147 Residual Chlorine (V/N) Page: $\overline{\cdot}$ TEMP in C 1530 TIME 1942 ii G Requested Analysis Filtered (Y/N 7119 611914 DATE 4.8.19 BH t 2617147 822/922 muibe DATE Signed: D2' CI' E' 204 ACCEPTED BY LAFFILIATION. betsy mcdaniel@pacelabs.com, (O30 8 III qqA) siste O&O ,VI qqA ,III ,qqA) ale zenyatec Part (VI .qqA & III .qqA) siste N/A set sesylenA Muskus Attention: scsinvoices@southernco.com Pace Project Manager: betsy modanii Pace Profile #: 327 (AP) or 328 (Huff) 16rt) lonsition 1928203 HOBI involce information: ICI Noglia lacia M EONE in Address: Pace Quote: Company Name POSZ Tible 1945 11/4 ubtesetved N 5 SAMPLER NAME AND SIGNATURE OF CONTAINERS SIGNATURE OF SAMPLER: 3 MOLE TEMP AT COLLECTION PRINT Name of SAMPLER: "SK RELINGUISHED BY / AFFILIATION" 61/3/17 1603 4/2/19 읾 415/19 Lylan Hozonik 1405, 179 133 Lauren Petty, Geosyntec Purchase Order #, SCS10348606 STARI Plant Hammond 415/19 Required Project Information: Report To: Joju Abraham (G-GRAB C-COMP) **BAYT BJ9MA** AATRIX CODE (see valid codes to left) Project Name: Project #: Copy To: Section B MATRIX
Draway Water
Wase Wase
Wase Wase
Product
Product
Sou'Soes
Od
Wipe
Aur
Cities
Tissue Boryllium, Carmium, Chromium, Coball, Ilusid Арритомы соийемть App. TE(2): Intimosy, Assenic, Buinn athium, Molybann, Selening, Thalling Required Client Information: Company: Georgia Power - Coal Combustion Residuals One Character per box. (A-2, 0-9 / , -) Sample Ids must be unique Requested Due Date: Standord SAMPLE ID Med: jatyraham@southernco.com 2460 Maner Road いろられ (404)506-7239 Atlanta, GA 30339 4 . 6 105 12 Ξ 3) # Mati Page 10 of 1

(المستسيد	Sample	Condition	Upon Receipt		1
. Face Analy	<i>tical</i> Client Name:	GIA	Power	Project #	
f	x UPS USPS Client			WO#:2	617147
Tracking #:	Client C	D Commercial 2	Pace Office		Due Date: 05/06/
	ooler/Box Present:	no Seals i	intact: yes	PM: BM CLIENT: GAP	1
Packing Material:	Bubble Wrap Bubble Bags	None [Other		
Thermometer Use	_	e of Ice: Wet		Samples on ice, co	oling process has begun
	- Bis	- €	is Frozen: Yes No		s of person examining
Cooler Temperatur Temp should be above	<u> </u>		Comments:	contents:	+/8/19 MZ
Chain of Custody P		es □No □N/A			
		es 🗆 No 🗆 N/A			
Chain of Custody F		1			
Chain of Custody R		es 🗆 No 🗆 N/A		<u> </u>	
Sampler Name & S		es 🗆 No 🗆 N/A			
Samples Arrived wi		es □no □n/a			
Short Hold Time A		es DNO DN/A			
Rush Turn Around	Time Requested:	es THO N/A	7.	-	
Sufficient Volume:	8	es 🗆 No 🗆 N/A	8.		
Correct Containers	Used:	es □No □N/A	9.		
-Pace Container	s Used:	res 🗆 No 🗆 N/A			
Containers Intact:	,	es 🗆 No 🗆 N/A	10.		
Filtered volume rec	eived for Dissolved tests	res □No □MA	11.		
Sample Labels mat		es 🗆 No 🗆 N/A	12.		
-Includes date/ti	me/ID/Analysis Matrix:	ω		:	
All containers needing	preservation have been checked.	VES DNO DN/A	13.		
All containers needing	preservation are found to be in	res □No □N/A			
compliance with at A			Initial when	Lot # of added	
exceptions: VOA, colifo	m, TOC, O&G, WI-DRO (water)	Yes ANO	completed	preservative	
Samples checked f	or dechlorination:	Yes □No ☑N/A	14.		
Headspace in VOA	Vials (>6mm): □	Yes □No □MĀ	15		
Trip Blank Present		Yes □No ØÑA	16.	- - 	
Trip Blank Custody	Seals Present	Yes □No □AÑ/A			
Pace Trip Blank Lo	t # (if purchased):				
Client Notification				Field Data Require	∌d? Y / N
	acted:	Date/	Time:	<u> </u>	
Comments/ Reso	lution:	y	··	<u> </u>	
				:	<u> </u>
Project Manage	r Review:			Date:	
Note: Whenever the Certification Office /	re is a discrepancy affecting North Carolle out of hold, incorrect preservative, or	na compliance sa	mples, a copy of this for the containers)	orm will be sent to the No	rth Carolina DEHNR
3536100000	Tat of the property of			F-ALLC	 003rev.3, 11Septemilegr20106of 1





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617205

Dear Joju Abraham:

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

This revised report replaces the one issued on 4/16/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,

Betsy McDaniel

Beton Moamed

betsy.mcdaniel@pacelabs.com

(770)734-4200

Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta





CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617205

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812 Georgia DW Microbiology Certification #: 812 North Carolina Certification #: 381 South Carolina Certification #: 98011001

Virginia Certification #: 460204

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617205

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617205001	MW-24D	Water	04/08/19 11:06	04/09/19 13:30



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617205

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617205001	MW-24D	EPA 6020B	JMW1	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617205

Date: 05/01/2019 03:12 PM

Sample: MW-24D	Lab ID:	2617205001	Collecte	ed: 04/08/19	11:06	Received: 04/	09/19 13:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3010A			
Antimony	ND	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 09:41	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-38-2	
Barium	0.043	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 09:41	7440-41-7	
Boron	0.47J	mg/L	2.0	0.051	20	04/10/19 19:59	04/12/19 01:33	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 09:41	7440-43-9	
Calcium	83.0	mg/L	10.0	0.41	20	04/10/19 19:59	04/12/19 01:33	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 09:41	7440-47-3	
Cobalt	0.00025J	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 09:41	7440-48-4	
Lithium	0.0027J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 09:41	7439-93-2	
Molybdenum	0.00027J	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 09:41	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 09:41	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	323	mg/L	25.0	10.0	1		04/11/19 20:54		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	43.3	mg/L	0.25	0.024	1		04/11/19 00:33	16887-00-6	
Fluoride	0.048J	mg/L	0.30	0.029	1		04/11/19 00:33	16984-48-8	
Sulfate	97.3	mg/L	10.0	0.17	10		04/15/19 23:14	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2617205

Date: 05/01/2019 03:12 PM

QC Batch: 468622 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617205001

METHOD BLANK: 2545263 Matrix: Water

Associated Lab Samples: 2617205001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/11/19 20:42	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:42	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:42	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:42	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:42	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:42	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:42	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:42	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:42	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:42	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:42	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:42	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.010	104	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.051	102	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

MATRIX SPIKE & MATRIX SI	65		2545266									
Parameter	Units	2617144001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L		0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Arsenic	mg/L		0.01	0.01	0.0091J	0.0089J	91	89	75-125	2	20	
Barium	mg/L		0.05	0.05	0.085	0.085	85	85	75-125	0	20	

