Prepared for



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ASSESSMENT OF CORRECTIVE MEASURES REPORT PLANT HAMMOND ASH POND 2 (AP-2)

Prepared by



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ASSESSMENT OF CORRECTIVE MEASURES REPORT

Plant Hammond Ash Pond 2

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TABLE OF CONTENTS

1.0	INT	RODUC	CTION	1
	1.1	Purpos	se	1
	1.2	Site Lo	ocation and Description	2
	1.3	Pond C	Closure	2
2.0	COI	NCEPTU	UAL SITE MODEL	4
	2.1	Geolog	gy	4
	2.2	Hydro	logy and Groundwater Flow	4
3.0	NA	ΓURE A	AND EXTENT DELINEATION	6
	3.1	Ground	dwater Monitoring & Constituents of Concern	6
		3.1.1	Groundwater Monitoring Program	6
		3.1.2	SSLs for Appendix IV Constituents	6
	3.2	Field I	Investigation Activities	7
4.0	GRO	DUNDW	VATER CORRECTIVE MEASURES	9
	4.1	Object	tives of the Corrective Measures	9
	4.2	Summ	ary of Corrective Measures	9
		4.2.1	Geochemical Approaches (In-Situ Injection)	10
		4.2.2	Hydraulic Containment (Pump and Treat)	11
		4.2.3	Monitored Natural Attenuation	12
		4.2.4	Permeable Reactive Barriers	13
		4.2.5	Subsurface Vertical Barrier Walls	14
5.0	REN	MEDY S	SELECTION PROCESS	16
	5.1	Pond C	Closure and Site Management Strategy	16
	5.2	Additi	onal Data Gathering	16
	5.3	Schedu	ule, Reporting, and Next Steps	17
6.0	REF	ERENC	CES	18



LIST OF TABLES

Table 1	Monitoring Well Network Summary
Table 2	Summary of Background Concentrations and Groundwater Protection
	Standards
Table 3	Summary of Groundwater Analytical Data
Table 4	Evaluation of Remedial Technologies

LIST OF FIGURES

Figure 1	Site Location Map
Figure 2	Monitoring Well Network Map
Figure 3	Potentiometric Surface Contour Map – April 2019

LIST OF APPENDICES

Appendix A Boring and Well Construction Logs
Appendix B Laboratory Analytical Reports

ii June 2019



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/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
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

iii June 2019

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 2 (AP-2). 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 cobalt identified in the 2018 Annual Groundwater Monitoring and Corrective Action Report (Geosyntec, 2019), which is the target constituent 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. Three delineation groundwater monitoring wells, installed to assess the extent of cobalt in groundwater at AP-2, show that cobalt is horizontally and vertically 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-2.

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, Georgia. The Site 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-2 is a 21-acre surface impoundment. AP-2 is currently used as a dewatering facility for fly ash and bottom ash. Dewatered ash is excavated and transported to the nearby Huffaker Road facility, a permitted solid waste disposal location owned and operated by GPC.

1.3 Pond Closure

GPC will close AP-2 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-2 via removal of the CCR material generally includes: (i) sufficient dewatering and stabilization of the CCR material to facilitate its excavation and removal; (ii) removal of the CCR material and a minimum 6 inches of the residual soils underlying the CCR material in AP-2; (iii) 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 (iv) 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-2 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-2 *Hydrogeologic Assessment Report* (HAR) submitted to Georgia EPD as supporting documents for the closure permit application.

2.1 Geology

AP-2 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 lower units of the Cambrian age Conasauga Formation (Ccsl), consisting of mostly calcareous shale. Based on review of subsurface investigations at the Site, the bedrock was identified as predominantly calcareous shale and fissile black shale. AP-2 is underlain primarily by five lithologic units; (i) terrace alluvium, (ii) colluvium, (iii) residuum, (iv) partially weathered shale bedrock, and (v) unweathered shale bedrock.

Based on subsurface investigations, the alluvial deposits generally grade from a silt and silty clay to a clayey sand and silty sand to a sand and gravelly sand at depth. The colluvium consists of silty sand, silty clay with angular and sub-rounded chert fragments, and dolomite, sandstone, and shale fragments. Residual or native soils have been derived from the in-place weathering of the shale bedrock. The residuum is generally described as brown to yellow brown firm clayey silt with weathered shale fragments. The partially weathered shale zone occurs as an intermediate weathering stage between the residuum and the unweathered shale bedrock. The weathered material is described as black to dark gray to dark red hard, fissile shale and claystone. The unweathered shale bedrock was not encountered or directly observed in the historical borings advanced at the Site. However, based on geologic conditions in the region, weathering, fracturing and jointing decreases with depth and the weathered rock material grades into competent bedrock.

2.2 **Hydrology and Groundwater Flow**

The uppermost aquifer at AP-2 is a regional groundwater aquifer that occurs primarily in the residuum and within the weathered and fractured bedrock. Recharge is by precipitation falling on bedrock outcrop areas and through alluvial, colluvial, and residual soils to the bedrock. Based on observations of residuum soil types and horizontal conductivity values, the movement of groundwater in the soil can be characterized as low-to moderate permeability, porous media flow. The groundwater flow in the shallow



underlying bedrock is characterized as fracture flow, and due to the preponderance of shale beneath AP-2, is expected to be very low permeability. The regional groundwater flow direction is expected to be from north to south; however, the local flow direction beneath AP-2 is predominantly east to west with an additional southwesterly component. Groundwater level data are recorded during each groundwater sampling event from the AP-2 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**.

The representative groundwater hydraulic gradient for AP-2 is approximately 0.011 feet/foot (ft/ft), measured across the central portion of AP-2 between wells MW-18 and HGWC-17. Horizontal hydraulic conductivity (K_h) measurements were calculated by ERM (2018) from slug test data collected in a subset of AP-2 wells and piezometers. Results were broadly grouped based on the lithology in which the wells or piezometers were screened. At AP-2, hydraulic conductivities for wells and piezometers screened in the alluvium, colluvium, and residuum ranged from 2.22 x 10^{-5} centimeters per second (cm/sec) (0.06 feet per day [ft/day]) to 9.91 x 10^{-4} cm/sec (2.81 ft/day), with a geometric mean of 1.65 x 10^{-4} cm/sec (0.47 ft/day). A groundwater flow velocity calculation was performed using the average value for K_h of 0.47 ft/day, a hydraulic gradient of 0.011 ft/ft, and an assumed effective porosity of 0.15. This calculation yielded a groundwater flow velocity of approximately 0.035 ft/day for typical AP-2 conditions. Additional details regarding the hydrogeologic conditions in vicinity of AP-2 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-2 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-2 Operating Record. The certified compliance monitoring well network for AP-2 consists of a total of 11 monitoring wells: 6 upgradient wells and 5 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-2 wells under the assessment monitoring program pursuant to 40 CFR 257.95. Additional groundwater monitoring details are provided in the 2018 Annual Groundwater and Corrective Action Monitoring Report (Geosyntec, 2019).

3.1.2 SSLs for Appendix IV Constituents

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

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

AP-2 (Federal and Georgia EPD CCR Rules):

Cobalt: HGWC-15 and HGWC-18

In accordance with 40 CFR 257.95(g), a notification identifying SSLs for cobalt was prepared for AP-2 and placed in the Operating Record on November 14, 2018. Pursuant to 40 CFR 257.96, an ACM was initiated for AP-2 on January 13, 2019.

3.2 <u>Field Investigation Activities</u>

Three additional groundwater monitoring wells were installed in 2018 to provide additional data to characterize flow conditions downgradient of AP-2 and to horizontally and vertically delineate SSLs of cobalt in groundwater at AP-2. Well MW-22 was installed for horizontal delineation and wells MW-21D and MW-23D were installed for vertical delineation. Detailed boring and well construction logs for these three new wells are provided in **Appendix A**. The locations of these three 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-2 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 three 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-22 and HGWC-17) indicate that SSLs of cobalt in HGWC-15 and HGWC-18 are horizontally delineated and contained within the property boundary; for these wells, the cobalt concentrations are below its respective GWPS. Similarly, cobalt is vertically delineated to below the GWPS in deeper delineation wells (HGWC-21D and HGWC-23D).

The April 2019 semiannual event results reported for the compliance wells will be statistically evaluated relative to the site-specific GWPS and reported in the



corresponding semiannual groundwater monitoring report, which will be published online on August 30, 2019.



4.0 GROUNDWATER CORRECTIVE MEASURES

4.1 Objectives of the Corrective Measures

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

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

Corrective measures selected for evaluation herein for potential use at AP-2 are anticipated to satisfy the above criteria to varying degrees of effectiveness.

4.2 Summary of Corrective Measures

The closure of AP-2 as described in Section 1.3 is a source control measure that reduces the potential for migration of CCR constituents to groundwater. Corrective measures discussed in this ACM are being evaluated to address SSLs in groundwater at and downgradient of the compliance boundary.

This section presents potential corrective measures capable of remediating the Appendix IV groundwater constituents (i.e., cobalt) at AP-2. 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 phytoremediation is generally considered a viable corrective measure for groundwater, the implementation of this technology at AP-2 is not a feasible option due to the lack of available area for tree plantings downgradient of the pond. Therefore, it is not retained for further evaluation in **Table 4**.

Similarly, in-situ solidification/stabilization (ISS) is generally considered a viable option for either small source areas or targeted zones within a larger footprint. However, this potential corrective measure is not an applicable technology at AP-2 since the CCR unit will be closed by removal of CCR materials from the unit. Therefore, ISS is not considered an applicable groundwater corrective measure for AP-2 and no detailed evaluation is provided in **Table 4**.

4.2.1 Geochemical Approaches (In-Situ Injection)

Cobalt 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 cobalt. For example, cobalt can be sorbed to iron and manganese oxides or precipitated as sparingly soluble cobalt sulfide minerals.

To understand the biogeochemical processes that would effectively immobilize cobalt 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 this constituent without mobilizing other naturally-occurring constituents. Once precipitated, these minerals are often stable even if geochemical



conditions revert back to a different redox environment. However, if not properly designed and implemented, manipulating redox conditions without forming the desired compounds may increase the mobility of naturally-occurring constituents such as iron, manganese, and arsenic.

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

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.

The attenuation of cobalt is expected to occur under both aerobic (via sorption to manganese or iron oxides) and anaerobic conditions (via formation of sulfide minerals). Therefore, in-situ injections are considered a potentially viable corrective measure to address cobalt in groundwater at AP-2, especially in smaller, more localized areas, and will be retained for further evaluation.

4.2.2 Hydraulic Containment (Pump and Treat)

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

Groundwater extraction for hydraulic control can often effectively address the variety of inorganic constituents encountered at CCR sites, including cobalt. Extraction



technologies also have the ability to overcome the limitations of in situ injection-based technologies (i.e., mixing and contact with affected materials, and to access impacted groundwater in lower permeability geologic formations such as fractured bedrock). Space constraints are mainly limited to the above-ground conveyance and treatment component of a P&T system since extraction wells can generally be fit into relatively tight spaces at the edge of waste or other points of compliance.

Extracted groundwater may need to be treated prior to discharge (depending on discharge permit requirements) but does have the potential to be 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 cobalt in groundwater at AP-2 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 cobalt, are either physical or chemical. Physical attenuation mechanisms such as dilution and dispersion may be appropriate as a polishing step (e.g., at the boundaries of impacted groundwater, when source control is complete, an active remedy is being used at AP-2, and appropriate land use and groundwater controls are in place). Chemical attenuation mechanisms through sorption or oxidation reduction 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). Cobalt undergoes sorption to iron and manganese oxides and, depending on specific redox conditions, it may also form sparingly soluble sulfide minerals via abiotic or biotic processes.

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

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

Physical and chemical MNA mechanisms for cobalt, including dilution, dispersion, sorption, and precipitation can be operational without the potential for additional mass of cobalt migrating to downgradient groundwater. Even under current conditions, attenuation processes for cobalt are already occurring as evidenced by groundwater data from delineation wells. Therefore, MNA is a potentially viable corrective measure for cobalt in groundwater at AP-2 and will be retained for further evaluation.

4.2.4 Permeable Reactive Barriers

Permeable reactive barriers (PRBs) can present a viable alternative for in-situ treatment of cobalt. The technology typically involves the installation of a subsurface wall constructed with reactive media such as zero-valent iron (ZVI), biologically active media (to induce oxidizing or reducing conditions), or clays, apatite, zeolites, and/or peat moss (to promote ionic exchange and/or sorption). PRBs have proven to be effective in passively treating several inorganic constituents found at CCR sites, including arsenic, selenium, and chromium (e.g. ITRC, 2011). The use of PRBs for cobalt has been tested



(e.g., Ludwig et al., 2002), but additional site-specific testing is needed to confirm the applicability of this technology to cobalt removal from groundwater.

PRBs can be installed in downgradient locations using conventional excavation methods or one-pass trenching methods. 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 4.2.5), 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. 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 potential slurry wall component of a PRB will be needed to further evaluate the feasibility of installing a PRB at AP-2, the technology is currently considered to be a potentially viable corrective measure to address cobalt in groundwater at AP-2 and will be retained for further evaluation.

4.2.5 Subsurface Vertical Barrier Walls

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

This approach involves placing a barrier to groundwater flow in the subsurface, frequently around the source area (or the downgradient limits of the source area), to prevent future migration of dissolved constituents in groundwater from beneath the source to downgradient areas. Barrier walls can also be used in downgradient applications to limit discharge to a surface water feature or to reduce aquifer recharge



from an adjacent surface water feature when groundwater extraction wells are placed near a surface water feature. A variety of barrier materials can be used, including cement and/or bentonite slurries or various mixtures of soil with cement or bentonite, geomembrane composite materials, or driven materials such as steel or vinyl sheet pile.

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

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

While additional subsurface investigations, aquifer testing, and wall compatibility testing with the groundwater chemistry will be needed to further evaluate the feasibility as well as the placement of a barrier wall at AP-2, the technology is currently considered to be a potentially viable corrective measure to address cobalt at AP-2 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-2 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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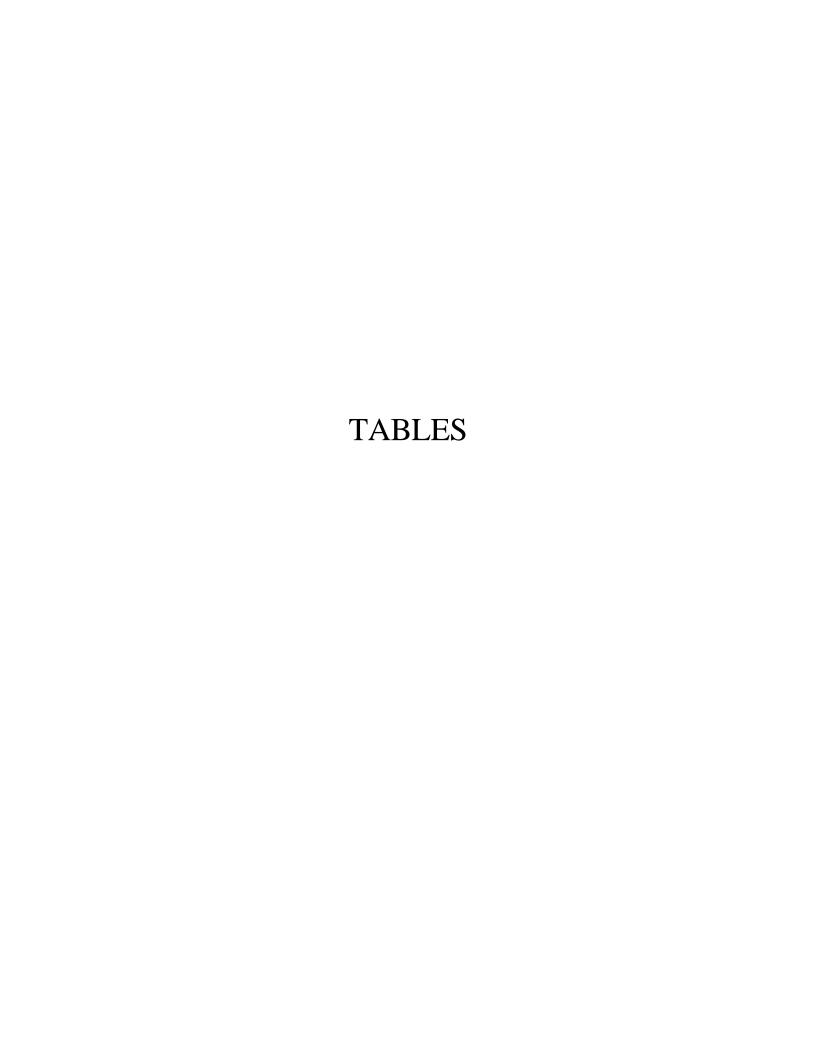


Table 1 Monitoring Well Network Summary Plant Hammond AP-2, Floyd County, Georgia



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 We	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
HGWA-4	Upgradient	12/3/2014	1549932.76	1939386.17	588.30	572.90	562.90	25.80	10
HGWA-5	Upgradient	12/10/2015	1548632.65	1937183.80	583.52	565.57	555.57	27.95	10
HGWA-6	Upgradient	12/11/2015	1548635.66	1937177.39	583.72	543.20	533.20	50.52	10
HGWC-14	Downgradient	10/16/2014	1548005.66	1938402.95	598.10	565.50	555.50	43.00	10
HGWC-15	Downgradient	10/20/2014	1547882.88	1937851.74	582.50	554.90	544.90	38.00	10
HGWC-16	Downgradient	10/21/2014	1548217.01	1937539.49	581.10	558.40	548.40	33.10	10
HGWC-17	Downgradient	10/22/2014	1548457.24	1937538.67	585.40	568.00	558.00	27.80	10
HGWC-18	Downgradient	10/22/2014	1548827.89	1937559.01	585.30	568.00	558.00	27.80	10
Groundwater Level Monitor	ring Piezometers								
MW-8	Downgradient	10/29/2014	1548174.39	1940014.36	587.37	565.50	555.50	32.27	10
MW-9	Downgradient	10/29/2014	1548136.52	1938918.59	591.67	569.90	559.90	32.17	10
MW-12	Downgradient	10/21/2014	1547862.70	1937521.75	584.33	556.90	546.90	37.83	10
MW-16	Downgradient	10/27/2014	1549110.61	1937941.31	575.22	563.20	553.20	22.42	10
MW-17	Downgradient	10/28/2014	1549168.15	1938344.56	587.67	569.90	559.90	28.17	10
MW-18	Downgradient	10/29/2014	1548988.42	1938713.61	593.07	571.90	561.90	31.57	10
Delineation Monitoring We	lls								
MW-21D	Downgradient	11/19/2018	1547877.73	1937844.17	581.49	539.89	529.89	49.20	10
MW-22	Downgradient	11/15/2018	1547856.03	1937832.07	578.67	551.09	541.09	35.00	10
MW-23D	Downgradient	11/15/2018	1548814.63	1937556.86	584.00	531.21	521.21	60.00	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-2, 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	0.21	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	0.36	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	2.42	5	5

Notes:

"mg/L" = milligrams 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 concentration for constituents were the background concentration 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 concentration for constituents were the background concentration 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 limits (TL) used to evaluate GWPS for this analyte equals half the laboratory specified reporting limit (RL). Per the SAP, and in accordance with the Unified Guidance, a non-parametric TL approach was used since the data set contained greater than 50% non-detect (ND) results for this analyte. Under this approach, the TL equals the highest value reported, for which is the laboratory RL. Since a RL may be influenced due to sample matrix interference at the time of analysis, half the RL was applied in this select case.