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



Project: Plant Hammond

Pace Project No.: 2617205

Date: 05/01/2019 03:12 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	CATE: 254526	65		2545266							
Parameter	Units	2617144001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Beryllium	mg/L		0.01	0.01	0.0086	0.0089	86	89	75-125	4	20	
Boron	mg/L	1010J ug/L	0.05	0.05	1.0J	1.0J	67	48	75-125	1	20	M6
Cadmium	mg/L		0.01	0.01	0.011	0.011	99	99	75-125	0	20	
Calcium	mg/L	70000 ug/L	0.62	0.62	71.3	74.8	207	759	75-125	5	20	M6
Chromium	mg/L		0.05	0.05	0.048	0.048	96	95	75-125	1	20	
Cobalt	mg/L		0.01	0.01	0.015	0.015	97	96	75-125	1	20	
Lithium	mg/L		0.05	0.05	0.043J	0.044J	82	85	75-125	3	20	
Molybdenum	mg/L		0.05	0.05	0.050	0.049	99	99	75-125	1	20	
Selenium	mg/L		0.05	0.05	0.044	0.044	89	88	75-125	1	20	
Thallium	mg/L		0.01	0.01	0.0096	0.0096	96	96	75-125	0	20	

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



Project: Plant Hammond

Pace Project No.: 2617205

QC Batch: 26252 Analysis Method: SM 2540C

QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2617205001

LABORATORY CONTROL SAMPLE: 118510

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

SAMPLE DUPLICATE: 118512

Date: 05/01/2019 03:12 PM

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

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.

Qualifiers



QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617205

QC Batch: 26135 QC Batch Method: EPA 300.0 Analysis Method: Analysis Description: EPA 300.0

300.0 IC Anions

Associated Lab Samples: 2617205001

METHOD BLANK: 117979

Matrix: Water

Associated Lab Samples:

Date: 05/01/2019 03:12 PM

2617205001

Blank Reporting Result Limit MDL

Parameter Units Analyzed Chloride mg/L 0.064J 0.25 0.024 04/10/19 21:47 Fluoride mg/L ND 0.30 0.029 04/10/19 21:47 mg/L Sulfate ND 1.0 0.017 04/10/19 21:47

LABORATORY CONTROL SAMPLE: 117980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.2	102	90-110	
Fluoride	mg/L	10	10.0	100	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117981 117982

Parameter	Units	2617207001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	0.25J	10	10	9.9	10	96	97	90-110	1	15	
Fluoride	mg/L	ND	10	10	9.5	9.6	95	96	90-110	1	15	
Sulfate	mg/L	0.13J	10	10	9.5	9.6	94	94	90-110	1	15	

MATRIX SPIKE SAMPLE:	117983						
Parameter	Units	2617150001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	131	10	10.5	-1210	90-110	
Fluoride	mg/L	0.13J	10	9.4	93	90-110	
Sulfate	mg/L	392	10	13.7	-3780	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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2617205

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville
PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

Date: 05/01/2019 03:12 PM

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617205

Date: 05/01/2019 03:12 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617205001	MW-24D	EPA 3010A	468622	EPA 6020B	468673
2617205001	MW-24D	SM 2540C	26252		
2617205001	MW-24D	EPA 300.0	26135		

CHAIN-OF-CUSTODY / Analytical Request Document

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

(YW) Samples Requision Against. (N/A) ŏ Cooler belse2 Custody . Stife Procellon (N/A) 8 MO#:2617205 Received on Residual Chlorine (Y/N) TEMP in C 19 1330 4.9.19 (127 720 61/8/h S TYO 61/89/1 2617205 Radium 226/228 DATE Signed: LDS' CI' L' 204 betsy modaniel@pacelabs.com. (O.80 & III aqqA) stateN Mets (App. III, App. IV, D&O man 2007 32.25 Metals (App. III & App. IV) IN. Annivees Teel Attention: scsinvoices@southernco.com Company Name: 327 (AP) or 328 (Huff) Noalia Auskus Methanol Moelin Muchon NORA Preservatives EOSSZBN 9 HOBN Pace Quote:
Pace Project Manager:
Pace Profile #: 327 (A Section C Involce Information: HCI ЕОИН 3 HS2O4 2010 1127 Unpreserved h # OF CONTAINERS 2 PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 61/9/2 SIGNATURE of SAMPLER: 4/41/9 TIME 8 200 90km DATE COLLECTED Mocks Memberilaso chule You los TIME Copy To: Lauren Petty, Geosyntec SCS10348606 START Project Name: Plant Hammond Project #: DATE Required Project Information: Joju Abraham S SAMPLE TYPE (G-GRAB C-COMP) Purchase Order #: MATRIX CODE (see valid codes to left) Section B 000 WY WY WY WY S 20 W 8 F 50 51 MATRIX Drexang Water Wate Water Wate Water Product Product Oil Wipe Air Other Tissue whell, Avoids, lead, lithium, Milyblerm Baiver, Benyllian, Cadusius, Chronium Arr TU (2): Andrinany, Arrenie Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fex. Requested Due Date: Stauderst TRT 250 One Character per box. (A-2, 0-9 / . -) Sample Ids must be unique SAMPLE ID Serium , thallium Atlonta, GA 30339 Email: jabraham@southernco.com 2480 Maner Road 3 Required Client Information: 9 4 6 6 2 F Page 12 of 18 # MBTI

10 miles	Sample	Condition	Opon Receipt		
Pace Analy	tical Client Name:	GIA	Power	Project #	
Courier: Fed E	x UPS USPS Client	Commercial	Pace Other	WO#:26	
Custody Seal on C	ooler/Box Present: yes	no Seals	intact:yes	PM: BM CLIENT: GAP	Due Date: 04/16/: wer-CCR
Packing Material:	Bubble Wrap Bubble Bags	None [Other		
Thermometer Use	•	e of Ice: Wet	,	Samples on ice, coo	lingsprocess has begun
Cooler Temperatu		_	is Frozen: Yes No	Date and Initial	s of person examining
Temp should be above		_	Comments:	contents: 7	19/19 M
Chain of Custody P	resent:	es □No □N/A	1.		•
Chain of Custody F		es □No □N/A	2		
Chain of Custody R		es 🗆 No 🗆 N/A			
Sampler Name & S		es ONo ON/A			
Samples Arrived wi		es ONO ON/A			
Short Hold Time A		es 🖽 O 🗆 N/A			
		es ZNo DN/A			
Sufficient Volume:		es DNo DN/A			
Correct Containers		es DNo DN/A			
-Pace Container	<u></u>	es ONo ON/A	9.		
Containers Intact:		es 🗆 No 🗆 N/A	10		
		es ONO DAVA		-	
Sample Labels mat		es ONO ON/A			
1	_		12.		
-Includes date/til	treservation have been checked				
All contains as a suite of		69 □No □N/A	13.	1	
compliance with EPA	preservation are found to be in recommendation.	es 🗆 No 🗆 N/A			
exceptions: VOA, colifor	m. TOC. O&G, WI-DRO (water)	es 🗐 No	Initial when completed	preservative	
Samples checked for	or dechlorination:	es □No ₽M7A	14.		
Headspace in VOA	Vials (>6mm):	es □No ÆNÆ	15.		
Trip Blank Present:		es □No ÆÑ/A	16.		
Trip Blank Custody	Seals Present	es □No □MA	ľ		
Pace Trip Blank Lo	# (if purchased):				
Client Notification	Resolution:	<u> </u>		Field Data Required	? Y / N
	acted:	Date/	Time:		
Comments/ Reso					
Project Manage	r Review:			Date:	
Note: Whenever the Certification Office (i	re is a discrepancy affecting North Caroli e out of hold, incorrect preservative, ou	na compliance sar of temp, incorrec	mples, a copy of this fo t containers)	rm will be sent to the Nor	In Carolina DEHNR

F-ALLC003rev.3, 11September2006





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617206

Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617206

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 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

Missouri Certification #: 235

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





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617206

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617206001	MW-24D	Water	04/08/19 11:06	04/09/19 13:30



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617206

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617206001	MW-24D	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617206

Sample: MW-24D Lab ID: 2617206001 Collected: 04/08/19 11:06 Received: 04/09/19 13:30 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Commonte. Campio conco	aon amo on contamore doc	The materi eee, enem was notined.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.127 ± 0.0949 (0.162) C:91% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	0.446 ± 0.375 (0.749) C:79% T:73%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	0.573 ± 0.470 (0.911)	pCi/L	04/26/19 09:32	7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

EPA 9315

Project: Plant Hammond

Pace Project No.: 2617206

QC Batch: 338631

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

Associated Lab Samples: 2617206001

METHOD BLANK: 1648339 Matrix: Water

Associated Lab Samples: 2617206001

 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

Analysis Method:

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.



QUALITY CONTROL - RADIOCHEMISTRY

EPA 9320

Project: Plant Hammond

Pace Project No.: 2617206

QC Batch: 338745

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617206001

METHOD BLANK: 1648702 Matrix: Water

Associated Lab Samples: 2617206001

 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

Analysis Method:

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2617206

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

Date: 05/01/2019 02:20 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617206

Date: 05/01/2019 02:20 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617206001	MW-24D	EPA 9315	338631		
2617206001	MW-24D	EPA 9320	338745		
2617206001	MW-24D	Total Radium Calculation	340066		

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

(NVA) Samples (N/A) Subs/Location Cooler ŏ Custody - Regulatory Agency. (N/A) Received on JO#:2617206 Residual Chlorine (Y/N) Page: TEMP IN C 1330 4,9,19 (127 Sign DATE Signed: 4/6/19 7 61/89/1 2617206 SZZ/SZZ WINDEY D2' Cl' E' 204 (O30 3 III .cqA) siste betsy modaniel@pacelabs.com man O80 (Vi goA III gqA) alei 2023 Gennete (VI .qqA & III .qqA) sistel **ANX** 130T 808VIBNA Attention: scsirvoices@southernco.com Company Name: olher 327 (AP) or 328 (Huff) PRINT NAMES OF SAMPLER: NOBLICA MUSKUS ionsately Molin Mardon Preservatives 9 EOZSZB HOs Pace Project Manager. Pace Profile #: 327 (D Section C Involce Information: EONE 3 Pace Quote: 5204 20102 127 paviasaidn 1 n OF CONTAINERS SANPLER WHAE OND SIGNATURE SIGNATURE of SAMPLER: 61/8/h 2 Dure AMPLE TEMP AT COLLECTION b1/6/h ğ - **88**/9 Mollie Medientho T. RELINGUISHED BY / AFFLUATION COLLECTE Contraction 4/2/4 195 Purchase Order # 3CS10348806-Project Name: Ptant Hammond Project #: Lauren Petty, Geosyntec START Required Project Information: Report To: Joju Abraham S CH Low APLE TYPE (G=GRA8 C=COMP) ATRIX CODE (see valid codes to left) Copy To: Section B MATRIX
Directory Water
Water
Waste Water
Waste Water
Product
Product
Product
Product
Product
Product
Oil
Oil
Wite
Au
Cite
Trissue Copall, Avoide, lead, lithium, Malyblerm Basing, Benyllian, Cadusina, Chromian Aso TO (2). Antimony, Arreanic Georgia Power - Coal Combustion Residuals Post Additional Country in the Phone: (404)506-7239 Fax.
Requested Due Date: Stautional TRI 012-One Character per box. (A-Z, 0-91, -). Sample Ids must be unique SAMPLE ID Schenium, thallium Atlanta, GA 30339 Emeli: |abraham@southemco.com 3/4 2480 Maner Road Required Clent Information: 7 G G L . 10 -# WB1 Page 10 of 1

Andrew States	Sample	Condition	Opon Receipt		
. Pace Analy	tical Client Name:	GIA	Power	Project #	
Courier: Fed E	x 🗍 UPS 🗎 USPS 🗍 Client 🏻	Commercial	Pace Other	WO# : 26	
Tracking #: Custody Seal on C	ooler/Box Present: yes	no Seals i	intact: Ves	PM: BM CLIENT: GAPon	Due Date: 05/07/1 uer-CCR
	Bubble Wrap Bubble Bags	None	Other		
Thermometer Use	-6	e of Ice: Wet	,	Samples on ice. coo	lingiproce#s has begun
	Pie		s Frozen: Yes No	Date and Initial	s of person examining
Cooler Temperature Temp should be above			Comments:	contents: 7	19/19 M
Chain of Custody P		f es □No □N/A			
Chain of Custody F		es DNo DN/A		 	
Chain of Custody R		es 🗆 No 🗀 N/A		 	
Sampler Name & S		es ONo ON/A			
Samples Arrived wi		es 🗆 No 🗆 N/A			
Short Hold Time A		es CMO ON/A			
		es ZNo DN/A			
Sufficient Volume:		es DNo DN/A			
Correct Containers		es DNo DN/A			
-Pace Container		es □No □N/A	5 .		
Containers Intact:		es 🗆 No 🗆 N/A	10		
		es 🗆 No 🖼 N/A			
Sample Labels mat	• · · · · · · · · · · · · · · · · · · ·	es ONO ON/A			
1			12.		
-Includes date/ti All containers needing	preservation have been checked	GP ON ON/A	12		
All containers needing	preservation are found to be in	I GS EINO EINA	13.		
compliance with EPA		res □no □n/A			
exceptions: VOA colifo	rm, TOC, O&G, WI-DRO (water)	res 🔲 No	initial when completed	Lot # of added preservative	
Samples checked f		res □No □N/A		IP. CCC. TC. TC.	
Headspace in VOA		res □No ÆN/Å			
Trip Blank Present:		ves □No ZN/A			
Trip Blank Custody		res Ono OMA	ļ		
Pace Trip Blank Lo		700 2010 321111		i	
			I		
Client Notification				Field Data Require	d? Y / N
	acted:	Date/	Time:	 	
Comments/ Reso	nulion:			 	
				<u> </u>	•
					7.00
Project Manage	Povious			Date:	
Project Manage	L'aviam:			Date:	
	e is a discrepancy affecting North Caroli e out of hold, incorrect preservative, ou			rm will be sent to the Nor	th Carolina DEHNR

F-ALLC003rev.3, 11September2006





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617148

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/16/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,

Betsy McDaniel

Beton Moamed

betsy.mcdaniel@pacelabs.com

(770)734-4200

Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta





CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617148

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812 Georgia DW Microbiology Certification #: 812

Virginia Certification #: 460204

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617148

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617148001	FB-01	Water	04/05/19 08:50	04/08/19 15:30



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617148

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617148001	FB-01	EPA 6020B	SER	19	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA



ANALYTICAL RESULTS

Project: Plant Hammond Pace Project No.: 2617148

Date: 05/01/2019 03:04 PM

Sample: FB-01	Lab ID:	2617148001	Collecte	ed: 04/05/19	9 08:50	Received: 04/	/08/19 15:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Me	thod: EF	PA 3010A			
Antimony	ND	mg/L	0.0030	0.00011	1	04/16/19 07:51	04/16/19 18:55	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-38-2	
Barium	0.000078J	mg/L	0.010	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-41-7	
Boron	ND	mg/L	0.10	0.0026	1	04/16/19 07:51	04/16/19 18:55	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/16/19 07:51	04/16/19 18:55	7440-43-9	
Calcium	0.024J	mg/L	0.50	0.021	1	04/16/19 07:51	04/16/19 18:55	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/16/19 07:51	04/16/19 18:55	7440-47-3	
Cobalt	ND	mg/L	0.010	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-48-4	
Copper	ND	mg/L	0.025	0.00023	1	04/16/19 07:51	04/16/19 18:55	7440-50-8	
Lead	ND	mg/L	0.0050	0.000050	1	04/16/19 07:51	04/16/19 18:55	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/16/19 07:51	04/16/19 18:55	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/16/19 07:51	04/16/19 18:55	7439-98-7	
Nickel	ND	mg/L	0.010	0.00011	1	04/16/19 07:51	04/16/19 18:55	7440-02-0	
Selenium	ND	mg/L	0.010	0.000080	1	04/16/19 07:51	04/16/19 18:55	7782-49-2	
Silver	ND	mg/L	0.010	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-22-4	
Thallium	ND	mg/L	0.0010	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-28-0	
Vanadium	ND	mg/L	0.010	0.00012	1	04/16/19 07:51	04/16/19 18:55	7440-62-2	
Zinc	0.017	mg/L	0.010	0.0011	1	04/16/19 07:51	04/16/19 18:55	7440-66-6	C0
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	thod: EF	PA 7470A			
Mercury	ND	mg/L	0.00020	0.00010	1	04/11/19 21:25	04/15/19 18:37	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	ND	mg/L	25.0	10.0	1		04/11/19 20:53		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	0.11J	mg/L	0.25	0.024	1		04/10/19 22:29	16887-00-6	В
Fluoride	0.113 ND	mg/L	0.20	0.024	1		04/10/19 22:29		D
Sulfate	0.069J	mg/L	1.0	0.029	1		04/10/19 22:29		



Project: Plant Hammond

Pace Project No.: 2617148

Date: 05/01/2019 03:04 PM

QC Batch: 468895 Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

Associated Lab Samples: 2617148001

METHOD BLANK: 2546716 Matrix: Water

Associated Lab Samples: 2617148001

Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury mg/L ND 0.00020 0.00010 04/15/19 18:06

LABORATORY CONTROL SAMPLE: 2546717

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers 83 Mercury mg/L 0.0025 0.0021 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2546718 2546719 MS MSD 92424398001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual 0.0025 0.0025 0.0019 0.0019 77 75-125 0 25 Mercury mg/L ND 77

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.



Project: Plant Hammond

Pace Project No.: 2617148

Date: 05/01/2019 03:04 PM

QC Batch: 469500 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617148001

METHOD BLANK: 2549697 Matrix: Water

Associated Lab Samples: 2617148001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/16/19 18:48	
Arsenic	mg/L	ND	0.0050	0.000060	04/16/19 18:48	
Barium	mg/L	ND	0.010	0.000060	04/16/19 18:48	
Beryllium	mg/L	ND	0.0030	0.000050	04/16/19 18:48	
Boron	mg/L	ND	0.10	0.0026	04/16/19 18:48	
Cadmium	mg/L	ND	0.0010	0.000070	04/16/19 18:48	
Calcium	mg/L	ND	0.50	0.021	04/16/19 18:48	
Chromium	mg/L	ND	0.010	0.00042	04/16/19 18:48	
Cobalt	mg/L	ND	0.010	0.000050	04/16/19 18:48	
Copper	mg/L	ND	0.025	0.00023	04/16/19 18:48	
Lead	mg/L	ND	0.0050	0.000050	04/16/19 18:48	
Lithium	mg/L	ND	0.050	0.00042	04/16/19 18:48	
Molybdenum	mg/L	ND	0.010	0.00010	04/16/19 18:48	
Nickel	mg/L	ND	0.010	0.00011	04/16/19 18:48	
Selenium	mg/L	ND	0.010	0.000080	04/16/19 18:48	
Silver	mg/L	ND	0.010	0.000050	04/16/19 18:48	
Thallium	mg/L	ND	0.0010	0.000060	04/16/19 18:48	
Vanadium	mg/L	ND	0.010	0.00012	04/16/19 18:48	
Zinc	mg/L	ND	0.010	0.0011	04/16/19 18:48	

LABORATORY CONTROL SAMPLE:	2549698					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.098	98	80-120	
Arsenic	mg/L	0.01	0.0096	96	80-120	
Barium	mg/L	0.05	0.049	98	80-120	
Beryllium	mg/L	0.01	0.0096	96	80-120	
Boron	mg/L	0.05	0.048J	95	80-120	
Cadmium	mg/L	0.01	0.0099	99	80-120	
Calcium	mg/L	0.62	0.64	103	80-120	
Chromium	mg/L	0.05	0.048	97	80-120	
Cobalt	mg/L	0.01	0.0098J	98	80-120	
Copper	mg/L	0.05	0.049	98	80-120	
Lead	mg/L	0.05	0.050	99	80-120	
Lithium	mg/L	0.05	0.049J	98	80-120	
Molybdenum	mg/L	0.05	0.049	98	80-120	
Nickel	mg/L	0.05	0.049	97	80-120	
Selenium	mg/L	0.05	0.050	100	80-120	
Silver	mg/L	0.025	0.025	99	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

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.



Project: Plant Hammond

Pace Project No.: 2617148

Date: 05/01/2019 03:04 PM

LABORATORY CONTROL SAMPLE: 2549698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vanadium	mg/L	0.05	0.049	98	80-120	
Zinc	mg/L	0.05	0.049	97	80-120	

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 25496	99		2549700							
			MS	MSD								
		2617148001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	1	20	
Arsenic	mg/L	ND	0.01	0.01	0.0098	0.0097	98	97	75-125	1	20	
Barium	mg/L	0.000078J	0.05	0.05	0.049	0.050	99	99	75-125	0	20	
Beryllium	mg/L	ND	0.01	0.01	0.0097	0.0097	97	97	75-125	0	20	
Boron	mg/L	ND	0.05	0.05	0.049J	0.050J	93	95	75-125	2	20	
Cadmium	mg/L	ND	0.01	0.01	0.010	0.0099	100	99	75-125	1	20	
Calcium	mg/L	0.024J	0.62	0.62	0.65	0.65	100	101	75-125	1	20	
Chromium	mg/L	ND	0.05	0.05	0.050	0.049	99	97	75-125	2	20	
Cobalt	mg/L	ND	0.01	0.01	0.010J	0.0099J	100	98	75-125	1	20	
Copper	mg/L	ND	0.05	0.05	0.050	0.050	101	99	75-125	2	20	
Lead	mg/L	ND	0.05	0.05	0.050	0.050	100	99	75-125	1	20	
Lithium	mg/L	ND	0.05	0.05	0.050J	0.048J	99	96	75-125	4	20	
Molybdenum	mg/L	ND	0.05	0.05	0.050	0.050	100	99	75-125	1	20	
Nickel	mg/L	ND	0.05	0.05	0.050	0.049	100	98	75-125	1	20	
Selenium	mg/L	ND	0.05	0.05	0.050	0.050	101	100	75-125	1	20	
Silver	mg/L	ND	0.025	0.025	0.025	0.025	100	100	75-125	0	20	
Thallium	mg/L	ND	0.01	0.01	0.010	0.0099	100	99	75-125	1	20	
√anadium	mg/L	ND	0.05	0.05	0.050	0.049	99	98	75-125	1	20	
Zinc	mg/L	0.017	0.05	0.05	0.067	0.066	99	98	75-125	1	20	

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



Project:

Plant Hammond

Pace Project No.:

2617148

QC Batch:

26252

QC Batch Method:

SM 2540C

Analysis Method:

SM 2540C

Analysis Description:

2540C Total Dissolved Solids

Associated Lab Samples:

2617148001

LABORATORY CONTROL SAMPLE:

Parameter

Spike Conc.