1 of 1 June 2019

[&]quot;pCi/L" = picocuries per liter

Table 3 Summary of Groundwater Analytical Data Plant Hammond AP-2, Floyd County, Georgia



	Well ID:	HGWA-1	HGWA-1	HGWA-2	HGWA-2	HGWA-3	HGWA-3	HGWA-4	HGWA-4	HGWA-5	HGWA-5	HGWA-6	HGWA-6	HGWC-14	HGWC-14	HGWC-15	HGWC-15
	Sample Date:	3/12/2019	4/2/2019	3/12/2019	4/2/2019	3/12/2019	4/1/2019	3/11/2019	4/2/2019	3/12/2019	4/2/2019	3/12/2019	4/2/2019	3/14/2019	4/3/2019	3/14/2019	4/4/2019
	Parameter (1,2,3)																•
	Boron*		ND (0.016 J)		ND (0.034 J)		ND (0.0066 J)		ND (0.010 J)		ND (0.0052 J)		ND (0.013 J)		12.5		2.3
	Calcium*		132		ND (22.5 J)		80.5		76.0		26.3		49.7		606		214
	Chloride*		20.3		5.8		6.5		4.4		1.7		1.6		227		138
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 (0.035 J)	ND	ND (0.079 J)	ND (0.12 J)	ND (0.061 J)	ND	ND (0.24 J)	0.66	ND	ND (0.066 J)
PE	pH*	7.03	6.86	5.42	5.41	7.29	7.16	6.27	6.66	6.42	6.38	7.50	7.46	4.66	4.67	5.71	5.66
AF	Sulfate*		84.3		48.7		50.4		4.9		23.8		35.5		1520		528
	TDS*		452		133		284		230		144		238		2310		926
	Antimony	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	ND	ND (0.0029 J)	ND	ND	ND (0.00017 J)
	Barium	0.042	0.040	0.12	0.13	0.13	0.13	0.029	0.030	0.050	0.044	0.20	0.19	0.019	0.016	0.021	0.018
	Beryllium	ND	ND	ND (0.00017 J)	ND (0.00015 J)	ND	ND	ND (0.000050 J)	ND	ND	ND	ND	ND	ND (0.00043 J)	ND (0.00027 J)	ND	ND
	Cadmium	ND	ND	ND (0.00013 J)	ND (0.00015 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.000079 J)	0.0024	0.0018
2	Chromium	ND	ND	ND	ND (0.0079 J)	ND	ND	ND	0.019	ND	ND	ND	ND	ND	ND	ND	ND
	Cobalt ⁺	ND	ND	0.017	0.019	ND	ND	ND	ND	ND (0.00099 J)	ND (0.0012 J)	ND	ND	0.025	0.021	0.038	0.035
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 (0.035 J)	ND	ND (0.079 J)	ND (0.12 J)	ND (0.061 J)	ND	ND (0.24 J)	0.66	ND	ND (0.066 J)
PE	Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.0014 J)	ND (0.0012 J)	ND	ND (0.000072 J)
AF	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	ND (0.00098 J)	ND (0.0032 J)	ND (0.0028 J)	ND (0.011 J)	ND (0.0095 J)	ND	ND	ND	ND (0.00090 J)
	Mercury	ND		ND		ND		ND		ND		ND		ND		ND	
	Molybdenum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Comb. Radium 226/228	0.327 U	0.739 U	0.454 U	0.651 U	1.01 U	0.760 U	0.781 U	0.494 U	0.833 U	1.07 U	0.982 U	0.621 U	1.50	1.43 U	0.462 U	0.512 U
	Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.0048 J)	ND (0.00091 J)	ND	ND (0.00021 J)
	Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.00028 J)	ND (0.00028 J)	ND	ND

1 of 2

-- = 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, the Appendix IV parameter 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-2, Floyd County, Georgia



	Well ID:	HGWC-16	HGWC-16	HGWC-17	HGWC-17	HGWC-18	HGWC-18	MW-21D ⁽⁴⁾	MW-21D	MW-22 ⁽⁴⁾	MW-22	MW-23D ⁽⁴⁾	MW-23D
	Sample Date:		4/4/2019	3/15/2019	4/5/2019	3/14/2019	4/5/2019	3/15/2019	4/4/2019	3/15/2019	4/5/2019	3/14/2019	4/5/2019
	Parameter (1,2,3)												
	Boron*		2.1		5.9		6.4		5.2		2.1		3.0
Ħ	Calcium*		196		340		400		427		178		352
×	Chloride*		76.8		195		217		299		131		195
APPENDIX	Fluoride*	ND	ND	ND	ND (0.16 J)	0.88	0.37	ND	ND (0.10 J)	ND	ND (0.13 J)	ND	ND (0.14 J)
PE	pH*	7.09	6.95	6.32	6.26	4.39	4.50	6.81	6.70	5.95	5.96	6.68	6.66
AF	Sulfate*		251		642		1030		915		392		585
	TDS*		704		1260		1610		1800		890		1400
	Antimony	ND		ND		ND		ND		ND		ND	
	Arsenic	ND	ND (0.00010 J)	ND	ND	ND (0.0036 J)	ND(0.0015 J)	ND	ND (0.00019 J)	ND	ND	ND	ND
	Barium	0.13	0.11	0.029	0.022	0.029	0.021	0.090	0.075	0.044	0.036	0.082	0.061
	Beryllium	ND	ND	ND	ND	ND (0.0026 J)	ND (0.0022 J)	ND	ND	ND	ND	ND	ND
	Cadmium	ND	ND	ND	ND	0.0019	0.0017	ND	ND	ND (0.00082 J)	ND (0.00064 J)	ND	ND
2	Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Cobalt ⁺	ND	ND (0.00028 J)	0.017	0.016	0.16	0.14	ND	ND (0.00034 J)	0.028	0.022	ND (0.0013 J)	ND (0.0012 J)
APPENDIX	Fluoride	ND	ND	ND	ND (0.16 J)	0.88	0.37	ND	ND (0.10 J)	ND	ND (0.13 J)	ND	ND (0.14 J)
PE	Lead	ND	ND (0.00016 J)	ND	ND (0.000076 J)	ND (0.0015 J)	ND (0.0015 J)	ND	ND	ND	ND	ND	ND
AF	Lithium	ND (0.0041 J)	ND (0.0.0032 J)	ND (0.0011 J)	ND (0.00074 J)	ND (0.011 J)	ND (0.0084 J)	ND (0.025 J)	ND (0.019 J)	ND (0.0020 J)	ND (0.0013 J)	ND (0.0028 J)	ND (0.0021 J)
	Mercury	ND		ND		ND		ND		ND		ND	
	Molybdenum	ND	ND	ND	ND	ND	ND	0.045	0.033	ND	ND (0.00013 J)	ND	ND (0.0014 J)
	Comb. Radium 226/228	0.591 U	0.960 U	0.917 U	1.07 U	1.37 U	2.22	0.972 U	0.791 U	0.977	1.06 U	0.872 U	0.932 U
	Selenium	ND	ND (0.000089 J)	ND	ND (0.000093 J)	0.016	ND (0.0018 J)	ND	ND	ND	ND	ND	ND
	Thallium	ND	ND	ND	ND (0.00013 J)	ND	ND (0.00014 J)	ND	ND	ND	ND	ND	ND

Notes:

TDS = total dissolved solids

2 of 2

^{-- =} 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, the

Appendix IV parameter 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.

Evaluation of Remedial Technologies Plant Hammond AP-2, Floyd County, Georgia



	Regulatory Citation for Criteria:		57.96(C)(1)
Corrective Measure	Description	Performance	Reliability
Geochemical Approaches (In-Situ Injection)		The effective immobilization of Co has been shown under aerobic and anaerobic conditions; however, the anaerobic approach (involving the injection of an electron donor together with iron or manganese and sulfur) requires careful study and testing. While aerobic approaches are somewhat less complex, additional aquifer characterization is needed to further evaluate these options.	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 Co in groundwater.
Hydraulic Containment ("Pump and Treat")	groundwater, which may subsequently require above-ground treatment and permitted discharge to a receiving water feature, reinjection into the groundwater, or	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-2, 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)	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,	Physical and chemical MNA mechanisms for Co, including dilution, dispersion, sorption, and oxidation reduction reactions, can be effective at achieving groundwater protection standards (GWPS) within a reasonable time frame. Attenuation processes for Co are already occurring at the site as evidenced by data from the delineation wells. Source control will improve the mass balance such that the buffer capacity of the aquifer is unlikely to be exhausted, and the attenuation processes already at work for Co at AP-2 will further enhance ongoing MNA.	Reliable as long as the aquifer conditions that result in Co attenuation remain favorable and/or are being enhanced and sufficient attenuation capacity is present. MNA is reliable and can either be used as a stand-alone corrective measure for groundwater impacted by dissolved Co, or in combination with a second technology.
Permeable Reactive Barrier	Permeable reactive barrier (PRB) technology typically involves the installation of a permeable subsurface wall constructed with reactive media for the removal of constituents as groundwater passes through. Either ZVI-Carbon matrix or solid carbon (bio-barrier) are currently proposed for the concurrent removal of Co. The carbon could be composed of peat moss, mulch or another carbon source. Exact placement of the PRB is contingent on finalization of the nature and extent characterization. PRB walls are typically keyed into the bedrock. While the shallow groundwater in the residuum and fractured bedrock is connected to the groundwater in more competent bedrock, the higher permeability/conductivity of the PRB is not expected to impede groundwater flow. PRBs can also be constructed as "funnel and gate" systems, where a barrier wall directs groundwater to a smaller "treatment gate" filled with reactive media.	PRBs have been shown to effectively address Co in groundwater if the right mix of reactive materials (e.g., ZVI and carbon) is selected for removal/immobilization of the constituent. The approach is expected to achieve GWPS for Co as impacted groundwater passes through the reactive barrier. Additional testing is required to select the appropriate sorptive media mix.	Reliable groundwater corrective measure, but loss of reactivity over time may require re-installation depending on the duration of the remedy. Additional data collection, including conducting a bench and/or pilot study, is needed to better characterize current attenuation mechanisms and/or select the appropriate reactive media mix for a PRB wall.
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-2, a barrier wall might be used in conjunction with a "funnel and gate" system for a PRB rather than a stand-alone technology. As such, groundwater with Co 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.	

Page 1 of 3 June 2019

Evaluation of Remedial Technologies Plant Hammond AP-2, 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 Co. Operation and maintenance (O&M) requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.	Moderate. The main potential impacts are related to the presence and operation of an on-site above-ground water treatment facility and related infrastructure to convey and treat extracted groundwater. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone.	Installation of extraction wells and/or trenches can be accomplished relatively quickly (1 to 2 months). However, additional aquifer testing, system design and installation, and permit approval may be required, which may take up to 24 months. The initiation of the approach would be contingent on the start-up of the wastewater treatment infrastructure. Hydraulic containment can be achieved relatively quickly after startup of the extraction system, but uncertainty exists with respect to the time to achieve GWPS without additional data collection to better understand attenuation mechanisms for Co.
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-2 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.
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.	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	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.

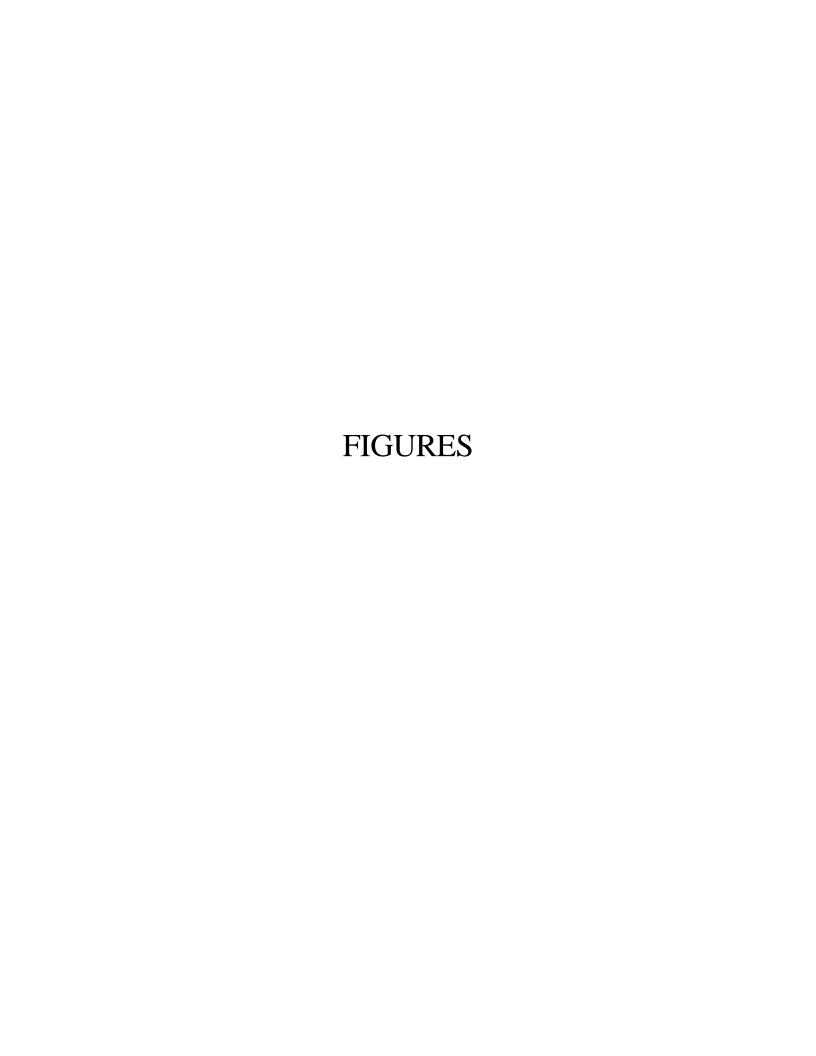
Page 2 of 3

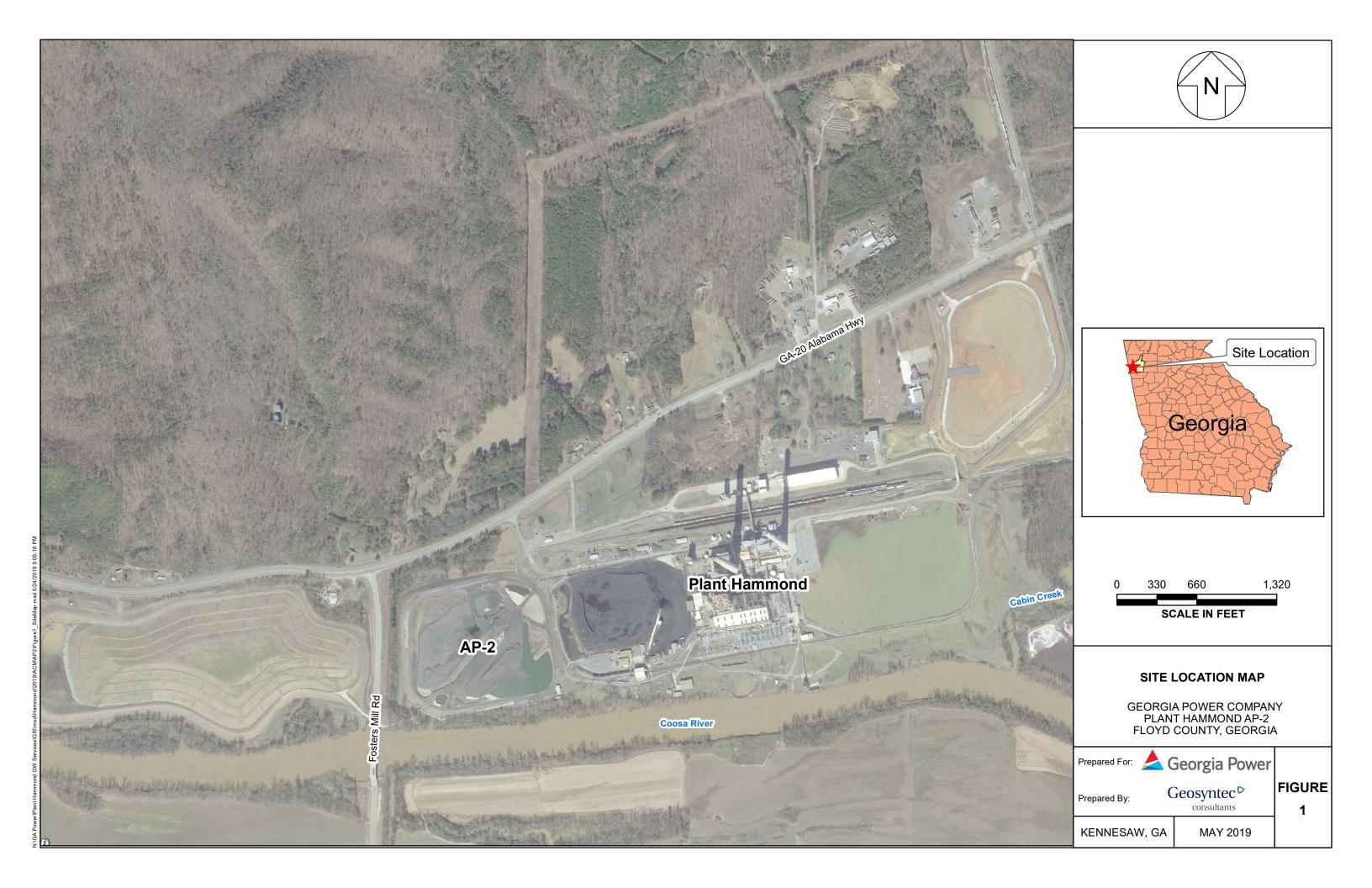
Evaluation of Remedial Technologies Plant Hammond AP-2, Floyd County, Georgia