LCS Result

LCS % Rec

% Rec Limits

Qualifiers

10

Total Dissolved Solids

Units mg/L

400

408

2380

102

84-108

SAMPLE DUPLICATE: 118512

Total Dissolved Solids

Date: 05/01/2019 03:04 PM

Parameter

Units mg/L 2617150003 Result 2310

Dup Result

RPD

3

Max RPD

Qualifiers

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.

Qualifiers



QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617148

QC Batch: 26135 QC Batch Method: EPA 300.0 Analysis Method:

EPA 300.0

Analysis Description:

300.0 IC Anions

Associated Lab Samples: 2617148001

METHOD BLANK: 117979

Matrix: Water

Associated Lab Samples:

Date: 05/01/2019 03:04 PM

2617148001

Blank Reporting

Parameter	Units	Result	Limit	MDL	Analyzed	(
Chloride	mg/L	0.064J	0.25	0.024	04/10/19 21:47	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 21:47	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 21:47	

LABORATOR	V CONTROL	SAMPLE.	117980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.2	102	90-110	
Fluoride	mg/L	10	10.0	100	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPI	KE DUPLIC	CATE: 11798	1		117982							
			MS	MSD								
		2617207001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	0.25J	10	10	9.9	10	96	97	90-110	1	15	
Fluoride	mg/L	ND	10	10	9.5	9.6	95	96	90-110	1	15	
Sulfate	mg/L	0.13J	10	10	9.5	9.6	94	94	90-110	1	15	

MATRIX SPIKE SAMPLE:	117983	2647450004	Cnilco	MC	MC	0/ Doo	
Parameter	Units	2617150001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	131	10	10.5	-1210	90-110	
Fluoride	mg/L	0.13J	10	9.4	93	90-110	
Sulfate	mg/L	392	10	13.7	-3780	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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2617148

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville
PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

Date: 05/01/2019 03:04 PM

B Analyte was detected in the associated method blank.

C0 Result confirmed by second analysis.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617148

Date: 05/01/2019 03:04 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617148001	FB-01	EPA 3010A	469500	EPA 6020B	469558
2617148001	FB-01	EPA 7470A	468895	EPA 7470A	468941
2617148001	FB-01	SM 2540C	26252		
2617148001	FB-01	EPA 300.0	26135		

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

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(Comments)	Sampl	e Condition	Upon Receipt		
Face Anal	<i>ytical</i> Client Name:	GTA	Power	Project #	
Courier: Fed E	x UPS USPS Client		·	WO#:2	617148 Due Date: 04/15/
Custody Seal on C	ooler/Box Present: Ves	no Seals	intact: yes	CLIENT: GAP	
Packing Material:	Bubble Wrap Bubble Bag	s None	Other		
Thermometer Use	<u>84</u> ту	pe of Ice: Wet	Blue None		oling process has begun
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exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es DNo	Initial when completed	Lot # of added preservative	
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Project Manage	Review:			Date:	
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Certification Office (i.	is a discrepancy affecting North Carolin out of hold, incorrect preservative, out	na compliance san	nples, a copy of this fo	rm will be sent to the Nor	h Carolina DEHNR

F-ALLCO03rev.3, 11Septembe 2006 of 14





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617149

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617149

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 Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617 New Jersey/TNI Certification #: PA051

New Jersey/TNI Certification #: PA05 New Mexico Certification #: PA01457 New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Ohio EPA Rad Approval: #41249

Missouri Certification #: 235

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





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617149

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617149001	FB-01	Water	04/05/19 08:50	04/08/19 15:30



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617149

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617149001	FB-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617149

Sample: FB-01 PWS:	Lab ID: 26171490 Site ID:	O01 Collected: 04/05/19 08:50 Sample Type:	Received:	04/08/19 15:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.114 ± 0.161 (0.330) C:92% T:NA	pCi/L	04/18/19 08:25	13982-63-3	
Radium-228		0.160 ± 0.258 (0.561) C:88% T:76%	pCi/L	04/18/19 12:3	1 15262-20-1	
Total Radium	Total Radium Calculation	0.274 ± 0.419 (0.891)	pCi/L	04/22/19 11:27	7 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

EPA 9320

Project: Plant Hammond

Pace Project No.: 2617149

QC Batch: 337915 Analysis Method:

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617149001

METHOD BLANK: 1644524 Matrix: Water

Associated Lab Samples: 2617149001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.664 ± 0.303 (0.504) C:90% T:91%
 pCi/L
 04/18/19 12:31

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617149

QC Batch: 337923

QC Batch Method:

Analysis Method:

Analysis Description: 9315 Total Radium

EPA 9315

Associated Lab Samples: 2617149001

EPA 9315

METHOD BLANK: 1644541 Matrix: Water

Associated Lab Samples: 2617149001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.170 ± 0.213 (0.439) C:94% T:NA
 pCi/L
 04/18/19 08:05

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2617149

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

Date: 05/01/2019 02:10 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617149

Date: 05/01/2019 02:10 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617149001	FB-01	EPA 9315	337923		
2617149001	FB-01	EPA 9320	337915		
2617149001	FB-01	Total Radium Calculation	339294		

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

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Ţ	Section A Required Clent Learning	j.	Address: 2480 Maner Road	CA3.	Email: jabraham@southernco.com		Requested Duo Date: Stund ord	L				Ц	15659.	3250 10	Topic was	# 100 P	90.4-4	NU SEE	450-2			and the second										
	Section A	Company	Addre	Attenta	Email:	Phone	Reque				ew #	LI		2	3		9	9	2	8	6	.10t		12					Pag	ge 10	of 1	1
																,,,, #		المتاناتين	HERENCE]	or guide	A PARTY SE	estall!	Line, e	**************************************	41.1							