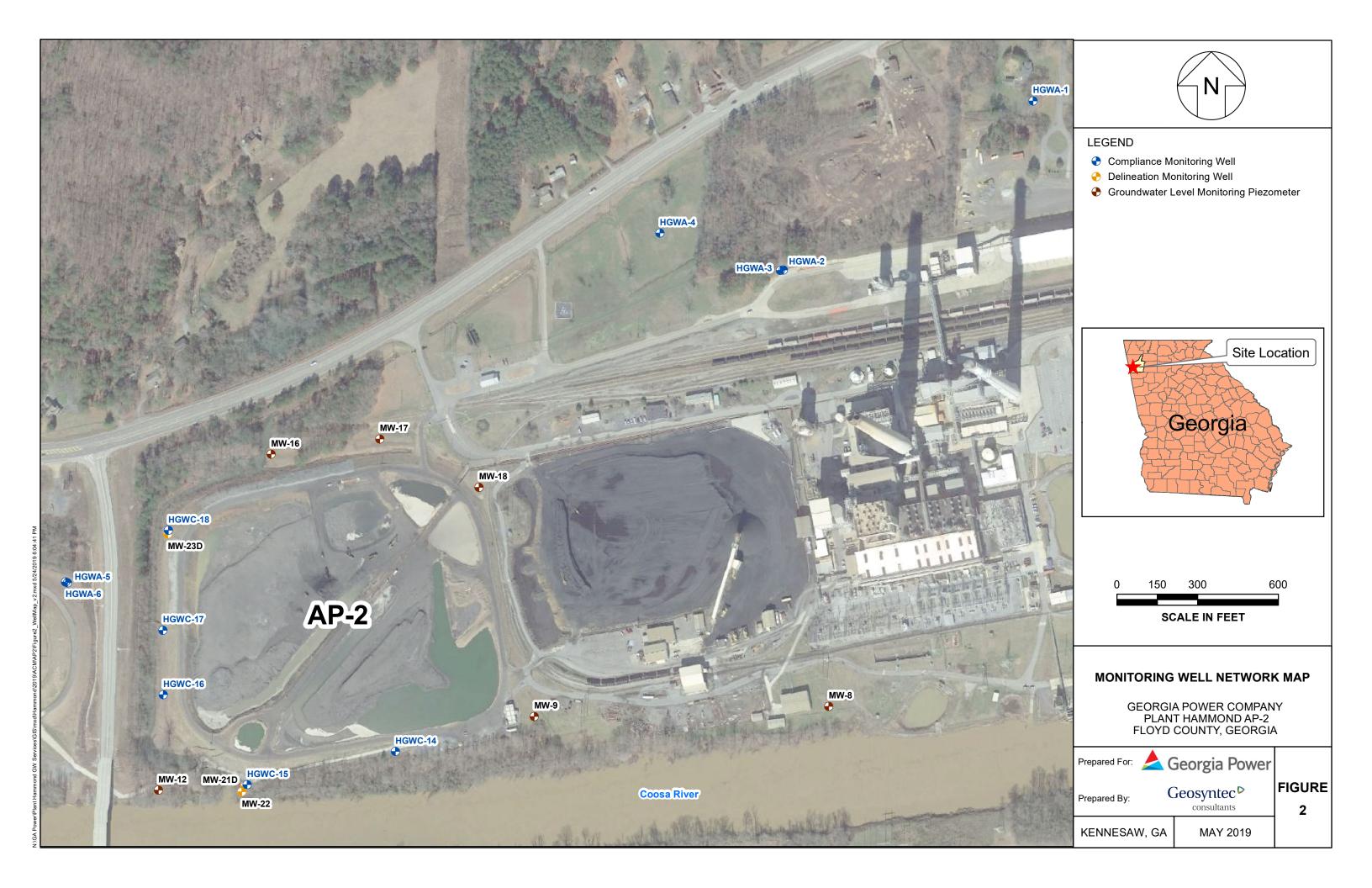


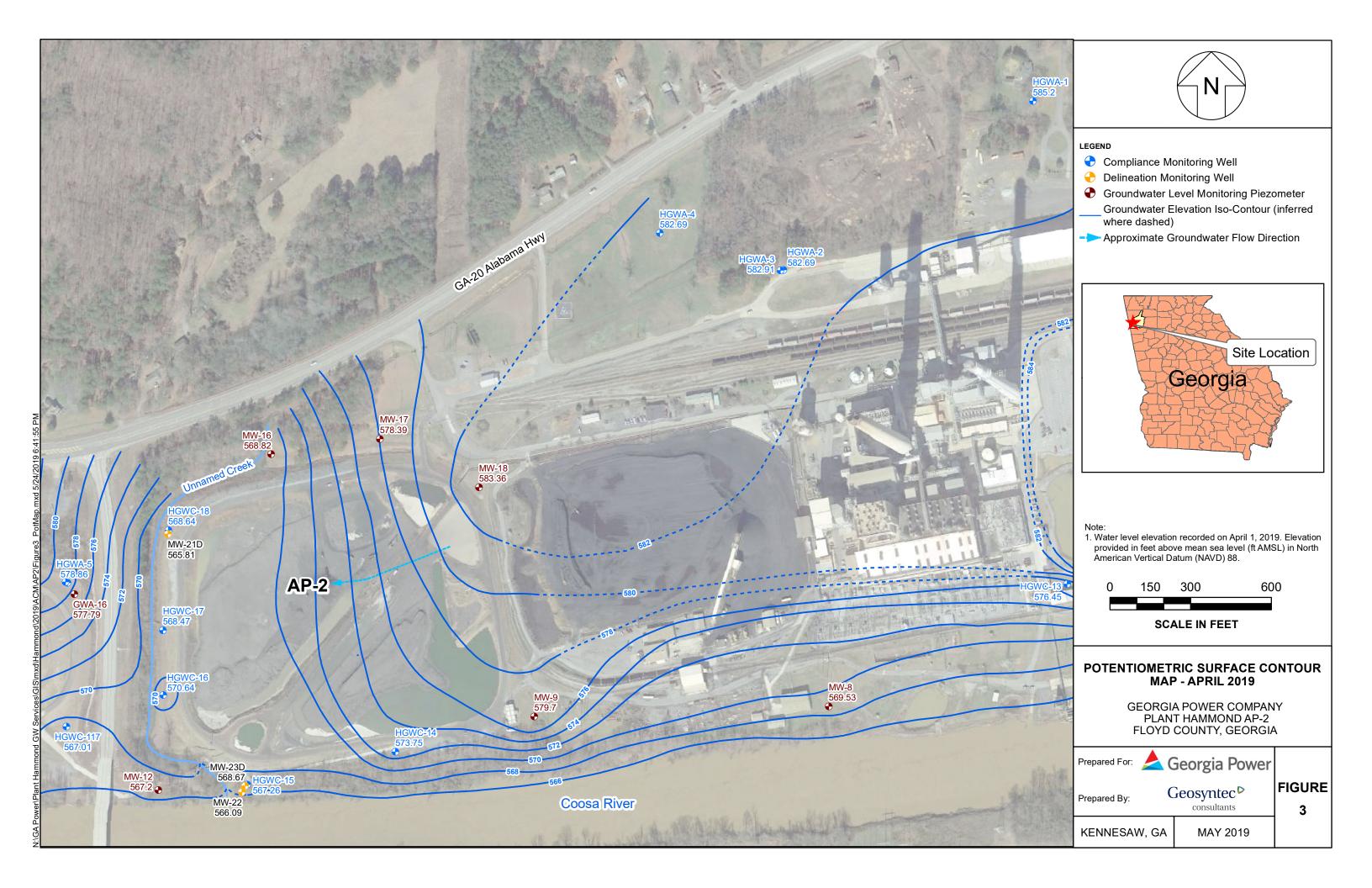
	40 CFR 2	57.96(C)(3)]
Corrective Measure	Institutional Requirements	Other Env or Public Health Requirements	Relative Costs
Geochemical Approaches (In-Situ Injection)	Deed restrictions may be necessary until in-situ treatment has achieved GWPS. A new UIC permit (for in-situ injections) would be required 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-2. Potential for mobilization of redoxsensitive 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-2. 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-2.	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-2. Following installation, the remedy is passive. However, certain treatment media (such as ZVI) have the potential to mobilize naturally-occurring constituents downgradient of the PRB.	Medium to high (for installation) - minimal O&M requirements if replacement is not necessary
Subsurface Vertical Barrier Walls	Deed restrictions may be necessary 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-2. 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)

Page 3 of 3









APPENDIX A

Boring and Well Construction Logs

Geosyntec[▶] **MONITORING WELL MW-21D** PAGE 1 OF 2 1255 Roberts Boulevard Kennesaw, GA 30144 CLIENT Southern Company Services **PROJECT NAME** Plant Hammond Well Installation PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond **COMPLETED** _11/19/18 **NORTHING** 1548814.63 ft **EASTING** 1937556.86ft DATE STARTED 11/19/18 **BORING DIAMETER** 6 in **GROUND ELEVATION** 578.89 ft **DRILLER** Cascade Drilling DRILLING METHOD Sonic TOP OF CASING ELEVATION 581.49 ft SAMPLING METHOD 4" core 6" overide GEOPHYSICAL CONTRACTOR Geosyntec Consultants RIG TYPE Geoprobe 8140LC CHECKED BY J. Ivanowski LOGGED BY N.Tilahun ELEVATION (ft msl) **GAMMA** MATERIAL DESCRIPTION CONSTRUCTION GRAPHIC LOG DEPTH (ft) DIAGRAM RUN (cps) 100 Hydro excavation (0-10') - No sample 575 5 Bentonite grout ACP GINT LIBRARY.GLB 10 10-11': No recovery GRAVELLY SAND, Yellowish brown, trace silt and clay, fine to coarse sand, well graded, some subangular to rounded gravel, loose, wet. PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ Schedule 40 PVC 2" PARTIALLY WEATHERED ROCK (PWR), Black, thinly bedded shale rock fragments, hard, moist. 560 Bentonite SHALE, Black, fine grained, hard, thinly bedded to massive, slightly uncoated 3/8" to moderately weathered and fractured. chips 555 25 25 550

(Continued Next Page)

MONITORING WELL MW-22 Geosyntec D PAGE 1 OF 2 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** _11/15/18 **EASTING** 1937832.07 ft DATE STARTED 11/15/18 NORTHING _ 1547856.03 ft **DRILLER** Cascade Drilling **GROUND ELEVATION** 576.09 ft **BORING DIAMETER** 6 in DRILLING METHOD Sonic TOP OF CASING ELEVATION 578.67 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** MATERIAL DESCRIPTION (cps) 100 Hydro excavation (0-10') - No sample 5 Bentonite 10 10-13.5': No recovery grout CLAY, Yellowish brown, trace silt, medium to high plasticity, moist, soft. Schedule 40 15 PVC 2" 20 CLAY, Yellowish brown, trace silt, medium to high plasticity, moist, Bentonite 3/8" chips 20/40 Silica Sand 0.010 slot size 2" Pre Pack, U-Pack Screen

(Continued Next Page)

ACP GINT LIBRARY.GLB

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

Geosyl cons	ultants Geosyntec Consultants 1255 Roberts Boulevard	MONITORING	PAGE 2 OF 2
CLIENT So	uthern Company Services	PROJECT NAME Plant Hammond Well Installation	n
PROJECT N	JMBER GW6581B	PROJECT LOCATION Plant Hammond	
DEPTH (ft) ELEVATION (ft msl)	GAMMA (cps)	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
_		CLAY, Yellowish brown, trace silt, medium to high plasticity, moist, soft.	
545 	M	CLAY, Dark brown, trace silt and fine sand, non plastic to low plasticity, soft, moist, slightly laminated.	
35 —		Bottom of borehole at 35.0 feet.	<u> </u>
+ 540 40 535			
45 —			
530			
525 			
55 — — 520 —			
60			

MONITORING WELL MW-23D Geosyntec D PAGE 1 OF 2 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** _11/15/18 **NORTHING** 1547877.73 ft **EASTING** 1937844.17ft DATE STARTED 11/15/18 BORING DIAMETER 6 in **GROUND ELEVATION** 581.21 ft **DRILLER** Cascade Drilling DRILLING METHOD Sonic TOP OF CASING ELEVATION 584 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 580 5 575 Bentonite ACP GINT LIBRARY.GLB 1/24/19 grout 10 10-13': No recovery SILTY CLAY, Dark brown, low plasticity, trace fine PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ sand, soft, moist. Schedule 40 CLAY, Yellowish brown, medium to high plasticity, PVC 2" trace silt, moist, soft. 565 CLAY, Yellowish brown, medium to high plasticity, trace silt, moist, soft. Bentonite uncoated 3/8" chips 555

(Continued Next Page)

Geosyntec[▶] **MONITORING WELL MW-23D** PAGE 2 OF 2 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 CONSTRUCTION ELEVATION (ft msl) DIAGRAM DEPTH (ft) GRAPHIC LOG RUN **GAMMA REMARKS** MATERIAL DESCRIPTION (cps) CLAY, Greenish to brownish grey, medium to high plasticity, trace silt, trace fine sand, trace 550 subrounded gravel, moist to wet, soft. 35 PARTIALLY WEATHERD ROCK (PWR), Rock fragments up to 4 inch in size, dry to wet where open void encountered. Void between 38.5 and 39.5' 40 SHALE, Pale to dark grey, some claystone fragments, white calcite veins, thinly bedded, highly weathered, fine gravel to boulder sized broken pieces of rock. ACP GINT LIBRARY.GLB 1/24/19 40': Hard drilling. 45 535 Bentonite 3/8" chips PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ 20/40 Silica Sand 50 -50 SHALE, Pale to dark grey, some claystone fragments, white calcite veins, thinly bedded, 530 highly weathered, fine gravel to boulder sized broken pieces of rock. 50': Hard drilling, 0.010 slot size 55 -55 full returns. 2" Pre Pack, U-Pack 525 Screen 60 60 Bottom of borehole at 60.0 feet.

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/	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	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 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 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/			
			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 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	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	300.0						
Fluoride	0.072J	mg/L	0.30	0.029	1		03/16/19 07:36	16984-48-8	



Project: Plant Hammond Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

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 Metl	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	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	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	



Project:

Plant Hammond

Pace Project No.:

2616036

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 Result Reporting

Parameter

Units

Limit

MDL

Analyzed

Qualifiers

Mercury

mg/L

ND

0.00050

0.000036

03/15/19 17:12

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

109358

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Mercury

Mercury

Units

mg/L

Units

mg/L 0.0025 0.0025

100

80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

109378

MS MSD

MS

109379

MSD Result

MSD % Rec % Rec

Max Limits RPD

RPD

2615967001 Result

ND

Spike Spike Conc. Conc. 0.0025

0.0025

Result 0.0026 0.0025

% Rec 100

MS

102

75-125 3

20

Qual

Date: 03/20/2019 03:29 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

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	 mg/L		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 S	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

Selenium

Date: 03/20/2019 03:29 PM

Thallium

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

Doromotor	Units	Blank	Reporting	MDI	Analyzad	Ouglifiere
Parameter	Units	Result	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	

0.1

0.1

mg/L

mg/L

MATRIX SPIKE & MATRIX S	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109376 109377											
Parameter	Units	2616039003 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	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

0.10

105

103

80-120

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.: 2616036

Date: 03/20/2019 03:29 PM

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	ATE: 10937	6 MS	MSD	109377 MSD							
Parameter	Units	2616039003 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
- arameter		_ 		COIIC.		- INGSUIL	70 INEC	/0 IXEC				— Quai
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	104	103	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.098	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

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

METHOD BLANK: 109496 Matrix: Water

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

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Fluoride mg/L ND 0.30 0.029 03/15/19 20:10

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 2616034002 Spike MS MS % Rec

ParameterUnitsResultConc.Result% RecLimitsQualifiersFluoridemg/L0.082J1010.110090-110

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 3/17/19/19/5 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
SolifSolid
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

1

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@southernco.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 (450 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 Pluoride by 300.0 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
Wate Water
Waste Water
Product
SouvSould
Oil
Wipe
Adr
Adr
Other
Tissue 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	A A D:	•	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	elinquished:	Yes □No □N/A	3.		
Sampler Name & Si	gnature on COC:	YES ONO ON/A	4.		
Samples Arrived wit	hin Hold Time:	Yes ONO ON/A	5.		
Short Hold Time A	nalysis (<72hr):	Yes DATE DN/A	6.		
Rush Turn Around	Time Requested:	YPS DINO ON/A	7.		
Sufficient Volume:	ــــــــــــــــــــــــــــــــــــــ	TES ONO ON/A	8.		
Correct Containers	Used: Æ	TES ONO ON/A	9.		
-Pace Container	s Used: -€	YBS □No □N/A			
Containers Intact:	عر.	Yes Ono On/A	10.		
Filtered volume rece	eived for Dissolved tests	Yes ONO ANTA	11.		
Sample Labels mat	عر h COC:	Hes DNo DN/A	12.		
-Includes date/ti		\mathcal{W}			
All containers needing	reservation have been checked.	Nes Ono On/A	13.		
All containers needing compliance with EPA	preservation are found to be in ecommendation.	Mes Ono On/A			
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	Ives DNO	Initial when completed	Lot # of added preservative	
Samples checked for	r dechlorination:	lyes □No ĐN/A	14.		
Headspace in VOA	Vials (>6mm):	iyes □no ÆNÃ	15.		
Trip Blank Present:		IYes □No IZINIA	16.		
Trip Blank Custody	Seals Present	Yes ONO -ONA	1		
Pace Trip Blank Lo	# (if purchased):				
Client Notification	Resolution:	_		Field Data Required	? Y / N
	acted:	Date	Time:	Tion Data Required	, , ,
Comments/ Reso				<u> </u>	
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



(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	Analysts	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



ANALYTICAL RESULTS - RADIOCHEMISTRY

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	



ANALYTICAL RESULTS - RADIOCHEMISTRY

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	Act ± Unc (MDC) Carr Trac	Units	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	



ANALYTICAL RESULTS - RADIOCHEMISTRY

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	3 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-COSTOD 1 / Atlany user Insert and Second Second accurately.

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

(N/A) เวยาน SAMPLECONDITIONS seigme2 Sinta / Location (N/A) Cooler pelee Regidetory Agoncy Custody (N/A) MO#:2616037 83 Received on Residual Chlorine (Y/N) Page: 1400 TIME したちゃ 3/12/19/2205 B A -- Requested Analysis Filtered (Y/N) 3,13,19 DATE 3 DATE Signed: 3/12 Sulfate by 300.0 SAMPLER NAME AND SHONATURE 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) PRINT Name of SAMPLER: NOOLO MUSEUS lcnsrtieM SIGNATURE OF SAMPLER: WOULE MIMMON 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: Page 14 of 17 4 6 6 ITEM #

Section B

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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A

Due Date: 04/10/19 (N/A) petin Samples 210/27 SAMPLE CONDITIONS (N/A) Cooler **Pel66** MO#:2616037 Rogulatory Agency State / Location poisu (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 IT CHENTAL DURAN IDLAY 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-14 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

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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 > 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) IcherteM Nathia Preservatives EOZSZBN 各古のよるい HOPN HCI Section C Invoice Information: ሊን EONH Сотралу Мате: 026/0/2/02 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

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						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 🗆	Vo.	□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.	.0	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.: 2616039

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.: 2616039

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.: 2616039

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616039001	HGWA-4	Water	03/11/19 18:11	03/13/19 14:00	
2616039002	HGWA-5	Water	03/12/19 13:16	03/13/19 14:00	
2616039003	HGWA-6	Water	03/12/19 13:00	03/13/19 14:00	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616039

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616039001	HGWA-4	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616039002	HGWA-5	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616039003	HGWA-6	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616039

Date: 03/20/2019 03:25 PM

Sample: HGWA-4	Lab ID:	2616039001	Collecte	ed: 03/11/19	18:11	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: El	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 18:08	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 18:08	7440-38-2	
Barium	0.029	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 18:08	7440-39-3	
Beryllium	0.000050J	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 18:08	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 18:08	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 18:08	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 18:08	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 18:08	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 18:08	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 18:08	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 18:08	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 18:08	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 18:04	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.035J	mg/L	0.30	0.029	1		03/18/19 22:15	16984-48-8	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616039

Date: 03/20/2019 03:25 PM

Sample: HGWA-5	Lab ID:	2616039002	Collecte	ed: 03/12/19	13:16	Received: 03/	atrix: Water		
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 18:14	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 18:14	7440-38-2	
Barium	0.050	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 18:14	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 18:14	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 18:14	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 18:14	7440-47-3	
Cobalt	0.00099J	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 18:14	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 18:14	7439-92-1	
Lithium	0.0032J	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 18:14	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 18:14	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 18:14	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 18:14	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EP	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:10	03/15/19 18:06	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.079J	mg/L	0.30	0.029	1		03/18/19 23:23	16984-48-8	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616039

Date: 03/20/2019 03:25 PM

Sample: HGWA-6	Lab ID:	2616039003	Collecte	ed: 03/12/19	13:00	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 18:20	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 18:20	7440-38-2	
Barium	0.20	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 18:20	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 18:20	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 18:20	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 18:20	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 18:20	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 18:20	7439-92-1	
Lithium	0.011J	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 18:20	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 18:20	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 18:20	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 18:20	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 18:09	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.061J	mg/L	0.30	0.029	1		03/18/19 23:46	16984-48-8	



Project:

Plant Hammond

Pace Project No.:

2616039

QC Batch:

24380

Analysis Method:

EPA 7470A

QC Batch Method: EPA 7470A Analysis Description:

7470 Mercury

Associated Lab Samples:

2616039001, 2616039002, 2616039003

METHOD BLANK: 109357

Matrix: Water

Associated Lab Samples:

2616039001, 2616039002, 2616039003

Blank Result Reporting

Parameter

Units

Limit

MDL

Analyzed

Qualifiers

Mercury

Date: 03/20/2019 03:25 PM

mg/L

ND

0.00050

0.000036

03/15/19 17:12

LABORATORY CONTROL SAMPLE: Parameter

109358

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Mercury

mg/L

Units

0.0025

0.0025

109379

0.0026

100

80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

109378

MS Spike

MSD Spike

MS MSD Result

MS % Rec

MSD % Rec % Rec Limits

Max RPD RPD

Mercury

Parameter Units mg/L

2615967001 Result ND

Conc. Conc. 0.0025 0.0025

Result 0.0025

100

102

75-125

Qual

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.: 2616039

Date: 03/20/2019 03:25 PM

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

Associated Lab Samples: 2616039001, 2616039002, 2616039003

METHOD BLANK: 109374 Matrix: Water

Associated Lab Samples: 2616039001, 2616039002, 2616039003

_		Blank	Reporting			
Parameter	Units	Result	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	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPLIC	CATE: 10937	6		109377							
Parameter	Units	2616039003 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	0.11	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.: 2616039

Date: 03/20/2019 03:25 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 10937		109377								
Parameter	Units	2616039003 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	0.10	104	103	75-125		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.:

2616039

QC Batch: QC Batch Method: 24522

Analysis Method:

EPA 300.0

EPA 300.0

Analysis Description:

300.0 IC Anions

Associated Lab Samples:

2616039001, 2616039002, 2616039003

METHOD BLANK: 110051 Associated Lab Samples:

Matrix: Water 2616039001, 2616039002, 2616039003

Blank Result

Reporting

Parameter

Units

Limit

MDL

Analyzed

Qualifiers

Fluoride

Fluoride

Fluoride

mg/L

ND

0.30

9.8

110054

Result

0.029

98

03/18/19 21:29

90-110

LABORATORY CONTROL SAMPLE:

Parameter

Units mg/L

2616039001

Result

0.035J

110052

Spike Conc.

MS

Spike

Conc.

10

LCS Result

LCS % Rec % Rec Limits

Qualifiers

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

110053

Spike

Conc.

MSD

10

MS

10.2

MS % Rec

MSD % Rec

102

% Rec Limits RPD

Max RPD

15

Qual

MATRIX SPIKE SAMPLE:

Date: 03/20/2019 03:25 PM

Parameter

110055

Units

mg/L

Parameter Units 2616039002 Result

10

Spike Conc.

MS Result

MSD

Result

10.3

MS % Rec

102

% Rec Limits

90-110

Qualifiers

0

Fluoride

mg/L

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.: 2616039

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 03:25 PM



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616039

Date: 03/20/2019 03:25 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2616039001	HGWA-4	EPA 3005A	24384	EPA 6020B	<u></u> 24419
2616039002	HGWA-5	EPA 3005A	24384	EPA 6020B	24419
2616039003	HGWA-6	EPA 3005A	24384	EPA 6020B	24419
2616039001	HGWA-4	EPA 7470A	24380	EPA 7470A	24416
2616039002	HGWA-5	EPA 7470A	24380	EPA 7470A	24416
2616039003	HGWA-6	EPA 7470A	24380	EPA 7470A	24416
2616039001	HGWA-4	EPA 300.0	24522		
2616039002	HGWA-5	EPA 300.0	24522		
2616039003	HGWA-6	EPA 300.0	24522		

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

(N/A) SAMPLECONDITIONS เมยเน Samplos も Cooler De1889 Regulatory Agoncy State? Location Custody MO#: 264 6039 (N/A) 8 Received on Residual Chlorine (Y/N) TEMP IN C AYT 19 18 10/19 2205 61/11/8 3.13.P (A) DATE 12 0.005 yd etalluð Metals (As, B, Co, Mo) DATE Signed: ટ Radium 226/228 betsy modernet@pacetabs.com man ACCEPTED BY JAFFILLATION ર O.005 yd ebnauf ces@southernco.com て App. IV Metals ÑΙΧ JeeT sesylanA, Pace Oucle:
Pece Project Manager: belsy modernel@
Pace Profile #: 327.4 (AP) or 328.5 (Huff) Diner Nocla Rustus lonsrijeM SIGNATURE OF SAMPLER: 7/ JOHL ON WHAM Preservatives VB2S2O3 HOBN Wention: Scsinvo HCI Involce Information: EONH Сомралу Nаме: Sorr plup #OSZH Section C 943 Unpreserved SAMPLER NAME AND SIGNATURE # OF CONTAINERS PRINT Name of SAMPLER: \$15000 1625yute 713/19 DATE SAMPLE TEMP AT COLLECTION जान डांगांना कि विश्वास्त S エス DATE COLLECTED RELINOUSHED BY / AFFILIATION Report To: Joju Abraham / Lauren Petty TIME Malix my unbers SCS10348606 START Purchase Order #: SCS1034860 Project Name Plant Hammond DATE Required Project Information: (G=GRAB C=COMP) MATRIX CODE (see valid codes to left) Copy To: Section B MATRIX
Dehtsting Water
Water
Water
Water
Product
SouldSoild
Oil
Wipe
Wipe
Ant
Char
Tissuo Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax. Requested Due Date: **Stort Lay of 114** ADDITIONAL COMMENTS One Character por box. (A-Z, 0-91, -). Sample Ids must be unique Email: jabraham@southemco.com SAMPLE ID Hawk-4 2480 Maner Road Allanta, GA 30339 Required Client Information: **(**) Page 14 of 17 1 . . 9 10 11 # MBTI

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

Due | Date: 03/20/19 ntact (Y/V) Samples SAMPLE CONDITIONS (N/A) かり Coolar balse3 WO#-2616039 State / Location Regulatory Agency Costody (N/A) 80 Received on CLIENT: GAPower-CCR Residual Chlorine (Y/V) Dig GMBT 1400 3/14/14 1950 244 3/14/19 1200 Requested Analysis Filtered (Y/N) DATE Signed: 08/12/1 2/13/19 3,13,19 OATE Sulfate by 300.0 Metals (As, B, Co, Mo) 2 Radium 226/226 betsy.modaniel@pacelabs.com 之 之 ACCEPTED BY ! AFFE LATION Fluoride by 300.0 P. P. C. Invoice Information:
Attention: scsinvoices@southernco.com
Company Name: App. IV Metals Ñλ Pace Quote:
Pace Project Manager. betsy,modaniel@g
Pace Profils #: 327.4 (AP) or 328.5 (Huff) , 1897, 898 (IBRA.) Methanol Grant Walter) by Preservatives N92SZO3 HOBN And War ЮН Grant Water/Georgalize Danger 1950 14 EONH 220x HS2O4 943 SAUPI ER NAME AND SIGNATURE Address: Unpreserved 力型 OF CONTAINERS PRINT Name of SAMPLER: 2/2/2 3/13/19 SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION DATE 750 6- MARTE 1252, 13/2019:16 TIME DATE Con Mucombec COLLECTED RELINCUISHED BY / AFFILIATION Joju Abraham / Lauren Petty TIME Mariamone SCS10348606 START Plant Hammond Required Project Information: Copy To: Geosyntec (G#GBAB C=COMP) BAYT BJAMAS Purchase Order #: Project Name: P Project #: 1818 MATRIX CODE (see valid codes to left) Section B MATRIX
Diriting Water
Wester
Wosse Water
Wosse Water
Product
Sulficial
Cul
Whee
Aut
Chies
Tresue Georgia Power - Coal Combustion Residuals TAT ADDITIONAL COMMENTS One Character per box. (A-Z, 0-9 / , -). Sample 1ds must be unique Phone: (404)506-7239 Fax. Requested Oue Date: Standard SAMPLE ID 2480 Maner Road Atlanta, GA 30339 HEWA -S Required Client Information: Соптралу: Page 15 of 17 Address: 9 9 10 Email: # MBTI

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

*(*ν)

(V/V) Semples 4 SAMPLE CONDITIONS Cooler pelee State / Location Custody **WO#:2616039** (V/V) Received or Residual Chlorina (Y/N) TEMP in C -TIME वडीं विद्या 13/14/40 8/14/19/2005 3,13,19, 0944 DATE 0.005 yd efelluð 2 Metals (As, B. Co, Mo) DATE Signed: <u>2</u> Radium 226/228 betsy.mcdaniet@pacetabs.com 2 Fluoride by 300.0 BY / AFFILLATION Attention: scsinvoices@southemco.com Modia Mushan stateM VI. qqA 486T sesylenA N/Ã 327.4 (AP) or 328.5 (Huff) A COLD Other lonsriteM Preservatives EOSS26N HOBN REH MALITY Pace Quote:
Pace Project Manager:
Pace Profile #: 327.4 ЮН EONH Company Name: HS2O4 2112 K 1950 THE **Jer2** 947 SAUPLER NÁME AND SIGNATURE S OF CONTAINERS PRINT Name of SAMPLER: DATE Gart 3/13/A SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION श्यान ᄪ 잃 DATE z COLLECTED RELINCUISHED BY / AFFILLATION Report To: Joju Abraham / Lauren Petty \$ TIME SCS10348606 3 START Purchase Order#: SCS103486 Project Name: Plant Hammond Project #: 事 Required Project Information: DATE Geosyntec 6313 (G=GRAB C=COMP) BAYT BJAMAS MATRIX CODE (see valid codes to left) Section B Copy To: MATRIX Distang Water Water Waste Water Product SoulSoid Oa Wipe Air Other Tissue I Georgia Power - Coal Combustion Residuals 1404)506-7239 19 Date: 571/1-104020 Арритомий соживите (A-Z, 0-9 / , -) Sample kds must be unique Email: jabraham@southernco.com One Character por box. SAMPLE ID 2480 Maner Road Allanta, GA 30339 Requested Due Date: Page 16 of 17 9 # Mati

- recording	Sample	Condition	Opon Receipt		
Pace Analy	<i>ticai</i> Client Name:	GIA 1	Power	Project #	
: Courler: ☐ Fed E Tracking #:	UPS USPS Client			W0#:26	
	ooler/Box Present: yes	no Seals	intact: Vyes	PM: BM CLIENT: GAPOL	Due Date: 03/20/ er-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None [Other	<u> </u>	
Thermometer Used	- A -				ing process has begun
Cooler Temperatur	9:0		is Frozen: Yes No	Date and Initials	of person/examining
Temp should be above			Comments:	contents:	113/14 mg
Chain of Custody P	resent:	es 🗆 No 🗆 N/A	1.		
Chain of Custody F		es 🗆 No 🗆 N/A			
Chain of Custody R		es 🗆 No 🗆 N/A			
Sampler Name & Si		PS No N/A			
Samples Arrived wi		es Ono On/A			
Short Hold Time A		es DN6 DN/A			
	<u> </u>	BS DING DN/A			
Sufficient Volume:		S ONO ON/A			
Correct Containers		ES DNO DN/A			
-Pace Containers	_	es Ono On/A			
			10	_	
Containers Intact:		res Ono On/A	1		
	i ·				
Sample Labels mat		res □no □n/a	12.		
 -Includes date/ti All containers needing 	dreservation have been checked		1.0		
		es □no □n/A	13.		
All containers needing compliance with EPA	preservation are found to be in recommendation.	es □no □n/a			
exceptions: VOA, colifo	rm, TOC, O&G, WI-DRO (water)	ves 2No	Initial when completed	Lot # of added preservative	
Samples checked f	or dechlorination:	es 🗆 No 🗖 N/A	14.		
Headspace in VOA	Vials (>6mm): □	ves □No ₽N/A	15.		
Trip Blank Present:	: D	es 🗆 No 🗷 NÃ	16.		
Trip Blank Custody	Seals Present	es 🗆 No 🗷 N/A	1		
Pace Trip Blank Lo	# (if purchased):				
Client Notification	/ Resolution:			Field Data Required	? Y / N
	tacted:	Date/	Time:		
	ution:				
Project Manage	r Review:			Date:	
	re is a discrepancy affecting North Caroli ie out of hold, incorrect preservative, ou			rm will be sent to the Nort	h Carolina DEHNR

F-ALLC003rev.3, 11September26087 of 17





April 05, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616040

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.: 2616040

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.: 2616040

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616040001	HGWA-4	Water	03/11/19 18:11	03/13/19 14:00	
2616040002	HGWA-5	Water	03/12/19 13:16	03/13/19 14:00	
2616040003	HGWA-6	Water	03/12/19 13:00	03/13/19 14:00	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616040

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616040001	HGWA-4	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616040002	HGWA-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616040003	HGWA-6	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.: 2616040

Sample: HGWA-4 Lab ID: 2616040001 Collected: 03/11/19 18:11 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	0.244 ± 0.108 (0.147) C:95% T:NA	pCi/L	03/26/19 20:59	13982-63-3	
Radium-228	EPA 9320	0.537 ± 0.392 (0.762) C:70% T:87%	pCi/L	03/29/19 11:27	15262-20-1	
Total Radium	Total Radium Calculation	0.781 ± 0.500 (0.909)	pCi/L	04/02/19 13:33	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616040

Sample: HGWA-5 Lab ID: 2616040002 Collected: 03/12/19 13:16 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	0.221 ± 0.187 (0.283) C:92% T:NA	pCi/L	03/27/19 11:37	13982-63-3	
Radium-228	EPA 9320	0.612 ± 0.339 (0.590) C:73% T:85%	pCi/L	03/29/19 11:28	15262-20-1	
Total Radium	Total Radium Calculation	$0.833 \pm 0.526 (0.873)$	pCi/L	04/02/19 13:33	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616040

Sample: HGWA-6 PWS:	Lab ID: 26160400 Site ID:	Collected: 03/12/19 13:00 Sample Type:	Received:	03/13/19 14:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.242 ± 0.237 (0.451) C:91% T:NA	pCi/L	03/27/19 07:58	13982-63-3	
Radium-228		0.740 ± 0.412 (0.731) C:71% T:79%	pCi/L	03/29/19 11:27	15262-20-1	
Total Radium	Total Radium Calculation	0.982 ± 0.649 (1.18)	pCi/L	04/02/19 13:33	3 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616040

QC Batch: 334703 Analysis Method: EPA 9320

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

Associated Lab Samples: 2616040001, 2616040002, 2616040003

METHOD BLANK: 1628726 Matrix: Water

Associated Lab Samples: 2616040001, 2616040002, 2616040003

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

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.: 2616040

QC Batch: 334701 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616040001, 2616040002, 2616040003

METHOD BLANK: 1628722 Matrix: Water

Associated Lab Samples: 2616040001, 2616040002, 2616040003

Parameter Act \pm Unc (MDC) Carr Trac Units Analyzed Qualifiers Radium-226 0.317 \pm 0.219 (0.286) C:97% T:NA pCi/L 03/27/19 08:17

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.: 2616040

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: 04/05/2019 12:47 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616040

Date: 04/05/2019 12:47 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616040001	HGWA-4	EPA 9315	334701		
2616040002	HGWA-5	EPA 9315	334701		
2616040003	HGWA-6	EPA 9315	334701		
2616040001	HGWA-4	EPA 9320	334703		
2616040002	HGWA-5	EPA 9320	334703		
2616040003	HGWA-6	EPA 9320	334703		
2616040001	HGWA-4	Total Radium Calculation	336609		
2616040002	HGWA-5	Total Radium Calculation	336609		
2616040003	HGWA-6	Total Radium Calculation	336609		

Pace Analytical

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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(N/A) hitact seldma2 SAMPLE CONDITIONS (N/A) Cooler - State / Eccabon perces ** Regulatory Agenty Custod MO#: 2616040 (N/A) Received on ð Residual Chlorine (Y/N) TEMP in C 101.50 The Co 2205 TIME DATE Signed: 3/11 /19 3.15.A 5/12/19 DATE 10 F 2 0.005 yd etattuč Metals (As, B, Co, Mo) \$ Radium 226/228 betsy.mcdaniel@pacelabs.com man ACCEPTED BY JAFFILLATION <u>২</u> Fluoride by 300.0 scsinvoices@southernco.com elateM VI .qqA N/X JaeT sesylanA. 327.4 (AP) or 328.5 (Huff) へいったりと Methanol SKGNATURE OF SAMPLER: 7/84/1,0, 11/10/1449 Na2S2O3 Preservatives HOBN Pace Project Manager. Pace Profile #: 327.4 нсі Noclia Invoice Information: EONH Company Name H5204 Pace Quote 943 TIME 3055 10 141 K nubusseuved SAMPLER NÁME AND SIGNATURE # OF CONTAINERS PRINT Name of SAMPLER: 7/13/19 DATE SAMPLE TEMP AT COLLECTION TIME 1181 12/11/d astipul 11/6/15 200 エス STS Cow beente DATE COLLECTED RELINCUISHED BY LAFFILIATION. Joju Abraham / Lauren Petty TIME Matin moon SCS10348606 START Plant Hammond Required Project Information: Copy To. Geosyntec SAMPLE TYPE (G-GRAB C-COMP) Purchase Order #:
Project Name: P MATRIX CODE (see valid codes to left) Report To: Section B MATRIX
Denking Weer
Wasse Wasse
Wasse Wasse
Could
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Tissue Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax Requested Due Date: S-Callard 197 ADDITIONAL COMMENTS. One Character per box. (A-Z, 0-9 /, -). Sample Ids must be unique Atlanta, GA 30339
Email: jabraham@southemco.com SAMPLE ID Lawk-4 2480 Maner Road Required Client Information: Company: Address: 7. 8 . 9 .10 Page 12 of 15 ILEM #

CHAIN-OF-CUSTODY / Analytical Request Document

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

N

Due Date: 04/10/19 (N/A) toetnl Samples SAMPLE CONDITIONS ال ال (N/A) Sealed Cooler **JOH: 2616040** Custod Regulatory Agency (N/A) Received on ક CLIENT: GAPower-CCR マイ Residual Chlorine (YW) TEMP in C 13/19/1400 3/12/19 1950 3,15,19 0944 700 TIME DATE Signed: 08/12/1 F. 84 3/12/19 DATE Sulfate by 300 0 Metats (As, B. Co, Mo) Address: Pace Oucle: Pace Project Manager: betsy incdantel@pacetabs com. 2 8SS/8SS muibeR ACCEPTED BY / AFFILIATION 0.005 yd ebirculii Grang Wallest Georgalice Ospiesta 1950 Modia 19/20 pm now Attention: scsinvoices@southernco.com sisieM VI .qq/ NZ Analyses Teek 327.4 (AP) or 328.5 (Huff) Other Methanol Great Walter Preservatives COSSSEN HOBN ules ЮН Invoice information: EONH Company Name H\$204 THE 220x 843 SIGNATURE OF SAMPLER: SAMPLER WAME AND SIGNATURE DevieserqnU # OF CONTAINERS PRINT Name of SAMPLER: DATE 3/3/19 SAMPLE TEMP AT COLLECTION 140 G MANY DEST, 03/24 13:16 E E 200 RELINGUISHED BY / AFFILIATION DATE Low Mecombec COLLECTED K/ Joju Abraham / Lauren Petty TIME Mariaman SCS10348606 START Purchase Order #: SCS103486 Project Name Plani Hammond Project #: DATE Required Project Information: Geosyntec SAMPLE TYPE (G-GRAB C-COMP) 138 MATRIX CODE (see valid codes to left) Report To: Section B Copy To: MATRIX
Drinking Water
Water
Water
Water
Product
Soli/Sold
OH
Wipe
Air
Cither
Tissue Georgia Power - Coal Combustion Residuals TAI ADDITIONAL COMMENTS One Character per box. (A-Z, 0-9 / , -} Sample Ids must be unique jabraham@southernco.com Phone: (404)508-7239 Fax Requested Due Date: Standard SAMPLE ID 2480 Maner Road Atlanta, GA 30339 HGWA-S Required Client information: Address: 9 9 1 10. ÷ 7 Page 13 of 15 3. Email: # MBTI

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

3 \$ W Regulationy Agency Section C
Invoice Information:
Attention: Scsinvoices@southernco.com
Company Name:
Address:
Pace Quote: Report To: Joju Abraham / Lauren Petty Copy To: Geosyntec Purchase Order # SCS10348606 Section B Section A
Required Client Information:
Company: Georgia Power - Coal Combustion Residuals
Address: 2480 Maner Road
Allanta, GA 30339
Email: jabraham@southernco.com

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- Carrier (Samp	ie Con	aition	Opon Receipt			
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Courier: Fed E	x ☐ UPS ☐ USPS ☐ Client		•		MO# : 2	2616040	
Tracking #:		7 00	ici ciai ,	A lace officer	MOTT A		10/10
	ooler/Box Present: // yes	no no	Seals	intact: / yes	PM: BM CLIENT: GA	Due Date: 04/1 Power-CCR	TO\ IS
Packing Material:	☐ Bubble Wrap ☐ Bubble Ba	ıgs 📈	None	Other		* + - **	
Thermometer Used					Samples on ice, coo	ing process has begun	
Cooler Temperatur	<u> </u>		~	is Frozen: Yes No	Date and Initials	of person/examining	
Temp should be above				Comments:	contents:	113/19 mg	
Chain of Custody Pr		TYes □No	□N/A		L		
Chain of Custody Fil		JYes □No					
Chain of Custody Re		TYes □No					
Sampler Name & Si		Tres Onc		-			
Samples Arrived wit		TYPS No					
Short Hold Time A		TYPS DING		<u> </u>			
];		
Rush Turn Around		□Yes □M6					
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Correct Containers		EYES ONG		19. 1			
-Pace Containers		ZYes □No					
Containers Intact:		ZYPS □No					
Filtered volume rece		□Yes □No					
Sample Labels mate	ير h COC:	コytes ロNo) □N/A	12.			
-Includes date/tir		$+$ \sim					
All containers needing p	reservation have been checked.	ZYes □No	DN/A	13.			
All containers needing compliance with EPA	preservation are found to be in ecommendation.	ZYES ON	□N/A				
exceptions: VOA, colifor	m. TOC. O&G, WI-DRO (water)	JYes ⊅M	5	Initial when completed	Lot # of added preservative		
Samples checked for	r dechlorination:	□Yes □No	ÐN/A	14.			
Headspace in VOA	Vials (>6mm):	□Yes □N	. ₽NÃ	15.			
Trip Blank Present:		□Yes □N	DANTA C	16.			
Trip Blank Custody		□Yes □Ni	-EN/A	1			
Pace Trip Blank Lot							
Client Notification			D-4	Timo	Field Data Required	? Y / N 	
Person Conta		_	Date/	Time:	 		
Comments/ Reso	unon.						
			-				
Project Manage	r Review:				Date:		
Note: Whenever ther	e is a discrepancy affecting North Cal	olina comp	liance sa	mples, a copy of this for	m will be sent to the Nort	n Carolina DEHNR	

F-ALLCOQ3rev.3, 11September2@065 of 15





March 25, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616162

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.: 2616162

-

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.: 2616162

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616162001	HGWC-15	Water	03/14/19 09:58	03/15/19 13:00	
2616162002	FD-2	Water	03/14/19 00:00	03/15/19 13:00	
2616162003	HGWC-18	Water	03/14/19 14:53	03/15/19 13:00	
2616162004	MW-23D	Water	03/14/19 16:42	03/15/19 13:00	
2616162005	HGWC-14	Water	03/14/19 16:41	03/15/19 13:00	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616162

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616162001	HGWC-15	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616162002	FD-2	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616162003	HGWC-18	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616162004	MW-23D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616162005	HGWC-14	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1



Project: Plant Hammond

Pace Project No.: 2616162

Date: 03/25/2019 08:20 AM

Sample: HGWC-15	Lab ID:	2616162001	Collecte	ed: 03/14/19	9 09:58	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 12:14	03/21/19 13:35	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/19/19 12:14	03/21/19 13:35	7440-38-2	
Barium	0.021	mg/L	0.010	0.00078	1	03/19/19 12:14	03/21/19 13:35	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/19/19 12:14	03/21/19 13:35	7440-41-7	
Cadmium	0.0024	mg/L	0.0010	0.000093	1	03/19/19 12:14	03/21/19 13:35	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:14	03/21/19 13:35	7440-47-3	
Cobalt	0.038	mg/L	0.010	0.00052	1	03/19/19 12:14	03/21/19 13:35	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:14	03/21/19 13:35	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/19/19 12:14	03/21/19 13:35	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/19/19 12:14	03/21/19 13:35	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:14	03/21/19 13:35	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:14	03/21/19 13:35	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 16:39	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		03/22/19 02:16	16984-48-8	