P. Companyor	Sample	Condition	Jpon Receipt		
. Face Analy	tical Client Name:	GTA	Power	Project #	
Courier: Fed E	x UPS USPS Client	لر Commercial	Pace Other	WO#:2	617149
Tracking #:Custody Seal on C	poler/Box Present: Ves	no Seals i	ntact: yes	PM: BM CLIENT: GAP	Due Date: 05/06/ wer-CCR
Packing Material:	Bubble Wrap Bubble Bags	None [Other		
Thermometer Used	84 туг	e of Ice: Well	Blue None		ling process has begun
Cooler Temperatur			s Frozen: Yes No	Date and Initia contents:	s of person examining
Temp should be above		(Comments:	- Contonio	70,
Chain of Custody P	resent:	es □No □N/A	1.		
Chain of Custody F	lled Out:	es □No □N/A	2. ·		
Chain of Custody R	elinquished:	es 🗆 No 🗆 N/A	3.		
Sampler Name & S	gnature on COC:	es 🗆 No 🗆 N/A	4.		
Samples Arrived wi	المر hin Hold Time:	es □No □N/A	5.		
Short Hold Time A	nalysis (<72hr):	es □No □N/A	6.		
Rush Turn Around	Time Requested:	es DINO ON/A	7.		
Sufficient Volume:	\$	es 🗆 No 🗆 N/A	8.		
Correct Containers	Used:	res □No □N/A	9.		
-Pace Container	s Used:	res 🗆 No 🗆 N/A			
Containers Intact:	Z.	es 🗆 No 🗆 N/A	10.		
Filtered volume rec	eived for Dissolved tests	res □No ☑MA	11.		
Sample Labels mat		res □no □n/a			
-Includes date/ti	_	ω			
	proceguation have been checked	res □no □n/a	13.		
All containers needing	procession are found to be in			:	
compliance with EPA		Yes □No □N/A			
exceptions: VOA, colifo	m, TOC, O&G, WI-DRO (water)	Yes 🗖 No	Initial when completed	Lot # of added preservative	
Samples checked f		Yes □No ØNÆ	14.	•	
Headspace in VOA		Yes □No □NA	15.	i	
Trip Blank Present:		Yes □No ☑Ñ/Ā			
Trip Blank Custody		Yes □No ☑N/A		1	
Pace Trip Blank Lo					
			•		
Client Notification				Field Data Require	d? Y / N
	acted:	Date/	ıme:		
Comments/ Reso	lution:	· · ·	-		
	<u> </u>				
Project Manage	r Review:			Date:	
Note: Whenever the	re is a discrepancy affecting North Carol	ina compliance sar	nples, a copy of this fo	orm will be sent to the No	rth Carolina DEHNR
	e out of hold, incorrect preservative, or				
	li			F-ALLC	03rev.3, 11 Septer Rober 2010 6 of 1





May 03, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617207

Dear Joju Abraham:

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

This revised report replaces the one issued on 4/16/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,

Betsy McDaniel

Beton Moamel

betsy.mcdaniel@pacelabs.com

(770)734-4200

Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta





CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617207

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381 South Carolina Certification #: 98011001

Virginia Certification #: 460204

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648

Massachusetts Certification #: E87648

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617207

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617207001	FB-02	Water	04/08/19 17:45	04/09/19 13:30
2617207002	EB-01	Water	04/08/19 18:00	04/09/19 13:30



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617207

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617207001	FB-02	EPA 6020B	JMW1	19	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617207002	EB-01	EPA 6020B	JMW1	19	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

Sample: FB-02	Lab ID:	2617207001	Collecte	ed: 04/08/19	9 17:45	Received: 04/	09/19 13:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: Ef	PA 3010A			
Antimony	ND	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 01:04	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 01:04	7440-38-2	
Barium	ND	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 01:04	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 01:04	7440-41-7	
Boron	ND	mg/L	0.10	0.0026	1	04/10/19 19:59	04/12/19 01:04	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 01:04	7440-43-9	
Calcium	ND	mg/L	0.50	0.021	1	04/10/19 19:59	04/12/19 01:04	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 01:04	7440-47-3	
Cobalt	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:04	7440-48-4	
Copper	ND	mg/L	0.025	0.00023	1	04/10/19 19:59	04/12/19 01:04	7440-50-8	
Lead	ND	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 01:04	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 01:04	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 01:04	7439-98-7	
Nickel	ND	mg/L	0.010	0.00011	1	04/10/19 19:59	04/12/19 01:04	7440-02-0	
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 01:04	7782-49-2	
Silver	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:04	7440-22-4	
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 01:04	7440-28-0	
Vanadium	ND	mg/L	0.010	0.00012	1	04/10/19 19:59	04/12/19 01:04	7440-62-2	
Zinc	ND	mg/L	0.010	0.0011	1	04/10/19 19:59	04/12/19 01:04	7440-66-6	
7470 Mercury	Analytical	Method: EPA	7470A Prej	paration Met	thod: EF	PA 7470A			
Mercury	ND	mg/L	0.00020	0.00010	1	04/11/19 21:25	04/15/19 18:39	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
Total Dissolved Solids	14.0J	mg/L	25.0	10.0	1		04/11/19 20:54		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	0.25J	mg/L	0.25	0.024	1		04/11/19 00:54	16887-00-6	В
Fluoride	ND	mg/L	0.30	0.029	1		04/11/19 00:54		-
Sulfate	0.13J	mg/L	1.0	0.017	1		04/11/19 00:54		



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

Sample: EB-01	Lab ID:	2617207002	Collecte	ed: 04/08/19	18:00	Received: 04/	09/19 13:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3010A			
Antimony	ND	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 01:08	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 01:08	7440-38-2	
Barium	ND	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 01:08	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 01:08	7440-41-7	
Boron	ND	mg/L	0.10	0.0026	1	04/10/19 19:59	04/12/19 01:08	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 01:08	7440-43-9	
Calcium	ND	mg/L	0.50	0.021	1	04/10/19 19:59	04/12/19 01:08	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 01:08	7440-47-3	
Cobalt	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:08	7440-48-4	
Copper	ND	mg/L	0.025	0.00023	1	04/10/19 19:59	04/12/19 01:08	7440-50-8	
Lead	ND	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 01:08	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 01:08	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 01:08	7439-98-7	
Nickel	ND	mg/L	0.010	0.00011	1	04/10/19 19:59	04/12/19 01:08	7440-02-0	
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 01:08	7782-49-2	
Silver	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:08	7440-22-4	
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 01:08	7440-28-0	
Vanadium	ND	mg/L	0.010	0.00012	1	04/10/19 19:59	04/12/19 01:08	7440-62-2	
Zinc	ND	mg/L	0.010	0.0011	1	04/10/19 19:59	04/12/19 01:08	7440-66-6	
7470 Mercury	Analytical	Method: EPA	7470A Prej	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00020	0.00010	1	04/11/19 21:25	04/15/19 18:41	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	12.0J	mg/L	25.0	10.0	1		04/11/19 20:54		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	0.22J	mg/L	0.25	0.024	1		04/11/19 03:19	16887-00-6	В
Fluoride	ND	mg/L	0.30	0.024	1		04/11/19 03:19	16984-48-8	_
Sulfate	0.38J	mg/L	1.0	0.023	1		04/11/19 03:19		



Plant Hammond Project:

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

QC Batch: 468895

Analysis Method: EPA 7470A QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

2617207001, 2617207002 Associated Lab Samples:

METHOD BLANK: 2546716 Matrix: Water

Associated Lab Samples: 2617207001, 2617207002

Blank Reporting Parameter Limit MDL Qualifiers Units Result Analyzed Mercury ND 0.00020 0.00010 04/15/19 18:06 mg/L

LABORATORY CONTROL SAMPLE: 2546717

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers 83 Mercury mg/L 0.0025 0.0021 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2546718 2546719 MS MSD 92424398001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual 0.0025 0.0025 0.0019 0.0019 77 75-125 0 25 Mercury mg/L ND 77

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.



Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

QC Batch: 468622 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617207001, 2617207002

METHOD BLANK: 2545263 Matrix: Water

Associated Lab Samples: 2617207001, 2617207002

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/11/19 20:42	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:42	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:42	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:42	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:42	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:42	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:42	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:42	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Copper	mg/L	ND	0.025	0.00023	04/11/19 20:42	
Lead	mg/L	ND	0.0050	0.000050	04/11/19 20:42	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:42	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:42	
Nickel	mg/L	ND	0.010	0.00011	04/11/19 20:42	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:42	
Silver	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:42	
Vanadium	mg/L	ND	0.010	0.00012	04/11/19 20:42	
Zinc	mg/L	ND	0.010	0.0011	04/11/19 20:42	

LABORATORY CONTROL SAMPLE:	2545264					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.010	104	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.051	102	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Copper	mg/L	0.05	0.051	103	80-120	
_ead	mg/L	0.05	0.050	100	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Nickel	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Silver	mg/L	0.025	0.025	102	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

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.



Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

LABORATORY CONTROL SAMPLE: 2545264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vanadium	mg/L	0.05	0.051	101	80-120	
Zinc	mg/L	0.05	0.051	102	80-120	

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 25452	65		2545266							
			MS	MSD								
		2617144001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L		0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Arsenic	mg/L		0.01	0.01	0.0091J	0.0089J	91	89	75-125	2	20	
Barium	mg/L		0.05	0.05	0.085	0.085	85	85	75-125	0	20	
Beryllium	mg/L		0.01	0.01	0.0086	0.0089	86	89	75-125	4	20	
Boron	mg/L	1.0J	0.05	0.05	1.0J	1.0J	67	48	75-125	1	20	M6
Cadmium	mg/L		0.01	0.01	0.011	0.011	99	99	75-125	0	20	
Calcium	mg/L	70.0	0.62	0.62	71.3	74.8	207	759	75-125	5	20	M6
Chromium	mg/L		0.05	0.05	0.048	0.048	96	95	75-125	1	20	
Cobalt	mg/L		0.01	0.01	0.015	0.015	97	96	75-125	1	20	
Copper	mg/L		0.05	0.05	0.049	0.048	98	97	75-125	1	20	
Lead	mg/L		0.05	0.05	0.048	0.048	96	96	75-125	0	20	
Lithium	mg/L		0.05	0.05	0.043J	0.044J	82	85	75-125	3	20	
Molybdenum	mg/L		0.05	0.05	0.050	0.049	99	99	75-125	1	20	
Nickel	mg/L		0.05	0.05	0.051	0.051	96	96	75-125	0	20	
Selenium	mg/L		0.05	0.05	0.044	0.044	89	88	75-125	1	20	
Silver	mg/L		0.025	0.025	0.023	0.023	92	91	75-125	1	20	
Thallium	mg/L		0.01	0.01	0.0096	0.0096	96	96	75-125	0	20	
Vanadium	mg/L		0.05	0.05	0.050	0.050	100	100	75-125	0	20	
Zinc	mg/L		0.05	0.05	0.047	0.047	86	86	75-125	0	20	

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



Project:

Plant Hammond

Pace Project No.:

2617207

QC Batch:

26252

QC Batch Method:

Analysis Method:

SM 2540C

SM 2540C

Analysis Description:

2540C Total Dissolved Solids

Associated Lab Samples:

2617207001, 2617207002

LABORATORY CONTROL SAMPLE: Parameter

Spike LCS LCS

% Rec

Qualifiers

Total Dissolved Solids

Units mg/L Conc. 400 Result

% Rec 408

Limits 84-108

SAMPLE DUPLICATE: 118512

2617150003 Result

Dup Result RPD

102

Max

Qualifiers

Total Dissolved Solids

Date: 05/03/2019 02:13 PM

Parameter

Units mg/L

2310

2380

3

RPD

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.



Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

QC Batch: 26135 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2617207001, 2617207002

METHOD BLANK: 117979 Matrix: Water

Associated Lab Samples: 2617207001, 2617207002

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.064J	0.25	0.024	04/10/19 21:47	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 21:47	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 21:47	

LABORATORY CONTROL SAMPLE:	117980					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	10	10.2	102	90-110	
Fluoride	mg/L	10	10.0	100	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIK	KE DUPLIC	ATE: 117981			117982							
			MS	MSD								
		2617207001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	0.25J	10	10	9.9	10	96	97	90-110	1	15	
Fluoride	mg/L	ND	10	10	9.5	9.6	95	96	90-110	1	15	
Sulfate	mg/L	0.13J	10	10	9.5	9.6	94	94	90-110	1	15	

MATRIX SPIKE SAMPLE:	117983						
Parameter	Units	2617150001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	131	10	10.5	-1210	90-110	
Fluoride	mg/L	0.13J	10	9.4	93	90-110	
Sulfate	mg/L	392	10	13.7	-3780	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.



QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617207

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville
PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

Date: 05/03/2019 02:13 PM

B Analyte was detected in the associated method blank.

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617207001	FB-02	EPA 3010A	468622	EPA 6020B	468673
2617207002	EB-01	EPA 3010A	468622	EPA 6020B	468673
2617207001	FB-02	EPA 7470A	468895	EPA 7470A	468941
2617207002	EB-01	EPA 7470A	468895	EPA 7470A	468941
2617207001	FB-02	SM 2540C	26252		
2617207002	EB-01	SM 2540C	26252		
2617207001	FB-02	EPA 300.0	26135		
2617207002	EB-01	EPA 300.0	26135		

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

Section A	A	Section B							Ø	Section C	o												_			'	ľ		.	Г	
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Phone:		Project Name: Plant Hammond	ا يَوْ	Plant H.	pucurure				<u>a.</u>	Pace Project Manager.	yed N	anage	يا	belsy.	betsy.mcdaniel@pacelabs.com	iel@p	acelab	S.COT					State/I or (10)			1	į,		XX	8	
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5	Jampi	, containon	Opon Receipt		
Face Anal	rtical Client Name:	GIA	Power	Project #	
Tracking #:	x UPS USPS Client [WO#:26	17207 Due Date: 04/16/19
Custody Seal on C	ooler/Box Present: yes	no Seals	intact: 🔲 yes	CLIENT: GAPou	r-CCR
Packing Material:	Bubble Wrap Bubble Bag	None	Other		·
Thermometer Use	△	e of Ice: Wet	_	Samples on ice co	olingsprocess has begun
Cooler Temperatu		_	is Frozen: Yes No	Date and Initial	s of person examining
Temp should be above			Comments:	contents: 7	19/19 M
Chain of Custody P	resent:	r es □No □N/A	1.	_	
Chain of Custody F	lled Out:	es □No □N/A	2.		
Chain of Custody R	elinguished:	es □No □N/A	3.		
Sampler Name & S		es □No □N/A			
Samples Arrived wi		es □No □N/A			
Short Hold Time A	nalysis (<72hr):	es ᠒ੴ □N/A	6.		
		es ⊠No □N/A	7.		
Sufficient Volume:	Æ	es □No □N/A	8.		
Correct Containers		es 🗆 No 🗆 N/A			
-Pace Container	s Used:	es □No □N/A			
Containers Intact:	1	res □No □N/A	10.		
Filtered volume rec	eived for Dissolved tests	res □no ☑ANIA	11.	j	
Sample Labels mat	ch COC: على	es 🗆 No 🗆 N/A	12.		
-Includes date/ti	me/ID/Analysis Matrix:	ω			
All containers needing	preservation have been checked.	es 🗆 No 🗆 N/A	13.		
All containers needing compliance with EPA	preservation are found to be in ecommendation.	es □No □N/A			
exceptions: VOA. colifor	m. TOC. O&G, WI-DRO (water)	res □No	Initial when completed	Lot # of added	
Samples checked f	or dechlorination:	Yes □No ☑MTA	14.		
Headspace in VOA	Vials (>6mm): □	Yes □No ,□NA	15.		
Trip Blank Present:		res □No ØN/A	16.		
Trip Blank Custody	Seals Present	res 🗆 No 🗘 MA	,		
Pace Trip Blank Lo	# (if purchased):				
Client Notification	/ Resolution:			Field Data Require	d? Y / N
Person Cont		Date/	Time:	1	
Comments/ Reso	III				
	<u>. </u>				
Project Manage	r Review:			Date:	
	e is a discrepancy affecting North Caroli e out of hold, incorrect preservative, ou			m will be sent to the Nor	h Carolina DEHNR