Date: 03/25/2019 08:20 AM

ANALYTICAL RESULTS

Project: Plant Hammond Pace Project No.: 2616162

Sample: FD-2	Lab ID:	2616162002	Collecte	ed: 03/14/19	00:00	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 12:14	03/21/19 13:41	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/19/19 12:14	03/21/19 13:41	7440-38-2	
Barium	0.021	mg/L	0.010	0.00078	1	03/19/19 12:14	03/21/19 13:41	7440-39-3	
Beryllium	0.000063J	mg/L	0.0030	0.000050	1	03/19/19 12:14	03/21/19 13:41	7440-41-7	
Cadmium	0.0023	mg/L	0.0010	0.000093	1	03/19/19 12:14	03/21/19 13:41	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:14	03/21/19 13:41	7440-47-3	
Cobalt	0.040	mg/L	0.010	0.00052	1	03/19/19 12:14	03/21/19 13:41	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:14	03/21/19 13:41	7439-92-1	
Lithium	0.00099J	mg/L	0.050	0.00097	1	03/19/19 12:14	03/21/19 13:41	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/19/19 12:14	03/21/19 13:41	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:14	03/21/19 13:41	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:14	03/21/19 13:41	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 16:41	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		03/22/19 04:18	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616162

Date: 03/25/2019 08:20 AM

Sample: HGWC-18	Lab ID:	2616162003	Collecte	ed: 03/14/19	14:53	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	020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:14	03/21/19 13:46	7440-36-0	
Arsenic	0.0036J	mg/L	0.0050	0.00057	1	03/19/19 12:14	03/21/19 13:46	7440-38-2	
Barium	0.029	mg/L	0.010	0.00078	1	03/19/19 12:14	03/21/19 13:46	7440-39-3	
Beryllium	0.0026J	mg/L	0.0030	0.000050	1	03/19/19 12:14	03/21/19 13:46	7440-41-7	
Cadmium	0.0019	mg/L	0.0010	0.000093	1	03/19/19 12:14	03/21/19 13:46	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:14	03/21/19 13:46	7440-47-3	
Cobalt	0.16	mg/L	0.010	0.00052	1	03/19/19 12:14	03/21/19 13:46	7440-48-4	
Lead	0.0015J	mg/L	0.0050	0.00027	1	03/19/19 12:14	03/21/19 13:46	7439-92-1	
Lithium	0.011J	mg/L	0.050	0.00097	1	03/19/19 12:14	03/21/19 13:46	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/19/19 12:14	03/21/19 13:46	7439-98-7	
Selenium	0.016	mg/L	0.010	0.0014	1	03/19/19 12:14	03/21/19 13:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:14	03/21/19 13:46	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 16:44	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.88	mg/L	0.30	0.029	1		03/22/19 04:43	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616162

Date: 03/25/2019 08:20 AM

Sample: MW-23D	Lab ID:	2616162004	Collecte	ed: 03/14/19	16:42	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	020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:14	03/21/19 13:52	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/19/19 12:14	03/21/19 13:52	7440-38-2	
Barium	0.082	mg/L	0.010	0.00078	1	03/19/19 12:14	03/21/19 13:52	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/19/19 12:14	03/21/19 13:52	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/19/19 12:14	03/21/19 13:52	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:14	03/21/19 13:52	7440-47-3	
Cobalt	0.0013J	mg/L	0.010	0.00052	1	03/19/19 12:14	03/21/19 13:52	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:14	03/21/19 13:52	7439-92-1	
Lithium	0.0028J	mg/L	0.050	0.00097	1	03/19/19 12:14	03/21/19 13:52	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/19/19 12:14	03/21/19 13:52	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:14	03/21/19 13:52	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:14	03/21/19 13:52	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 16:46	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		03/22/19 05:32	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616162

Date: 03/25/2019 08:20 AM

Sample: HGWC-14	Lab ID:	2616162005	Collecte	ed: 03/14/19	16:41	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 6	020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:14	03/21/19 13:58	7440-36-0	
Arsenic	0.0029J	mg/L	0.0050	0.00057	1	03/19/19 12:14	03/21/19 13:58	7440-38-2	
Barium	0.019	mg/L	0.010	0.00078	1	03/19/19 12:14	03/21/19 13:58	7440-39-3	
Beryllium	0.00043J	mg/L	0.0030	0.000050	1	03/19/19 12:14	03/21/19 13:58	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/19/19 12:14	03/21/19 13:58	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:14	03/21/19 13:58	7440-47-3	
Cobalt	0.025	mg/L	0.010	0.00052	1	03/19/19 12:14	03/21/19 13:58	7440-48-4	
Lead	0.0014J	mg/L	0.0050	0.00027	1	03/19/19 12:14	03/21/19 13:58	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/19/19 12:14	03/21/19 13:58	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/19/19 12:14	03/21/19 13:58	7439-98-7	
Selenium	0.0048J	mg/L	0.010	0.0014	1	03/19/19 12:14	03/21/19 13:58	7782-49-2	
Thallium	0.00028J	mg/L	0.0010	0.00014	1	03/19/19 12:14	03/21/19 13:58	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 16:49	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.24J	mg/L	0.30	0.029	1		03/22/19 05:57	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616162

Date: 03/25/2019 08:20 AM

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

Associated Lab Samples: 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

METHOD BLANK: 109864 Matrix: Water

Associated Lab Samples: 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury mg/L ND 0.00050 0.000036 03/19/19 14:39

LABORATORY CONTROL SAMPLE: 109865

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109866 109867

MS MSD 2616120001 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 75-125 20 Mercury mg/L ND 0.0025 0.0025 101 102

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.: 2616162

Date: 03/25/2019 08:20 AM

 QC Batch:
 24597
 Analysis Method:
 EPA 6020B

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

 Associated Lab Samples:
 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

METHOD BLANK: 110486 Matrix: Water

Associated Lab Samples: 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/21/19 13:23	
Arsenic	mg/L	ND	0.0050	0.00057	03/21/19 13:23	
Barium	mg/L	ND	0.010	0.00078	03/21/19 13:23	
Beryllium	mg/L	ND	0.0030	0.000050	03/21/19 13:23	
Cadmium	mg/L	ND	0.0010	0.000093	03/21/19 13:23	
Chromium	mg/L	ND	0.010	0.0016	03/21/19 13:23	
Cobalt	mg/L	ND	0.010	0.00052	03/21/19 13:23	
Lead	mg/L	ND	0.0050	0.00027	03/21/19 13:23	
Lithium	mg/L	ND	0.050	0.00097	03/21/19 13:23	
Molybdenum	mg/L	ND	0.010	0.0019	03/21/19 13:23	
Selenium	mg/L	ND	0.010	0.0014	03/21/19 13:23	
Thallium	mg/L	ND	0.0010	0.00014	03/21/19 13:23	

LABORATORY CONTROL SAMPLE:	110487					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.11	106	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	0.10	102	80-120	
Cadmium	mg/L	0.1	0.10	103	80-120	
Chromium	mg/L	0.1	0.11	106	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.10	103	80-120	
Molybdenum	mg/L	0.1	0.11	106	80-120	
Selenium	mg/L	0.1	0.11	109	80-120	
Thallium	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPI	IKE DUPLIC	CATE: 110488	3		110489							
Parameter	Units	2616179004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	3	20	
Barium	mg/L	0.010	0.1	0.1	0.11	0.11	98	98	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.097	0.093	97	93	75-125	5	20	
Cadmium	mg/L	0.00015J	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.: 2616162

Date: 03/25/2019 08:20 AM

MATRIX SPIKE & MATRIX S	PIKE DUPLICA	ATE: 110488	3 MS	110489 MSD								
Parameter	Units	2616179004 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	0.099	0.10	98	100	75-125	2	20	
Cobalt	mg/L	ND	0.1	0.1	0.094	0.094	94	94	75-125	0	20	
Lead	mg/L	ND	0.1	0.1	0.097	0.093	97	93	75-125	4	20	
Lithium	mg/L	ND	0.1	0.1	0.099	0.095	98	94	75-125	4	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	103	103	75-125	0	20	
Selenium	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.097	0.094	97	94	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.: 2616162

Date: 03/25/2019 08:20 AM

QC Batch: 24743 Analysis Method: EPA 300.0

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

Associated Lab Samples: 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

METHOD BLANK: 111327 Matrix: Water

Associated Lab Samples: 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Fluoride mg/L ND 0.30 0.029 03/21/19 21:46

LABORATORY CONTROL SAMPLE: 111328

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: 111329 111330

MS MSD 2616160010 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual Fluoride ND 90-110 15 M1 mg/L 10 10 11.5 11.2 115 112 2

MATRIX SPIKE SAMPLE: 111331 2616160011 Spike MS MS % Rec

Parameter Units Result Conc. Result % Rec Limits Qualifiers

Fluoride mg/L 1.6 10 13.6 120 90-110 M1

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



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616162

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 08:20 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.: 2616162

Date: 03/25/2019 08:20 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616162001	HGWC-15	EPA 3005A	24597	EPA 6020B	24647
2616162002	FD-2	EPA 3005A	24597	EPA 6020B	24647
2616162003	HGWC-18	EPA 3005A	24597	EPA 6020B	24647
2616162004	MW-23D	EPA 3005A	24597	EPA 6020B	24647
2616162005	HGWC-14	EPA 3005A	24597	EPA 6020B	24647
2616162001	HGWC-15	EPA 7470A	24464	EPA 7470A	24540
2616162002	FD-2	EPA 7470A	24464	EPA 7470A	24540
2616162003	HGWC-18	EPA 7470A	24464	EPA 7470A	24540
2616162004	MW-23D	EPA 7470A	24464	EPA 7470A	24540
2616162005	HGWC-14	EPA 7470A	24464	EPA 7470A	24540
2616162001	HGWC-15	EPA 300.0	24743		
2616162002	FD-2	EPA 300.0	24743		
2616162003	HGWC-18	EPA 300.0	24743		
2616162004	MW-23D	EPA 300.0	24743		
2616162005	HGWC-14	EPA 300.0	24743		

N (N/A)ntact Samples SAMPLE CONDITIONS (N/A) Cooler Z Set Delse2 Custody (N/A) Кесвічед ол Residual Chlorine (Y/N) J S TEMP in C 12020 1300 3 14 19 18 x8 THE DATE Signed: 03/14/19 3/14/19 15/13 3/1**8** DATE enliate by 300.0 Metals (As, B, Co, Mo) pennica Wealth, 199CE Radium 226/228 ACCEPTED BY (AFFULATION slateM VI .qq/ Ńλ * Jac Teesyland 327.4 (AP) or 328.5 (Huff) Grant Walter tensatiely Preservatives EOSSSBN HOBM Pace Project Manager: Pace Profile #: 327 ЮН Section C Invoice Informatic CHAIN-OF-CUSTODY The Chain-of-Custody is a LEGAL EONH ~ 8/8 Pace Quote: HS2O4 SAWPLER NAME AND SIGNATURE Unpreserved 716 02/14 17:31 02A 14:58 164 # OF CONTAINERS 11 85 th 644 644 658 16 (reasoner 102/HV19 SAMPLE TEMP AT COLLECTION Maple Congagnate 14/1/19 3/15/19 SIGNATURE of SAMPLER: DATE ᄪ ₽ 2 DATE ०अस WT 6-03/14 16:37 63/41 COLLECTED Report To: Joju Abraham / Lauren Petty Copy To: Geosyntec TIME 1608E 1 Purchase Order #: SCS10348606 Project Name. Plant Hammond Project #: START DATE Required Project Information: great Link Modle M. SAMPLE TYPE (G=GRAB C=COMP) MATRIX CODE (see velid codes to left) MATRIX
Dehating Water
Wate Water
Waste Water
Product
Product
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Air
Chter
Tissue Georgia Power - Coal Combustion Residuals 2480 Maner Road One Character per box. (A-2, 0-91, -)
Sample Ids must be unique ADDITIONAL COMNENTS mail: jabraham@southernco.com SAMPLE ID Phone: (404)506-7239 Fa MW-23 D ガーンダウエ Atlanta, GA 30339 tequired Client Information: ナラカカ **ひ-2** -10 # MaTi

MO#:2616162

Sout Walth

Page 16 of 18

(N/A) Samples Samples SAMPLE CONDITIONS Cooler (Y/N) set 0 ŏ belse2 Custod Regulatory Agency State / Location (N/A) Received on Residual Chlorina (Y/V) TEMP in C Due Date: 03/22/19 TIME (3/14/4 2016 14 Juday 1600 3/14/19 1870 3/15/19/1129 <u>/3</u>90/ Requested Analysis Filtered (YN) MO#:2616162 DATE Signed: 3/14/19 DATE 3/15/19 Sulfate by 300.0 Metals (As, B, Co, Mo) CLIENT: GAPower-CCR Radium 226/228 betsy.mcdaniel@pacelabs.com pension Wedden PACE Fluoride by 300.0 ACCEPTED BY (AFFILIATION Attention: scsinvoicestasoumernco, com M. RAHMAN stateM VI .qqA . N/X deeT seaving. PA: 84 327.4 (AP) or 328.5 (Huff) TICKYEE tonsriteM Na2S2O3 Preservatives 7 CHAIN-OF-CUSTODY / Ar The Chain-of-Custody is a LEGAL DOCI HOBN Address:
Pace Quote:
Pace Project Manager:
Pace Profile #: 327.4 (нсі invoice information: **EONH** Company Name SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: TME 112-9 **⊁OSZH** 3/4/14 1840 20% Unpreserved # OF CONTAINERS <u>रा है। १४० होताल १८४। १३ प्र</u> SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION Madia monponiosos Hiplia 5/15/19 DARE 그것은 8 DATE RELINGUISHED BY / AFFILIATION COLLECTED WE low Boymber Report To: Joju Abraham / Lauren Petty TIME SCS10348606 START Purchase Order #: SCS103486/ Project Name: Plant Hammond Required Project Information: DATE Geosyntec MATRIX CODE (see valid codes to left) 2 Copy To: MATRIX
Drunking Water
Water
Waste Water
Wasse Water
Product
SolfSocial
Oil
Widee
Air
Chher
Tissue Georgia Power - Coal Combustion Residuals ADDITIONAL COMMENTS Phone: (404)506-7239 Fex. Requested Due Date: Sankard TR (A-Z, 0-97, -) Sample Ids must be unique jabraham@southernco.com TOWC-IX One Character per box. SAMPLE ID 2480 Maner Road Page 17 of 18 5 6 Email: 10 1

ILEM #

Ores are.)	Sample	: Condi	tion	Upon Receipt		WU# : 2	<u>8616162</u>	
Pace Analytical	Client Name: <u>G</u>	A Pou	ver	- CCR		PM: BM CLIENT: GAF	Due Date: 03	/22/1
Courier: Fed Ex UPS				Courier		Proj. Du Proj. Na	e Date:	
Custody Seal on Cooler/Box	Present: 🗌 yes 🔽	no :	Seals i	intact:	╙	10 <u>1.,95285.7.,9</u>		
Packing Material: Bubble	Wrap Bubble Bags	☑ No	ne [Other	ļ			
Thermometer Used		e of Ice:	Wet	Blue None			ling process has begun	,
Cooler Temperature	4.5°C Bio	logical Ti	ssue i	is Frozen: Yes No		Date and Initial contents:	s of person examining	
Temp should be above freezing to) 6°C			Comments:				
Chain of Custody Present:	<u> </u>	es □No	□N/A	1.	<u> </u>			1
Chain of Custody Filled Out:		es □No	□n/a	2.	<u> </u>			
Chain of Custody Relinquished	d: 🖼	es 🗆 No	□n/a	3.				1
Sampler Name & Signature or	COC:	es 🗆 No	□N/A	4.				1
Samples Arrived within Hold T	ime: 🖙	es 🗆 No	□N/A	5.	<u> </u>			1
Short Hold Time Analysis (<	72hr): 🕒	res ⊡n√io	□n/a	6.				
Rush Turn Around Time Rec	quested:	es ⊠No	□n/a	7.]
Sufficient Volume:	D	es □No	□n/a	8.		- 1]
Correct Containers Used:	⊈ *	es □No	□N/A	9.				
-Pace Containers Used:	G/	res 🗆 No	□n/A]
Containers Intact:	2 ′	es □No	□n/a	10.				
Filtered volume received for D	issolved tests	Yes □No	⊠ Ñ/A	11.				
Sample Labels match COC:	1 2	es □No	□N/A	12.				
-Includes date/time/ID/Ana	ılysis Matrix: WÎ		_		: i			
All containers needing preservation	have been checked.	res 🗆 No	□n/a	13.]
All containers needing preservation compliance with EPA recommend	l Mar	res 🗆 No						
exceptions: VOA, coliform, TOC, O&C	G, WI-DRO (water)	res 122No		Initial when completed		Lot # of added preservative		
Samples checked for dechlori	nation:	Yes □No	⊠ N/A	14.]
Headspace in VOA Vials (>6	mm):	∕es □No	⊠ N/A	15.]
Trip Blank Present		Yes □No	DZN/A	16.	1			1
Trip Blank Custody Seals Pre	sent 🗆	Yes □No	TON/A					
Pace Trip Blank Lot # (if purch	nased):							
Client Notification/ Resoluti	on:					Field Data Require	d? Y / N	-
	on.		Date/1	Time:		, Data Nequile	u. , , 14	
Comments/ Resolution:		†						
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Project Manager Review:	· · · · · · · · · · · · · · · · · · ·					Date:		_
Project Manager Review: Note: Whenever there is a discrecertification Office (i.e. out of ho	epancy affecting North Caroli				m will		th Carolina DEHNR	





April 02, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616170

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.: 2616170

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 lowa 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.: 2616170

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616170001	HGWC-15	Water	03/14/19 09:58	03/15/19 13:00	
2616170002	FD-2	Water	03/14/19 00:00	03/15/19 13:00	
2616170003	HGWC-18	Water	03/14/19 14:53	03/15/19 13:00	
2616170004	MW-23D	Water	03/14/19 16:42	03/15/19 13:00	
2616170005	HGWC-14	Water	03/14/19 16:41	03/15/19 13:00	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616170

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616170001	HGWC-15	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616170002	FD-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616170003	HGWC-18	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616170004	MW-23D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616170005	HGWC-14	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.: 2616170

Sample: HGWC-15 Lab ID: 2616170001 Collected: 03/14/19 09:58 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	0.228 ± 0.111 (0.167) C:97% T:NA	pCi/L	03/26/19 21:15	13982-63-3	
Radium-228	EPA 9320	0.234 ± 0.670 (1.49) C:75% T:84%	pCi/L	03/27/19 19:43	15262-20-1	
Total Radium	Total Radium Calculation	0.462 ± 0.781 (1.66)	pCi/L	03/28/19 15:44	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616170

Sample: FD-2 Lab ID: 2616170002 Collected: 03/14/19 00:00 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	0.151 ± 0.107 (0.183) C:93% T:NA	pCi/L	03/26/19 21:15	13982-63-3	
Radium-228	EPA 9320	0.743 ± 0.749 (1.56) C:71% T:83%	pCi/L	03/27/19 19:43	15262-20-1	
Total Radium	Total Radium Calculation	0.894 ± 0.856 (1.74)	pCi/L	03/28/19 15:44	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616170

Sample: HGWC-18 Lab ID: 2616170003 Collected: 03/14/19 14:53 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	1.35 ± 0.284 (0.199) C:92% T:NA	pCi/L	03/26/19 18:06	13982-63-3	
Radium-228	EPA 9320	0.0195 ± 0.711 (1.62) C:75% T:87%	pCi/L	03/27/19 19:43	15262-20-1	
Total Radium	Total Radium Calculation	1.37 ± 0.995 (1.82)	pCi/L	03/28/19 15:44	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616170

Sample: MW-23D Lab ID: 2616170004 Collected: 03/14/19 16:42 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	0.328 ± 0.145 (0.217) C:92% T:NA	pCi/L	03/26/19 20:59	13982-63-3	
Radium-228	EPA 9320	0.544 ± 0.358 (0.673) C:72% T:85%	pCi/L	03/29/19 11:27	15262-20-1	
Total Radium	Total Radium Calculation	0.872 ± 0.503 (0.890)	pCi/L	04/02/19 13:32	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616170

Sample: HGWC-14 Lab ID: 2616170005 Collected: 03/14/19 16:41 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	0.759 ± 0.189 (0.170) C:93% T:NA	pCi/L	03/26/19 20:58	13982-63-3	
Radium-228	EPA 9320	0.742 ± 0.410 (0.742) C:74% T:85%	pCi/L	03/29/19 11:27	15262-20-1	
Total Radium	Total Radium Calculation	1.50 ± 0.599 (0.912)	pCi/L	04/02/19 13:32	7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616170

QC Batch: 334699 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616170001, 2616170002, 2616170003

METHOD BLANK: 1628719 Matrix: Water

Associated Lab Samples: 2616170001, 2616170002, 2616170003

ParameterAct \pm Unc (MDC) Carr TracUnitsAnalyzedQualifiersRadium-2260.248 \pm 0.200 (0.320) C:97% T:NApCi/L03/27/19 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.: 2616170

QC Batch: 334703 Analysis Method: EPA 9320

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

Associated Lab Samples: 2616170004, 2616170005

METHOD BLANK: 1628726 Matrix: Water

Associated Lab Samples: 2616170004, 2616170005

 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

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.: 2616170

QC Batch: 334690 Analysis Method: EPA 9320

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

Associated Lab Samples: 2616170001, 2616170002, 2616170003

METHOD BLANK: 1628696 Matrix: Water

Associated Lab Samples: 2616170001, 2616170002, 2616170003

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

Radium-228 0.646 \pm 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.



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616170

QC Batch: 334701 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616170004, 2616170005

METHOD BLANK: 1628722 Matrix: Water

Associated Lab Samples: 2616170004, 2616170005

ParameterAct \pm Unc (MDC) Carr TracUnitsAnalyzedQualifiersRadium-2260.317 \pm 0.219 (0.286) C:97% T:NApCi/L03/27/19 08:17

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.: 2616170

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.: 2616170

Date: 04/02/2019 05:08 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2616170001	HGWC-15	EPA 9315	334699		
2616170002	FD-2	EPA 9315	334699		
2616170003	HGWC-18	EPA 9315	334699		
2616170004	MW-23D	EPA 9315	334701		
2616170005	HGWC-14	EPA 9315	334701		
2616170001	HGWC-15	EPA 9320	334690		
2616170002	FD-2	EPA 9320	334690		
2616170003	HGWC-18	EPA 9320	334690		
2616170004	MW-23D	EPA 9320	334703		
2616170005	HGWC-14	EPA 9320	334703		
2616170001	HGWC-15	Total Radium Calculation	335993		
2616170002	FD-2	Total Radium Calculation	335993		
2616170003	HGWC-18	Total Radium Calculation	335993		
2616170004	MW-23D	Total Radium Calculation	336606		
2616170005	HGWC-14	Total Radium Calculation	336606		

Face Analytical

CHAIN-OF-CUSTOD

The Chain-of-Custody is a LEG/

Section C Invoice informs Attention: St Company Nama:

Address.

Report To: Joju Abraham / Lauren Petty

Georgia Power - Coal Combustion Residuals

tequired Client Information:

Geosymlec

Copy To:

Required Project Information:

Section B

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- Regulatory Agency

Set

WO#: 2616170

State / Location Residual Chlorine (Y/N) Requested Analysis Filtered (Y/N) Sulfate by 300.0 Metals (As, B, Co, Mo) Pace Quotie:
Pace Project Manager: betsy.modariet@pacelabs.com.
Pace Profile #: 327.4 (AP) or 328.5 (Huff) 822/922 muibe? eleteM VI .qqA N/A Analyses Test cuemen EOSS2BN Preservatives HOBN ЮН 3 EONH ~ +0SZH ATG 03/14 14:31 03/24 14:53/164 J C 02/4 16:37 62/4 16:32 17 14 # OF CONTAINERS of 6 ps/4 | 147 | 1224 | 9:58 | 18 SAMPLE TEMP AT COLLECTION TIME S **१** DATE COLLECTED TIME 1 Purchase Order #: SCS10348606 Project Name: Plant Hammond Project #: START **が698年** SAMPLE TYPE (G=GRAB C=COMP) (fiel of seboo blinv ses) BOOD XIRTAM MATRIX
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Page 16 of 18

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3/15/19

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3/14/14 18/10

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SAMPLE CONDITIONS

DATE

ACCEPTED BY / AFFILLATION

8)

Gessale DRAM

Grant Water

Moden W

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TIME

DATE

RELINOUISHED BY LAFFILLATION

ADDITIONAL CONNENTS

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Set Ol SAMPLE CONDITIONS Regulatory Agency State / Location Page: Residual Chlorine (Y/V) Due Date: 04/12/19 Requested Analysis Filt sed (Y/N) 3702 15/1/ 3/14/19 1848 1129 THE 1300, 3000 Sulfate WO#:2616170 11/5/ DATE /s' B' Co' Wo) Attention scsinyoices@southernco.com
Company Name:
Address:
Pace Quote:
Pace Project Manager: betsy.modaniel@pacelabs.com,
Pace Profile #: 327.4 (AP) or 328.5 (Huff) CLIENT: GAPower-CCR 226/228 pk 300'0 ラ Metals PACE day ACCEPTED BY / AFFILIATION N/A Jaol seavierA. HMAN tortiO PM: BM persion weather HISH Preservatives N92SZEN нсі Soction C Invoice Inforts. CHAIN-OF-CUSTO The Chain-of-Custody is a LE ONH 10 SZH 112.9 1940 20% CONTAINERS 3 PLE TEMP AT COLLECTION SAMPLER WAME AND SIGNATURE 13/14/14 1641 TIME 5/15/19 bil Me Marten Kapes My 119 PARE SS COLLECTED DATE Report To. Joju Abraham / Lauren Petty Cospular Purchase Order #: SCS10348606 Project Name Plant Hammond 5 C PIMIN ISD RELINCUISHED BY FAFFILIATION START Required Project Information: Copy To Geosyntec (GROD=D GARD=D) SAMPLE TYPE ATRIX CODE (see valid codes to left) Mayia WE Low Section B MATROX
Drowing Water
Waste Waste Wester
Product
Oal
Oal
Wipe
Cotton
Cotton
Cotton
Cotton
Itssue Georgia Power - Coal Combustion Residuals 2480 Maner Road Name: (404)506-7239 Fac One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique jabraham@southernco.com SAMPLE ID ADDITIONAL COMMENTS Atlanta, GA 30339 Required Client Information: HGWC. ITEM # 9

(N/,

ושכנ Sample

(N/A)

Cooler

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(N/A)

no bevioces

TEMP P.C

DATE Signad: 3/14/19

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PRINT Name of SAMPLER: 252

Page 17 of 18

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2

SIGNATURE of SAMPLER:

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- Japan			Sam	ple⊢C	ond	ition	Upon Red	eipt	1	\mathbf{IUI}	F · Z (DTO1	LIU
Pace Analy	<i>rtical</i> C	lient N	ame:	GA	Por	ver	- CC	2_		PM: BN		Due uer-CCR	Date: 04/12
Courier: Fed E	x 🗆 UPS 🗆]USPS [Client	ф	omme	ercial	Pace Of Courier	her			Optiona Proj. Du Proj. Na	e Date: me:	- 10 A A A
Custody Seal on C	ooler/Box Pre	esent:	yes	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Ю	Seals	intact:	yes [r	10	2.77	*45.	
Packing Material:	Bubble W	rap 🔲	Bubble B	ags	√ N	one (Other .						
Thermometer Use		83 <u> </u>	_	Туре	of Ice:	Wet	Blue Non	е	عٍ 🗆			ling process	
Cooler Temperatu Temp should be above		t.5°C	<u>. </u>	Biclo	gical T		is Frozen: Ye Comments:	es No				s of person / 5/ /9	examining
Chain of Custody P	resent:			□ es	□No	□n/A	1.	1					
Chain of Custody F	illed Out:			© Yes	□No	□n/a	2.	!					
Chain of Custody F	elinquished:			⊡ v es	□No	□n/a	3.						
Sampler Name & S	i ignature on CO	oc:		□ es	□No	□n/a	4.						
Samples Arrived w	i ithin Hold Time) :		□ es	□No	□n/a	5.						
Short Hold Time	nalysis (<72h	ır):		□∀es	⊡K(∘	□n/a	6.	1					
Rush Turn Around	d Time Reque	sted:		□Yes	Ω √ι₀	□n/a	7.						
Sufficient Volume:				D es	□No	□n/a	8.						
Correct Containers	Used:			☑ es	□No	□n/a	9.						
-Pace Containe	s Used:			☐ es	□No	□n/a	Ĩ						
Containers Intact:				Ø es	□№	□n/a	10.	:					
Filtered volume rec	eived for Disso	olved test	ş	□res	□No	ØÑ/A	11,	į					
Sample Labels ma	ch COC:			☑ es	□No	□n/a	12.						
-Includes date/t	i ime/ID/Analysi:	s Mai	trix:	NI		_		1					
All containers needing	preservation hav	e been che	cked.	₽ ves	□No	□n/a	13.						
All containers needin compliance with EPA	7 '		be in	™ res	□No	□n/a							
exceptions: VOA, colifo	m, TOC, O&G, W	/I-DRO (wate	er)	□res	₩ ₀		Initial when completed	ŀ		Lot # of preserva			
Samples checked	for dechlorinati	ion:		□/es	□No	⊠ N/A	14.				•		
Headspace in VOA	Vials (>6mm):		\neg	□No	$\overline{}$	1						
Trip Blank Present						DZN/A	1	i					
Trip Blank Custody	Į.	ıt			□No	_	1						
Pace Trip Blank Lo													
										5.440	ta Dan in	\	/ / N
Client Notification	acted:					Date/	Time:			rieid Da	ita Require	gr 1	/ / N
Comments/ Res		· · · · · · · · · · · · · · · · · · ·				_ Date	1111le.	1					•
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Project Manage	er Review:									. 1	Date:		
Note: Whenever the	re is a discrepar	ncy affection	g North Ca	arolina	complia	ance sai	mples, a copy o	of this for	m wii	ll be sent	to the No	th Carolina I	DEHNR

F-ALLCOD3rev.3, 11September 2006 of 18





March 26, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616228

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







CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616228

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.: 2616228

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616228001	MW-22	Water	03/15/19 08:56	03/18/19 12:00
2616228002	HGWC-16	Water	03/15/19 13:52	03/18/19 12:00
2616228003	MW-21D	Water	03/15/19 11:56	03/18/19 12:00
2616228004	HGWC-17	Water	03/15/19 13:00	03/18/19 12:00



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616228

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616228001	MW-22	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616228002	HGWC-16	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
616228003	MW-21D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616228004	HGWC-17	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1

03/25/19 08:02 03/25/19 12:56 7439-97-6

03/24/19 16:04 16984-48-8



7470 Mercury

300.0 IC Anions 28 Days

Date: 03/26/2019 09:53 PM

Mercury

Fluoride

ANALYTICAL RESULTS

Project: Plant Hammond Pace Project No.: 2616228

Sample: MW-22 Collected: 03/15/19 08:56 Lab ID: 2616228001 Received: 03/18/19 12:00 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 ND mg/L 0.0030 0.00078 03/20/19 14:34 03/21/19 22:52 7440-36-0 **Antimony** 0.0050 0.00057 03/20/19 14:34 03/21/19 22:52 7440-38-2 Arsenic ND mg/L 0.044 0.00078 03/20/19 14:34 03/21/19 22:52 7440-39-3 Barium mg/L 0.010 Beryllium ND mg/L 0.0030 0.000050 03/20/19 14:34 03/21/19 22:52 7440-41-7 1 Cadmium 0.00082J mg/L 0.0010 0.000093 03/20/19 14:34 03/21/19 22:52 7440-43-9 0.010 03/20/19 14:34 03/21/19 22:52 7440-47-3 Chromium ND mg/L 0.0016 0.028 0.010 0.00052 03/20/19 14:34 03/21/19 22:52 7440-48-4 Cobalt mg/L Lead ND mg/L 0.0050 0.00027 03/20/19 14:34 03/21/19 22:52 7439-92-1 Lithium 0.0020J mg/L 0.050 0.00097 1 03/20/19 14:34 03/21/19 22:52 7439-93-2 Molybdenum ND mg/L 0.010 0.0019 03/20/19 14:34 03/21/19 22:52 7439-98-7 Selenium ND mg/L 0.010 0.0014 03/20/19 14:34 03/21/19 22:52 7782-49-2 Thallium ND 0.0010 0.00014 03/20/19 14:34 03/21/19 22:52 7440-28-0 mg/L

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

0.30

0.00050 0.000036

0.029

ND

ND

mg/L

mg/L

Analytical Method: EPA 300.0



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616228

Date: 03/26/2019 09:53 PM

Sample: HGWC-16	Lab ID:	2616228002	Collecte	ed: 03/15/19	13:52	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 6	020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/20/19 14:34	03/21/19 22:58	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/20/19 14:34	03/21/19 22:58	7440-38-2	
Barium	0.13	mg/L	0.010	0.00078	1	03/20/19 14:34	03/21/19 22:58	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/20/19 14:34	03/21/19 22:58	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/20/19 14:34	03/21/19 22:58	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/20/19 14:34	03/21/19 22:58	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/20/19 14:34	03/21/19 22:58	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/20/19 14:34	03/21/19 22:58	7439-92-1	
Lithium	0.0041J	mg/L	0.050	0.00097	1	03/20/19 14:34	03/21/19 22:58	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/20/19 14:34	03/21/19 22:58	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/20/19 14:34	03/21/19 22:58	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/20/19 14:34	03/21/19 22:58	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	03/25/19 08:02	03/25/19 13:51	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		03/24/19 16:27	16984-48-8	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616228

Date: 03/26/2019 09:53 PM

Sample: MW-21D	Lab ID:	2616228003	Collecte	ed: 03/15/19	11:56	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 6	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 23:04	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/20/19 14:34	03/21/19 23:04	7440-38-2	
Barium	0.090	mg/L	0.010	0.00078	1	03/20/19 14:34	03/21/19 23:04	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/20/19 14:34	03/21/19 23:04	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/20/19 14:34	03/21/19 23:04	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/20/19 14:34	03/21/19 23:04	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/20/19 14:34	03/21/19 23:04	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/20/19 14:34	03/21/19 23:04	7439-92-1	
Lithium	0.025J	mg/L	0.050	0.00097	1	03/20/19 14:34	03/21/19 23:04	7439-93-2	
Molybdenum	0.045	mg/L	0.010	0.0019	1	03/20/19 14:34	03/21/19 23:04	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/20/19 14:34	03/21/19 23:04	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/20/19 14:34	03/21/19 23:04	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	03/25/19 08:02	03/25/19 13:53	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		03/24/19 16:50	16984-48-8	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616228

Date: 03/26/2019 09:53 PM

Sample: HGWC-17	Lab ID:	2616228004	Collecte	ed: 03/15/19	13:00	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 6	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 23:09	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/20/19 14:34	03/21/19 23:09	7440-38-2	
Barium	0.029	mg/L	0.010	0.00078	1	03/20/19 14:34	03/21/19 23:09	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/20/19 14:34	03/21/19 23:09	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/20/19 14:34	03/21/19 23:09	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/20/19 14:34	03/21/19 23:09	7440-47-3	
Cobalt	0.017	mg/L	0.010	0.00052	1	03/20/19 14:34	03/21/19 23:09	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/20/19 14:34	03/21/19 23:09	7439-92-1	
Lithium	0.0011J	mg/L	0.050	0.00097	1	03/20/19 14:34	03/21/19 23:09	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/20/19 14:34	03/21/19 23:09	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/20/19 14:34	03/21/19 23:09	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/20/19 14:34	03/21/19 23:09	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EP	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/25/19 08:02	03/25/19 13:56	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		03/24/19 17:12	16984-48-8	



Project:

Plant Hammond

Pace Project No.:

2616228

QC Batch: QC Batch Method: 24983

Analysis Method:

EPA 7470A

EPA 7470A

Analysis Description:

7470 Mercury

Associated Lab Samples:

2616228001, 2616228002, 2616228003, 2616228004

METHOD BLANK: 112752 Associated Lab Samples:

Matrix: Water 2616228001, 2616228002, 2616228003, 2616228004

Blank

Reporting

Parameter

Units Result

Limit

MDL Analyzed Qualifiers

Mercury

Mercury

Mercury

mg/L

Units

mg/L

ND 0.00050

0.000036

94

03/25/19 12:52

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Date: 03/26/2019 09:53 PM

Units

mg/L

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

80-120

Qualifiers

112754

112755

0.0023

0.0025

MS MSD Spike

MS MSD

MS % Rec

MSD % Rec % Rec

95

Max Limits RPD

RPD

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

ND

2616228001 Result

Spike Conc. Conc. 0.0025 0.0025

Result Result 0.0024 0.0023

92

75-125

3 20

Qual

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.: 2616228

Lithium

Selenium

Thallium

Molybdenum

Date: 03/26/2019 09:53 PM

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

Associated Lab Samples: 2616228001, 2616228002, 2616228003, 2616228004

METHOD BLANK: 111121 Matrix: Water Associated Lab Samples: 2616228001, 2616228002, 2616228003, 2616228004

mg/L

mg/L

mg/L

mg/L

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L		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	
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	

LABORATORY CONTROL SAMPLE:	111122					
		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	0.10	104	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.099	99	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	
Lead	mg/L	0.1	0.10	101	80-120	

0.1

0.1

0.1

0.1

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	
Beryllium	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20	

0.10

0.11

0.10

0.10

101

108

105

100

80-120

80-120

80-120

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.: 2616228

Date: 03/26/2019 09:53 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
Chromium	mg/L	ND 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.: 2616228

Date: 03/26/2019 09:53 PM

QC Batch: 24985 Analysis Method: EPA 300.0

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

Associated Lab Samples: 2616228001, 2616228002, 2616228003, 2616228004

METHOD BLANK: 112760 Matrix: Water
Associated Lab Samples: 2616228001, 2616228002, 2616228003, 2616228004

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Fluoride mg/L ND 0.30 0.029 03/24/19 14:11

LABORATORY CONTROL SAMPLE: 112761

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 112762 112763

MS MSD 2616191001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual Fluoride ND 10 9.5 90-110 5 mg/L 10 9.0 90 95 15

MATRIX SPIKE SAMPLE: 112764

MS 2616228001 Spike MS % Rec % Rec Parameter Units Result Conc. Result Limits Qualifiers ND 103 90-110 Fluoride mg/L 10 10.3

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.: 2616228

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: 03/26/2019 09:53 PM



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616228

Date: 03/26/2019 09:53 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616228001	MW-22	EPA 3005A	24707	EPA 6020B	24750
2616228002	HGWC-16	EPA 3005A	24707	EPA 6020B	24750
2616228003	MW-21D	EPA 3005A	24707	EPA 6020B	24750
2616228004	HGWC-17	EPA 3005A	24707	EPA 6020B	24750
2616228001	MW-22	EPA 7470A	24983	EPA 7470A	25042
2616228002	HGWC-16	EPA 7470A	24983	EPA 7470A	25042
2616228003	MW-21D	EPA 7470A	24983	EPA 7470A	25042
2616228004	HGWC-17	EPA 7470A	24983	EPA 7470A	25042
2616228001	MW-22	EPA 300.0	24985		
2616228002	HGWC-16	EPA 300.0	24985		
2616228003	MW-21D	EPA 300.0	24985		
2616228004	HGWC-17	EPA 300.0	24985		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

(V/V) 3 SAMPLECONDITIONS Samples (N/A) Cooler ŏ Regulatory Agency pelse Custody **WO#::2616228** P1/8/16/A1 (V/V) Received on Residual Chlorina (YW) Page: TEMP in C 10:11 THE 1200 2211 ph 1/6/2012/6/2012/1/2012/1/25 Requested Analysis Filtered (Y/N) DATE Signed: 03/15/19 P DATE Sulfate by 300.0 8 Metals (As, B, Co, Mo) Radium 226/228 betsy.mcdaniel@pacelabs.com ACCEPTED BY ! AFFILATION Fluoride by 300.0 wan Attention: scsinvoices@southernco.com Charles A stateM VI .qqA NA 186T sesyland Pace Project Manager. betsy.mcdaniet@p Pace Profile #: 327.4 (AP) or 328.5 (Huff) IonsriteM South UNIAH Valter ZQA EOZSZBN Preservatives 1001 Grand Wayo (Geasing 03/6/19 1455 Malli HOBN нсі Involce Information: 5 3 EONH Jant H2SO4 Pace Quote: JINE 9201 Address: Unpreserved SAMPLER NAME AND SIGNATURE 100 194 # OF CONTAINERS 11/8/18/18/19 DATE PRINT Name of SAMPLER: SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION 3/15/19 08)5 3/18/19 08:56 wic Pirin 1341 Piring 1352 280 DATE COLLECTED RELINDUISHED BY LAFFILLATION Joju Abraham / Lauren Petty TIME SCS10348606 START Plant Hammond Required Project Information: Report To: Joju Abraham / La Copy To: Geosyntec 5 Purchase Order #: MATRIX CODE (see velid codes to left) Project Name: Project #: Section B MATRIX
Drinking Water
Water
Wate Ware
Product
Product
Posubsciid
Oil
Wipe
Adr
Cother Company: Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax. Requested Due Date: Stankard TRT ADDITIONAL COMMENTS. One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique SAMPLE ID ーしろいか 2480 Maner Road Atlanta, GA 30339 tequired Client Information: M Page 15 of 18 Address: 0 . 9 # 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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CHAIN-OF-CUSTODY / Analytical Request Document