F-ALLC003rev.3, 11September2006





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617208

Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Lauren Petty, Southern Company Services, Inc.
Rebecca Thornton, Pace Analytical Atlanta



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617208

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 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

Missouri Certification #: 235

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617208

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2617208001	FB-02	Water	04/08/19 17:45	04/09/19 13:30	
2617208002	EB-01	Water	04/08/19 18:00	04/09/19 13:30	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617208

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617208001	FB-02	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617208002	EB-01	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617208

Sample: FB-02 Lab ID: 2617208001 Collected: 04/08/19 17:45 Received: 04/09/19 13:30 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.170 ± 0.1000 (0.159) C:93% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	0.521 ± 0.334 (0.615) C:78% T:79%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	0.691 ± 0.434 (0.774)	pCi/L	04/26/19 09:32	7440-14-4	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617208

Sample: EB-01 Lab ID: 2617208002 Collected: 04/08/19 18:00 Received: 04/09/19 13:30 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.108 ± 0.128 (0.243) C:87% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	0.370 ± 0.318 (0.634) C:81% T:75%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	0.478 ± 0.446 (0.877)	pCi/L	04/26/19 09:32	7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

EPA 9315

Project: Plant Hammond

Pace Project No.: 2617208

QC Batch: 338631 Analysis Method:

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

Associated Lab Samples: 2617208001, 2617208002

METHOD BLANK: 1648339 Matrix: Water

Associated Lab Samples: 2617208001, 2617208002

 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.



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617208

Radium-228

QC Batch: 338745 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617208001, 2617208002

METHOD BLANK: 1648702 Matrix: Water

Associated Lab Samples: 2617208001, 2617208002

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

pCi/L

04/25/19 11:04

0.552 ± 0.362 (0.681) C:81% T:74%

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2617208

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

Date: 05/01/2019 02:20 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617208

Date: 05/01/2019 02:20 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617208001	FB-02	EPA 9315	338631		
2617208002	EB-01	EPA 9315	338631		
2617208001	FB-02	EPA 9320	338745		
2617208002	EB-01	EPA 9320	338745		
2617208001	FB-02	Total Radium Calculation	340066		
2617208002	EB-01	Total Radium Calculation	340066		

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

(N/V) Requision Agency Samples SAMPLE CONDITIONS (N/Y) Cooler ŏ Custod State 1 State 7 Location 40#:2617208 (AVA) Received on Page: (N/V) enitoIn3 (Eubise) LEMP in C 133 CONTE TAME 245 49.19112 で//の/た Requested Analysis Filtered (Y/N) 41814 9ZZ/9ZZ wnipe ァ DATE Signed: 7 D2' CI' E' 204 ACCEPTED BY JAPPILIATION betsy.mcdaniel@pacelabs.com, (O.8G & III .qqA) elato) nnan OSC (Vp. III, App. IV, D&O ァ etals (App. III & App. IV) bes mite Pearle NA Jast zesyland scsinvoices@southernco.com Pace Project Manager: betsy modani Pace Profile #: 327 (AP) or 328 (Huff) JOU) えぶんと condra icasma Preservatives 192S203 HOE IOI Section C Invoice Information: Noolia EQNI ~ SIGNATURE OF SAMPLER: MOLL'L Address: Pace Quote: 2010 , rine 7082 1127 Attention: bevieserdni 5 OF CONTAINERS S | | 4/8/14 6 MPLE TEMP AT COLLECTION 5 DATE PRINT NAME OF SAMPLER: 51/6/h 8 1310 PR/ OAC) 200 Nollia Musson laso 61/9/₂ | 5361 REINQUISHED BY / AFFILIATION Lary utte Lauren Petty, Geosyntec Purchase Order #: SCS10348606 Project Name: Plan Hammond START 4/8/14 4/8/19 Required Project Information: Report To: Joju Abraham 15 Tolow <u>ن</u> MPLE TYPE (G-GRAB C-COMP) <u>۲</u> (see valid codes to left) Section B Copy To: Project #: MATRIX
Direking Water
Water
Waste Water
Product
Product
OuwSould
Out
Wipe
Charact
Charact
Charact
Charact
Charact
Charact
Charact
Charact
Tissue Georgia Power - Coal Combustion Residuals One Character per box.
(A-Z, 0-9 /, -)
Sample Ids must be unique Phone: (404)506-7239 Fax Requested Due Date: **Characters** SAMPLE ID 20-0 2480 Maner Road Required Client Information: TO Manta, GA 30339 company. 8 8 5 t a e e # Mati Page 11 of 12

Carlot and the second	Sample	Condition	Opon Receipt		
Pace Analy	tical Client Name:	GIA	Power	Project #	
	x 🗌 UPS 🗌 USPS 🗎 Client [Commercial	Pace Other	WO#:2	617208
Tracking #: Custody Seal on C	ooler/Box Present: yes	no Seals	intact: Ves	PM: BM	Due Date: 05/07/1 wer-CCR
Packing Material: Thermometer Used	☐ Bubble Wrap ☐ Bubble Bags	None	_	Samples on ice, coo	lingthrocege has begun
					s of person examining
Cooler Temperatur Temp should be above		logical rissue	is Frozen: Yes No Comments:		19/19 MZ
Chain of Custody Pr		es 🗆 No 🗆 N/A			
Chain of Custody Fi		es □No □N/A			
Chain of Custody R		es □No □N/A			
Sampler Name & Si		es □No □N/A		<u> </u>	
Samples Arrived wit		es 🗆 No 🗆 N/A			
Short Hold Time A		es ☑n/o □n/a			
Rush Turn Around		es ØNo □N/A	7.		
Sufficient Volume:	.ex	es 🗆 No 🗆 N/A	8.		
Correct Containers	Used:	es 🗆 No 🗀 N/A	9.		
-Pace Container	S Used:	es □No □N/A			
Containers Intact:	47	es □No □N/A	10.		
Filtered volume rece	eived for Dissolved tests	es 🗆 No 🖼 N/A	11.		
Sample Labels mate	h COC: רבע	es DNo DN/A	12.		
-Includes date/tir	ne/ID/Analysis Matrix:	W			
	reservation have been checked	e9 □No □N/A	13.		
All containers needing compliance with EPA	preservation are found to be in ecommendation.	es □No □N/A			
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es 🗆 No	Initial when completed	preservative	
Samples checked for	or dechlorination:	es □No □N/A	14.		
Headspace in VOA	Vials (>6mm): □	es ONO DNA	15.		
Trip Blank Present:		es 🗆 No 🗷 N/A	16.		
Trip Blank Custody	Seals Present	es □No □NA	ĺ	:	
Pace Trip Blank Lot	# (if purchased):				
Client Notification	Resolution:			Field Data Required	l? Y / N
	acted:	Date/	Time:		
Comments/ Reso	II.			;	
				:	
				<u> </u>	
				İ	
Project Manage	Review:			Date:	
	e is a discrepancy affecting North Carolin out of hold, incorrect preservative, out			m will be sent to the Nort	h Carolina DEHNR

F-ALLC003rev.3, 11September2006