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

Due Date: 03/25/19 (N/A) seidmas SAMPLE CONDITIONS Sealed Cooler (Y/N) 5 Regulatory Agency. (poisu) State / Location **40#:2616228** 3 (N/A) 9 Received on CLIENT: GAPower-CCR Residual Chlorine (Y/N) Page: TEMP in C DATE Signed: 3 [15/19 18/19 DATE PH: 92 0.005 yd eisflud Metals (As, B, Co, Mo) Pace Project Manager: belsy modaniel@pacelabs.com. Pace Profile #: 327.4 (AP) or 328.5 (Huff) Radium 226/228 Pluoride by 300.0 Attention: scsinvoices@southernco.com Lalman Pop. IV Metals Mocal Hayans FN/A 1881 SORVIERA Museus lonsitieM Preservatives EOZSZEN HOBN HCI Section C Invoice Information: Noekia 3 EONH Company Name Pace Quote: 452O¢ SIGNATURE of SAMPLER: ARLICA Address: 1076 DevieserquU от соитыиева SAMPLER NAME AND SIGNATURE 1/18/19 SAMPLE TEMP AT COLLECTION PRINT Name of SAMPLER: 8 Mushmillacoil DATE COLLECTED RELINGUISHED BY / AFFILIATION Report To: Joju Abraham / Lauren Petty Copy To: Geosyntec Purchase Order #: SCS10348606 Project Name: Peat Hammon START DATE Required Project Information: (G=GRAB C=COMP) **BAYT BIYMAS** MATRIX CODE (see valid codes to left) Section B MATRIX
Drinking Wider
Wasts Water
Wasts Water
Product
Solit/Solid
On
Wide
Air
Tissue ADDITIONAL COMMENTS One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique Email: jabraham@southemco.com JCM C-P SAMPLE ID Georgia Power - Coal 2480 Maner Road Required Client Information: Page 17 of 18 . 6 4 **a** 7 ITEM #

	ample Condition Upon	Receipt	
Face Analytical Client Nam	ne: GLA Pou	Project #	
Courier: Fed Ex UPS USPS C		we Other WO#:2	616228
Custody Seal on Cooler/Box Present:	es no Seals intact:	yes CLIENT: GAP	Due Date: 03/25/1
Packing Material: Bubble Wrap Bub	ble Bags None 🗌 Othe	er	
Thermometer Used 83	Type of Ice: Wel Blue	None Samples on ice	e, cooling process has begun
Cooler Temperature 4.2	Biological Tissue is Froze	Date and I	nitials of person examining
Temp should be above freezing to 6°C	Commo	ents:	: 13/18/19 m2
Chain of Custody Present:	es Ono On/A 1.	<u> </u>	
Chain of Custody Filled Out:	ANO □N/A 2.	See Comment	
Chain of Custody Relinquished:	.⊒des □No □N/A 3.		
Sampler Name & Signature on COC:	EXES ONO ON/A 4.		
Samples Arrived within Hold Time:	Elves Ono On/A 5.		
Short Hold Time Analysis (<72hr):	□ves ☑No □N/A 6.		
Rush Turn Around Time Requested:	□ves ☑No □N/A 7.	i	
Sufficient Volume:	Ø6s □No □N/A 8.		
Correct Containers Used:	Eves □No □N/A 9.		
-Pace Containers Used:	TVes □No □N/A		
Containers Intact:	es □No □N/A 10.	!	
Filtered volume received for Dissolved tests	□Yes □No ☑N/A 11.		
Sample Labels match COC:	Pes □No □N/A 12.	:	
-Includes date/time/ID/Analysis Matrix:_	\mathcal{W}	i i	
All containers needing preservation have been checked.	∠EVes □No □N/A 13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	AUTES LING LIN/A	:	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	Initial with complete	·	
Samples checked for dechlorination:	□Yes □No ₽N/A 14.		
Headspace in VOA Vials (>6mm):	□Yes □No □NÃ 15.		
Trip Blank Present:	□Yes □No ☑N/A 16.		
Trip Blank Custody Seals Present	□Yes □No ÆN/A		
Pace Trip Blank Lot # (if purchased):	***************************************	<u> </u>	
Client Notification/ Resolution:		Field Data Req	uired? Y / N
Person Contacted:	Date/Time:	Tield Data Ned	uned: , , (4
	alle tim time	how HGUN	- 17 was
207 listed on 150	Cac and	was taken	Accorn 1100
Contrience labole	as 132 no.		7-0117-000
Project Manager Review:		Date:	
:			North Country DELINE
Note: Whenever there is a discrepancy affecting No	th Carolina compliance samples, a	copy of this form will be sent to the	North Carolina DEHNR

F-ALLC003rev.3, 11September 2008 of 18





April 10, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616229

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.: 2616229

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 lowa 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.: 2616229

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616229001	MW-22	Water	03/15/19 08:56	03/18/19 12:00
2616229002	HGWC-16	Water	03/15/19 13:52	03/18/19 12:00
2616229003	MW-21D	Water	03/15/19 11:56	03/18/19 12:00
2616229004	HGWC-17	Water	03/15/19 13:00	03/18/19 12:00



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616229

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616229001	MW-22	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616229002	HGWC-16	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616229003	MW-21D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616229004	HGWC-17	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.: 2616229

Sample: MW-22 PWS:	Lab ID: 26162290 Site ID:	O1 Collected: 03/15/19 08:56 Sample Type:	Received:	03/18/19 12:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.335 ± 0.129 (0.167) C:95% T:NA	pCi/L	03/26/19 18:07	7 13982-63-3	
Radium-228		0.642 ± 0.404 (0.757) C:70% T:85%	pCi/L	03/29/19 14:36	5 15262-20-1	
Total Radium	Total Radium Calculation	0.977 ± 0.533 (0.924)	pCi/L	04/02/19 13:34	1 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616229

Sample: HGWC-16 PWS:	Lab ID: 26162290 Site ID:	Collected: 03/15/19 13:52 Sample Type:	Received:	03/18/19 12:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.401 ± 0.295 (0.524) C:97% T:NA	pCi/L	03/27/19 08:02	13982-63-3	
Radium-228		0.190 ± 0.265 (0.565) C:73% T:84%	pCi/L	03/29/19 14:37	7 15262-20-1	
Total Radium	Total Radium Calculation	$0.591 \pm 0.560 (1.09)$	pCi/L	04/02/19 13:34	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616229

Sample: MW-21D PWS:	Lab ID: 26162290 Site ID:	Collected: 03/15/19 11:56 Sample Type:	Received:	03/18/19 12:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.320 ± 0.278 (0.516) C:88% T:NA	pCi/L	03/27/19 08:02	13982-63-3	
Radium-228		0.652 ± 0.349 (0.612) C:73% T:87%	pCi/L	03/29/19 14:37	7 15262-20-1	
Total Radium	Total Radium Calculation	0.972 ± 0.627 (1.13)	pCi/L	04/02/19 13:34	1 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616229

Sample: HGWC-17 PWS:	Lab ID: 26162290 Site ID:	Od4 Collected: 03/15/19 13:00 Sample Type:	Received:	03/18/19 12:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.358 ± 0.295 (0.549) C:91% T:NA	pCi/L	03/27/19 08:02	13982-63-3	
Radium-228		0.559 ± 0.348 (0.631) C:71% T:79%	pCi/L	03/29/19 14:37	7 15262-20-1	
Total Radium	Total Radium Calculation	0.917 ± 0.643 (1.18)	pCi/L	04/02/19 13:34	7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616229

QC Batch: 334703 Analysis Method: EPA 9320

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

Associated Lab Samples: 2616229001, 2616229002, 2616229003, 2616229004

METHOD BLANK: 1628726 Matrix: Water

Associated Lab Samples: 2616229001, 2616229002, 2616229003, 2616229004

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

Radium-228 $0.496 \pm 0.336 \quad (0.636) \text{ C:}77\% \text{ T:}84\% \quad \text{pCi/L} \quad 03/29/19 \quad 11:27$

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.: 2616229

QC Batch: 334701 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616229001, 2616229002, 2616229003, 2616229004

METHOD BLANK: 1628722 Matrix: Water

Associated Lab Samples: 2616229001, 2616229002, 2616229003, 2616229004

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

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

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.: 2616229

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.: 2616229

Date: 04/10/2019 05:20 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2616229001	MW-22	EPA 9315	334701		
2616229002	HGWC-16	EPA 9315	334701		
2616229003	MW-21D	EPA 9315	334701		
2616229004	HGWC-17	EPA 9315	334701		
2616229001	MW-22	EPA 9320	334703		
2616229002	HGWC-16	EPA 9320	334703		
2616229003	MW-21D	EPA 9320	334703		
2616229004	HGWC-17	EPA 9320	334703		
2616229001	MW-22	Total Radium Calculation	336613		
2616229002	HGWC-16	Total Radium Calculation	336613		
2616229003	MW-21D	Total Radium Calculation	336613		
2616229004	HGWC-17	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.

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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.

Due Date: 04/15/19 ላን (N/L) SAMPLE CONDITIONS mtact Samples (N/A) ð 78|000 Delse2 **WO#:2616229** poisu (N/A) 8 80 Received on Residual Chlorina (Y/V) CLIENT: GAPower-CCR ż TEMP in C 200 dirlia 1455 15// DATE 0.005 yd etellud 0/18/10 120 Metals (As, B, Co, Mo) DATE Signed: Pace Project Manager......botsy.modernet@pacelabs.com. Pace Profile #: 327.4 (AP) or 328.5 (Huff) 822/822 muibeF Fluoride by 300.0 scsinvolces@southernco.com MARITADA App. IV Metals /sel/sesylenA. N/A 327.4 (AP) or 328.5 (Huff) こととはな IcnshieM Preservatives EOZSZBN elisa Pelisa HOBN Section C Involce Information: нсі Company Name: Address; Pace Quote: EONH 188 **≯OSZ**H Attention: 155 2026 THE Unpreserved * OF CONTAINERS SAMPLERNAME AND SIGNATURE SAMPLE TEMP AT COLLECTION PRINT Name of SAMPLER: 0 × 1 2/18/10 SIGNATURE of SAMPLER: DATE 6 3/15/4 1135 3/15/19 1186 TIME 8 DATE untern Longoston COLLECTED ころもものの RELINGUISHED BY CAPPILLATION Required Project Information: Report To: Joju Abraham / Lauren Petty TIME SCS10348606 START Purchase Order #. SCS1034860 Project Name: Plant Hammond Project #: DATE Copy To: Geosyntec SAMPLE TYPE (G-GRAB C-COMP) 数 MATRIX CODE (see valid codes to left) Section B MARTRIX
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Other
Trasue ADDITIONAL COMMENTS Georgia Power - Coal Combustion Residuals Email: |abraham@southemco.com Phone: (404)505-7239 |Fax Requested Duo Date: Chan and TAT One Character per box. (A-2, 0.9 /, .) Sample Ids must be unique SAMPLE ID 2480 Maner Road Alfanta, GA 30339 Required Client Information: . .6 1 8 6 Page 14 of 16 # Mati

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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.

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Sa	mbie: Condition	Upon Receipt		
Face Analytical Client Name	: GIA	Power	Project #	
Courler: Fed Ex UPS USPS Clie		Pace Other	W0#∶26	16229
Custody Seal on Cooler/Box Present:yes	no Seals	intact: yes	PM: BM	Due Date: 04/15/1
Packing Material: Bubble Wrap Bubble	e Bags None	•	CLIENT: GAPous	er-CCR
Thermometer Used	Type of Ice: Wel		Samples on ice, coo	ling process has begun
Cooler Temperature 4.2		is Frozen: Yes No		of person examining
Temp should be above freezing to 6°C		Comments:	contents:	1/18/19 mg
Chain of Custody Present:	EYES ONO ON/A	1.		
Chain of Custody Filled Out:	ZAYBS ZNO □N/A	2. See C	omment	
Chain of Custody Relinquished:				
Sampler Name & Signature on COC:	EYES DNO DN/A	4.		
Samples Arrived within Hold Time:	EYES DNO DN/A	5.		
Short Hold Time Analysis (<72hr):	□Yes 2No □N/A	6.		
Rush Turn Around Time Requested:	□Yes ☑No □N/A	7.		
Sufficient Volume:	ÆY€S □No □N/A	8.		
Correct Containers Used:	EYES ONO ON/A	9.		
-Pace Containers Used:	TOYES DNO DN/A			
Containers Intact:	ETYES DNO DN/A	10.		
Filtered volume received for Dissolved tests	□Yes □No ☑N/A	11.		
Sample Labels match COC:	ETES DO DNA	12.		
-Includes date/time/ID/Analysis Matrix:	\mathcal{W}			
All containers needing preservation have been checked.	ETYPS DNO DN/A	13.	: :	
All containers needing preservation are found to be in compliance with EPA recommendation.	ZYes □No □N/A			
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes □No	Initial when completed	Lot # of added preservative	
Samples checked for dechlorination:	□Yes □No ₽NA	14.		
Headspace in VOA Vials (>6mm):	□Yes □No □NÃ	15.		
Trip Blank Present:	□Yes □No □N/A	16.		
Trip Blank Custody Seals Present	□Y₽S □NO ÆN/A			
Pace Trip Blank Lot # (if purchased):				
Client Notification/Resolution:			Field Data Required	Y / N
Person Contacted:	Date/	Time [,]	Field Data Required	P Y / N
Comments/ Resolution: The Con	Medin 1	ma hor	HGIN-	17 Was
207 listo d on 150	COC an	d was	taken t	term 110
Container labels	25 /3:00	<i>5</i>		
Project Manager Review:			Date:	
Note: Whenever there is a discrepancy affecting North Certification Office (i.e out of hold, incorrect preservations)	Carolina compliance san ve, out of temp, incorrect	nples, a copy of this for containers)	n will be sent to the North	Carolina DEHNR

F-ALLC003rev.3, 11September2006 Page 16 of 16





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



ANALYTICAL RESULTS

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: El	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
QC Batch Method: EPA 7470A

Associated Lab Samples: 2616230001

METHOD BLANK: 112752 Matrix: Water

Associated Lab Samples: 2616230001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Analysis Method:

Analysis Description:

Mercury mg/L ND 0.00050 0.00036 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 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 #	
Tracking #:	Ex UPS USPS Client			WO#:20	616230
Custody Seal on	Cooler/Box Present: yes	no Seals	intact:	PM: BM CLIENT: GAP	Due Date: 03/25/ suer-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bag			1 6	
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
Temp should be about	ve freezing to 6°C		Comments:	contents: 12	3/18/19 mg
Chain of Custody F	resent:	Yes □No □N/A	1.		
Chain of Custody F	filled Out:	Yes □No □N/A	2.		
Chain of Custody F		es □No □N/A	 [
Sampler Name & S		es □No □N/A			
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Short Hold Time		res ⊠Ño □N/A			
Rush Turn Aroun	d Time Requested:	res Dino □n/A	7.		
Sufficient Volume:		res □no □n/A	8.		
Correct Containers	Used:	es □No □N/A	9.		
-Pace Containe	rs Used:	res □No □N/A			
Containers Intact:	Ą	es 🗆 No 🗆 N/A	10.		
Filtered volume rec	eived for Dissolved tests	′es □No ☑N/A	11.		
Sample Labels ma	tch COC:	reš □ko □n/a	12.		
-Includes date/t		W			
All containers needing	preservation have been checked.	res □no □n/A	13.		
All containers needin	g preservation are found to be in recommendation.	res 🗆 No 🗆 N/A			
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.		
Trip Blank Custody	Seals Present	Yes ONO ANIA			
Pace Trip Blank Lo	t # (if purchased):				
Client Notification	/ Resolution:			Field Data Required	1? Y / N
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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	_
Company	Client Information: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham / La	A Property	Join Abraham / Lauren Petty	n Petty		l	¥	Attention:	S S	sinvoit	scsinvoices@southemco.com	outher	nco.c	E					J					
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Phone	(404)506-7239 Fax	Project Name:	Plant	Plant Hammond				ă d	Pace Project N	Pace Project Managar.	ager.	iger. betsy modaniel@	betsy modaniel@pacelabs.com	ed s	celabs	Ē					2	A C	anous co	4, 50 february	
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Pace Anal	<i>ytical</i> Client Name: _	10	911	< /	Power	F	roject#	
Tracking #	Ex UPS USPS Client						40#:26	16231 Due Date: 04/15/1
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.			
		┪~~	□ ₩6					
Sufficient Volume:	i	1	□No					
Correct Containers	Used: -{	3 res	□No	□n/a	9.			
-Pace Containe	rs Used:	J Ves	No	□n/a				
Containers Intact:		3/69	. □No	□n/a	10.			
		+	i □No			:		
Sample Labels ma		\neg	. □No					
-Includes date/t			W					
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All containers needin	g preservation are found to be in	بل						
compliance with EPA	it i	Jres	s □No	UN/A			1	
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):							
Client Notification	(Panalutian)	\mp					Field Data Require	d? Y / N
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Project Manag	er Review						Date:	
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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 SPIKE DUPLICATE: 116815 116816												
			MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec			
		2616901004									Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/L	ND 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) stateM 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	616885
Custody Seal on C	ooler/Box Present:	no Seals	s intact: yes	PM: BM CLIENT: GAPOI	Due Date: 04/09/
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None	Other	CELENT: CHP8	ier-cck
Thermometer Used			Blue None	Samples on ice, coo	ling/process has begun
Cooler Temperatul Temp should be above		logical Tissue	is Frozen: Yes No Comments:	Date and Initial contents:	of per≲on 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 ONO ON/A			
Samples Arrived wit		s 🗆 No 🗆 N/A	† 		
Short Hold Time Ar		s ⊠No □N/A			
Rush Turn Around		s 🖬 No 🗆 N/A			
Sufficient Volume:		1 □No □N/A			
Correct Containers (s □No □N/A			
-Pace Containers		S □No □N/A	J ^{o.}		
Containers Intact:		s ONO ON/A	10		
Filtered volume recei		s ONO PONA		i.	
Sample Labels matc		s DNo DN/A			
-Includes date/tim		$\ddot{\omega}$	12.		
All containers needing pr	eservation have been checked	P□No □N/A	40		
All containers needing potential compliance with EPA re	preservation are found to be in		13.		
exceptions: VOA, coliform	TOC, O&G, WI-DRO (water)	1 75.	Initial when completed	Lot # of added preservative	
Samples checked for	dechlorination: □Ye	□No □MA	14.		
Headspace in VOA V	îals (>6mm): □Ye	No DMA	15.		
Trip Blank Present:	□Ye	□No ÆNÃ	16.		
Trip Blank Custody S	eals Present	□No ĐN/A			
Pace Trip Blank Lot #	(if purchased):				
Client Notification/	Resolution:				
Person Contac		Date/T	'imo:	Field Data Required?	Y / N
Comments/ Resolu		Oater i		<u> </u>	
Project Manager 6	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 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 120 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 1/1/10 to 12/1/20 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
Direxing Water
Water
Waste Water
Waste Water
Product
SoluPoid
Oil
Wipe
Ant
Other
Tissue athiom, Holy Adenum, Selenium, Thalism 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 | jabraham@southemoo.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	rtical 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 RPD

11

Max RPD

Qualifiers

Total Dissolved Solids SAMPLE DUPLICATE:

117379

2616901015 Result

Dup Result

RPD

Max RPD

Qualifiers

Parameter **Total Dissolved Solids**

Date: 04/10/2019 04:36 PM

Units

mg/L

ND

13.0J

203

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		10.3	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 (OSC 3 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-GRAB 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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Phone:	(404)506-7239 Fax	Project Name:		Plant H	Plant Hammond				تة	Pace Project Manager.	ect Ma	nager:		etsy.mk	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	ohou 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			
Samples Arrived wit		es □No □N/A			
Short Hold Time A		es 12No ON/A			
Rush Turn Around		es DMG DN/A			
Sufficient Volume:		es DNo DN/A			
Correct Containers					
		s No N/A	9.		
-Pace Containers		es ONo ON/A			
Containers Intact:		es 🗆 No 🗆 N/A			
		es ONO DATA			
Sample Labels mate	th COC: —====================================	es □no □n/a	12.	!	
-Includes date/tin	ne/ID/Analysis Matrix:	ω			
All containers needing p	reservation have been checked.	es □No □N/A	13.		
All containers needing compliance with EPA r	preservation are found to be in ecommendation.	es □No □N/A	1.22.1		
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			
Trip Blank Present:	<u> </u>	es ONO ADNIA			
Trip Blank Custody		es ONO DIMA			
Pace Trip Blank Lot		אוושע טווט מ			
Face Hip Blank Cot	# (II purchaseu)				
Client Notification/	[·]			Field Data Required	? Y / N
	acted:	Date/	Time:	'	
Comments/ Resol	ution:				
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Project Manager	Review:			Date:	
-					
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 2006 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



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	



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 INX 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: HS204 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 S 20th & 84:46 Earld 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) 10 Section B MATROX
Drawing Water
Waster
Waster
Waster
Product
SourSchol
Ci
Wipe
Au
Obee
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

Section A	A.	Section B							-*	Section C	ပ												L	İ					Γ	
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Company	Georgia Power - Coal Combustion Residuals	report to.	2	Joju Abraham					Ť	Attention:	; ;	SCSinv	oices	scsinvoices@southernco.com	Smo.c	퇽]	
Allanta	ZA 30339		ame	Lauren Petty, Geosyniec	Geosy	<u></u>			Ť	Address	Address:	<u></u>									+									
Email	iabraham@southernco.com	Purchase Order #:		SCS	SCS10348606	8			T	Pace Quote:	racte:									1	2		Ì		TO TO	Requisitory Apparent			3	
Phone	-	Project Name:	Œ	Plant Hammond	promi					Pace P	roject	Pace Project Manager.	ä	belsv	modan	betsy modaniel@nacelabs com	stales	Ę				Market State	400	1	And the second second second			100		
Request	Requested Due Date: Standard Thr	Project #:							Ī	Pace P	Pace Profile #:	12	77 (AP)	327 (AP) or 328 (Huff)	Ę						-		200			WOLES.				
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Z	Zerylliam, Cadmium, Chramium, Cotall	with Meultin Mushman Creases	3	B	des.	न्य	_	91/2/4	9	920	a	10	Blan	. 3	3	Jessy	13			b1/2/h	119	6261	9			_			_	
<u>品</u>	Fire-ide, Lead, Lithiam, Melyddown,	John Line	W	It Low for was the	W	177.52	_	61/2/h	$\neg \dagger$	<u> </u> । । । । । । । । । । । । । । । । । ।	귌	M			/Pe	· 3	ᆟ			7	183	9 0	450							
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of 13					J							1				$\left \cdot \right $		7	1	1			1	·		3		ri l	ا ر	

	Sall	ibie condition	Upon Receipt		
Face Analy	tical Client Name:	BIA	Power	Project #	
Courier: Fed E	ex UPS USPS Client	t Commercial	Pace Other	WO# : 26	
	ooler/Box Present: yes	no Seals	intact:yes	PM: BM CLIENT: GAPour	Due Date: 05/01/1 CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble I	Bags None	Other	CLILIT. CI.	
Thermometer User	1: 27 -	Type of Ice: Wel		Samples on ice, coo	ing process has begun
Cooler Temperatu	re /· /	· ·	is Frozen: Yes No	Date and Initial	of/person examining,
Temp should be above			Comments:	contents:	13/19 M
Chain of Custody P	resent:	EYES ONO ON/A	1.		
Chain of Custody Fi	illed Out:	ZYes ONO ON/A	2.		
Chain of Custody R	elinquished:	ØYes □No □N/A	3.		
Sampler Name & Si	gnature on COC:	TYPS DNO DN/A	4.		
Samples Arrived wit	thin Hold Time:	☑Yes □No □N/A	5.		
Short Hold Time A	nalysis (<72hr):	□Yes ☑No □N/A	6.		
Rush Turn Around	Time Requested:	□Yes DMG □N/A	7.		
Sufficient Volume:		-BYes □No □N/A	8.		
Correct Containers	Used:	₽Yes □No □N/A	9.		
-Pace Container	s Used:	ÆYes □No □N/A			
Containers Intact:		ZYes □No □N/A	10.		
Filtered volume rece	eived for Dissolved tests	□Yes □No □N/A	11.		
Sample Labels mate	ch COC:	EYES NO N/A	12.		
-Includes date/tir		ω			
All containers needing p	reservation have been checked.	Yes ONO ON/A	13.		
All containers needing compliance with EPA	preservation are found to be in ecommendation.	ÆY95 □No □N/A			
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	□Yes □N6	Initial when completed	Lot # of added preservative	
Samples checked for	r dechlorination:	□Yes □No □MA	14.		
Headspace in VOA	Vials (>6mm):	□Yes □No □M/A	15.		
Trip Blank Present:		□Yes □No ÆÑA	16.		
Trip Blank Custody	Seals Present	□Yes □No □MA			
Pace Trip Blank Lot	# (if purchased):				
Client Notification	Resolution:			Field Data Required	P Y / N
Person Conta	acted:	Date/	Time:	1	
Comments/ Resol	lution:		•	:	
· · · · · · · · · · · · · · · · · · ·					
				į	
Project Manage	Review:			Date:	
Note: Whenever there Certification Office (i.e.	is a discrepancy affecting North Ca out of hold, incorrect preservative	arolina compliance san	nples, a copy of this form containers)	n will 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.: 2616927

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.: 2616927

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.: 2616927

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616927001	HGWA-4	Water	04/02/19 12:11	04/03/19 11:10
2616927002	HGWA-5	Water	04/02/19 10:40	04/03/19 11:10
2616927003	HGWA-6	Water	04/02/19 10:37	04/03/19 11:10



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616927

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616927001	HGWA-4	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616927002	HGWA-5	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616927003	HGWA-6	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616927

Date: 04/10/2019 04:36 PM

Sample: HGWA-4	Lab ID:	2616927001	Collecte	ed: 04/02/19	12:11	Received: 04/	03/19 11:10 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	 6020B Pre	———— paration Met	hod: El	PA 3005A			
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 14:47	04/08/19 23:04	7440-38-2	
Barium	0.030	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 23:04	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 23:04	7440-41-7	
Boron	0.010J	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 23:04	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 23:04	7440-43-9	
Calcium	76.0	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 23:09	7440-70-2	
Chromium	0.019	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 23:04	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 14:47	04/08/19 23:04	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 14:47	04/08/19 23:04	7439-92-1	
Lithium	0.00098J	mg/L	0.050	0.00097	1	04/05/19 14:47	04/08/19 23:04	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 14:47	04/08/19 23:04	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 14:47	04/08/19 23:04	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 14:47	04/08/19 23:04	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	230	mg/L	25.0	10.0	1		04/08/19 15:31		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	4.4	mg/L	0.25	0.024	1		04/05/19 16:36	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/05/19 16:36	16984-48-8	
Sulfate	4.9	mg/L	1.0	0.017	1		04/05/19 16:36	14808-79-8	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616927

Date: 04/10/2019 04:36 PM

Sample: HGWA-5	Lab ID:	2616927002	Collecte	ed: 04/02/19	10:40	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			
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 18:25	7440-38-2	
Barium	0.044	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 18:25	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 18:25	7440-41-7	
Boron	0.0052J	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 18:25	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 18:25	7440-43-9	
Calcium	26.3	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 18:31	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 18:25	7440-47-3	
Cobalt	0.0012J	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 18:25	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 15:23	04/09/19 18:25	7439-92-1	
Lithium	0.0028J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 18:25	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 18:25	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 18:25	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 18:25	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	144	mg/L	25.0	10.0	1		04/08/19 15:31		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	1.7	mg/L	0.25	0.024	1		04/05/19 17:49	16887-00-6	
Fluoride	0.12J	mg/L	0.30	0.029	1		04/05/19 17:49	16984-48-8	
Sulfate	23.8	mg/L	1.0	0.017	1		04/05/19 17:49	14808-79-8	M1



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616927

Date: 04/10/2019 04:36 PM

Sample: HGWA-6	Lab ID:	2616927003	Collecte	ed: 04/02/19	10:37	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			
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 18:37	7440-38-2	
Barium	0.19	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 18:37	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 18:37	7440-41-7	
Boron	0.013J	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 18:37	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 18:37	7440-43-9	
Calcium	49.7	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 18:43	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 18:37	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 18:37	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 15:23	04/09/19 18:37	7439-92-1	
_ithium	0.0095J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 18:37	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 18:37	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 18:37	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 18:37	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	238	mg/L	25.0	10.0	1		04/08/19 15:32		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	1.6	mg/L	0.25	0.024	1		04/05/19 18:13	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/05/19 18:13	16984-48-8	
Sulfate	35.5	mg/L	1.0	0.017	1		04/05/19 18:13	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616927

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: 2616927001

METHOD BLANK: 116813 Matrix: Water

Associated Lab Samples: 2616927001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
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	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
nic	mg/L	0.1	0.10	103	80-120	
ım	mg/L	0.1	0.10	103	80-120	
llium	mg/L	0.1	0.10	101	80-120	
n	mg/L	1	1.0	105	80-120	
mium	mg/L	0.1	0.11	109	80-120	
ium	mg/L	1	1.0	104	80-120	
mium	mg/L	0.1	0.11	108	80-120	
alt	mg/L	0.1	0.11	107	80-120	
	mg/L	0.1	0.10	103	80-120	
ım	mg/L	0.1	0.10	102	80-120	
bdenum	mg/L	0.1	0.11	105	80-120	
nium	mg/L	0.1	0.11	106	80-120	
ium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIK	E DUPLIC	CATE: 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	

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.: 2616927

Date: 04/10/2019 04:36 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	ATE: 116815	5		116816							
Parameter	Units	2616901004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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.: 2616927

Date: 04/10/2019 04:36 PM

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

Associated Lab Samples: 2616927002, 2616927003

METHOD BLANK: 116817 Matrix: Water

Associated Lab Samples: 2616927002, 2616927003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
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	
Lead	mg/L	ND	0.0050	0.00027	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
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	
Lead	mg/L	0.1	0.099	99	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	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
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	
Beryllium	mg/L	ND	0.1	0.1	0.092	0.092	92	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.: 2616927

Date: 04/10/2019 04:36 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	ATE: 116819	9		116820							
		2616933004	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
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	
Lead	mg/L	ND	0.1	0.1	0.096	0.094	96	94	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.:

2616927

QC Batch:

25999

Analysis Method:

SM 2540C

QC Batch Method:

SM 2540C

Analysis Description:

2540C Total Dissolved Solids

Associated Lab Samples:

2616927001, 2616927002, 2616927003

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

LCS Result

226

ND

LCS % Rec % Rec Limits

Qualifiers

Total Dissolved Solids

Units mg/L

400

Spike

Conc.

411

203

13.0J

103

84-108

SAMPLE DUPLICATE: 117378

2617086001 Units Result

Dup Result RPD

11

Max RPD

Qualifiers

10 D6

10

Total Dissolved Solids

2616901015

Dup

RPD

Max

Qualifiers

SAMPLE DUPLICATE:

Total Dissolved Solids

Date: 04/10/2019 04:36 PM

117379

Parameter

Units mg/L

mg/L

Result

Result

RPD

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.: 2616927

Date: 04/10/2019 04:36 PM

QC Batch: 25882 Analysis Method: EPA 300.0

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

Associated Lab Samples: 2616927001, 2616927002, 2616927003

METHOD BLANK: 116732 Matrix: Water

Associated Lab Samples: 2616927001, 2616927002, 2616927003

		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 SPIKE DUPLICATE: 116734 116735												
			MS	MSD								
		2616927001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	4.4	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	Л1

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.: 2616927

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

	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.

R1 RPD value was outside control limits.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616927

Date: 04/10/2019 04:36 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616927001	HGWA-4	EPA 3005A	25905	EPA 6020B	25922
2616927002	HGWA-5	EPA 3005A	25906	EPA 6020B	25928
2616927003	HGWA-6	EPA 3005A	25906	EPA 6020B	25928
2616927001	HGWA-4	SM 2540C	25999		
2616927002	HGWA-5	SM 2540C	25999		
2616927003	HGWA-6	SM 2540C	25999		
2616927001	HGWA-4	EPA 300.0	25882		
2616927002	HGWA-5	EPA 300.0	25882		
2616927003	HGWA-6	EPA 300.0	25882		

Section A		Section B	Ser	Section C										Γ.
Company	Client information:	۶I	Pag	톍	on:						Page:	-	۵ ر	
Address	7. Georgia Power - Coal Combustion Residuals	Copy To: 10 Day Abraham	SE S	Attention: sosi	scsinvoices@southernco.com	mco.com								
Atlanta	SA 30339	CAPY 10. Lauren Petty, Geosyntec	2 4	Address:						and the second	0.000	ment of the same		September 1
Email		Purchase Order #: SCS10348676	i di	Pars Ounter							Kod	tatory 34 gorn	***	1
Phone:	8	me: p	Pa	Pace Project Manager:	١.	betsv.mcdaniel@nacelabs.com	yo sdelebs or		Ī	A STATE OF THE STA	Seat No.	A STATE OF THE STA		100 m
Request	Requested Due Date: Standand Ton	Project #:	Pak	Pace Profile #:	₽)	(Huff)						క		
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Section A	A.	Section B	
Requir	Client Information:	81	nformation: C Of
Company	Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com
Address		Copy To: Lauren Petty, Geosyntec	Name:
_	Atlanta, GA 30339	- 1	Address: Add
		Purchase Order #: SCS10348606	
Phone	06-7239 Fax	Project Name: Plant Hammond	ᆲ
Keques	Requested Due Date: Standard TRT	Project #:	Pace Profile #: 327 (AP) or 328 (Huff)
			Kervested Whalvelda (VN)
	MATRIX	COLLECTED	Preservatives 2
	SAMPLE ID	See valid code (C-GRAB C-C START	E(VI qqA 8 Oad VI qqu (Oad 8
# Mati	Ono Character per box. Wee (A-Z, 0-9 1, -) One Sample Ids must be unique Tissue	SAMPLE TYPE DATE OATE OATE	# OF CONTAINE! Unpreserved H2SO4 HUO3 HCI Metals (App. III, A Metals (App. III, A Metals (App. III, A Metals (App. III, A Metals (App. III, A Metals (App. III, A Metals (App. III, A Metals (App. III, A Metals (App. III, A
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j.			PM: BM Due Date: 04/10/19
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	Aromoguareoussems	he notice to the second of the second	The contract of the contract
AR	APPIS (3): Acsenic, Barium, Bendlium	um, Dalton Anderson (60) 4/2/19	17:45 Nales Weredon Chessander 444 th 1745
Cad	Cad nium, Chromina, Cobolli,	2	1930 Logs have Constituted 4/19 1930
<u> </u>		many distant Consider 4/17/14	DONSH POOR & HEALMOOD
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age 17	-	PRINT Name of SAMPLER.	Dallbar Anglestan
/ of 1		SIGNATURE of SAMPLER:	BATE Signed: 4/2/19 F R S S E S S S S S S S S S S S S S S S S
9			

Section A		Section B	Section C	
Required	lient Information:	Required Project Information:	Invoice Information:	Page: 12 of 12
Company	Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvaices@southernco.com	
Address:		Copy To: Lauren Petty, Geosyntec	Сотралу Мате:	
Atlanta, G	Aulanta, GA 30339			To the second se
Ē		Purchase Order #: SCS10348606		
- Loge		Project Name: Plant Hammond	ĕ	State Clocation
requeste	1A1	Project #:	Pace Profile #: 327 (AP) or 328 (Huff)	
			S. S. S. S. S. S. S. S. S. S. S. S. S. S	
		(Nel (
	MATRIX	CO02	Preservatives 2	
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# WƏLI	One Character per box. Wise (A-Z, 0-9 /, -) Chur Sample Ids must be unique Tissue	S G P E E E E E E E E E E E E E E E E E E	SAMPLE TEMP A # OF CONTAINER H2SO4 H003 H2SO3 Macaco Maca	nhofdO leublaeЯ
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e e				
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e			5 0	
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9			W0#:261692	6927
ë			PM: 8M	Due Date: 04/10/10
			NT: GRPouer	CCR
10				
	Address of Selection	S. REPROPERTY SPECIFIES	C. THE ACCEPTED BY AFFLOATION	Statute Confidence
#dd ₹	Appendix II. (3) : Arsenic, Barium	Media Mentre Knowsh 1/2/19	9 1930 Blaw Beauty	
Gerdi	Gerylium, Calmium, Chromium, Chalt,	J	10954 Z - 1200	
Flva vid	Fluente, Lead Lithium, Molubdenum Selenium			
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3 of 1		מפעא מענ מן מאני	John James 4/2/19	(A/N Cus Cus Cus Cus (A/N

	Sallip	te Condition	Opon Receipt		1
Pace Anal	tical Client Name:_	BIA	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	intact: yes	PM: BM CLIENT: GAPo	Due Date: 04/10/1
	☐ Bubble Wrap ☐ Bubble Ba			- 05-2111	
Thermometer Use	II 🔀 🗝	ype of Ice: Wet		C Samulas as issues	N
	_	· ·		Samples on ice, coo	s of/person examining,
Cooler Temperatu Temp should be abov		idiogical lissue	is Frozen: Yes No Comments:	contents: L	4/3/19 m2
Chain of Custody P	resent:	Tes □no □n/A	1.		
Chain of Custody F	lled Out:	Yes □No □N/A	2.		
Chain of Custody R	elinquished:	Yes □no □n/A	3.		
Sampler Name & S	gnature on COC:	Yes □no □n/A	4.		
Samples Arrived wi		Pes □No □N/A			
Short Hold Time A		Yes ☑No □N/A			,
Rush Turn Around]Yes DK6 □N/A			
Sufficient Volume:		Yes □No □N/A	 		
Correct Containers		Yes Ono On/A			
-Pace Container		Yes □No □N/A		i	
Containers Intact:		Tes No NA	10.		
Filtered volume rece		Yes ONO DINIA			
Sample Labels mate		Yes □No □N/A			
-Includes date/tir		W			
	reservation have been checked	Yes □No □N/A	13		
All containers needing	preservation are found to be in				
compliance with EPA		IYes □No □N/A			
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)]Yes	Initial when completed	Lot # of added preservative	
Samples checked for	or dechlorination:	Yes ONO DAVA	14.		
Headspace in VOA	Vials (>6mm):	Yes No AMA	15.		
Trip Blank Present:		Yes □No ÆÑÃ	16.		
Trip Blank Custody	Seals Present C	Yes □No □NTA			
Pace Trip Blank Lot	# (if purchased):				
Client Notification	Possitution			F.1.5 . 5	
Person Conta		Date/	Time:	Field Data Required	? Y / N
Comments/ Resol		Date	Time.		
Project Manage	Review:			Date:	
Note: Whenever there	is a discrepancy affecting North Caro	lina compliance sar	mples, a copy of this for	 m will be sent to the North	Carolina DEHNR
Certification Office (i.	out of hold, incorrect preservative, o	ut of temp, incorrec	t containers)		
				F-ALLC00	Brev.3, 11September 2006 9 of 19





April 25, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616928

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





Peachtree Corners, GA 30092 (770)734-4200

CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616928

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.: 2616928

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616928001	HGWA-4	Water	04/02/19 12:11	04/03/19 11:10	
2616928002	HGWA-5	Water	04/02/19 10:40	04/03/19 11:10	
2616928003	HGWA-6	Water	04/02/19 10:37	04/03/19 11:10	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616928

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616928001	HGWA-4	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616928002	HGWA-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616928003	HGWA-6	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.: 2616928

Sample: HGWA-4 PWS:	Lab ID: 26169280 Site ID:	O1 Collected: 04/02/19 12:11 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.180 ± 0.184 (0.322) C:91% T:NA	pCi/L	04/12/19 07:52	13982-63-3	
Radium-228		0.314 ± 0.440 (0.947) C:74% T:84%	pCi/L	04/16/19 16:22	2 15262-20-1	
Total Radium	Total Radium Calculation	0.494 ± 0.624 (1.27)	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616928

Sample: HGWA-5 PWS:	Lab ID: 26169280 Site ID:	O2 Collected: 04/02/19 10:40 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.411 ± 0.254 (0.294) C:93% T:NA	pCi/L	04/12/19 07:55	13982-63-3	
Radium-228		0.657 ± 0.423 (0.802) C:74% T:87%	pCi/L	04/16/19 16:22	2 15262-20-1	
Total Radium	Total Radium Calculation	1.07 ± 0.677 (1.10)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616928

Sample: HGWA-6 PWS:	Lab ID: 26169280 Site ID:	Collected: 04/02/19 10:37 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.204 ± 0.226 (0.440) C:92% T:NA	pCi/L	04/12/19 07:55	13982-63-3	
Radium-228		0.417 ± 0.365 (0.737) C:80% T:84%	pCi/L	04/16/19 16:22	2 15262-20-1	
Total Radium	Total Radium Calculation	0.621 ± 0.591 (1.18)	pCi/L	04/17/19 13:15	7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616928

QC Batch: 337392 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616928001, 2616928002, 2616928003

METHOD BLANK: 1642069 Matrix: Water

Associated Lab Samples: 2616928001, 2616928002, 2616928003

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.



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616928

QC Batch: 337342 Analysis Method: EPA 9320

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

Associated Lab Samples: 2616928001, 2616928002, 2616928003

METHOD BLANK: 1641953 Matrix: Water

Associated Lab Samples: 2616928001, 2616928002, 2616928003

Parameter Act \pm 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.: 2616928

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.: 2616928

Date: 04/25/2019 03:53 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616928001	HGWA-4	EPA 9315	337392		
2616928002	HGWA-5	EPA 9315	337392		
2616928003	HGWA-6	EPA 9315	337392		
2616928001	HGWA-4	EPA 9320	337342		
2616928002	HGWA-5	EPA 9320	337342		
2616928003	HGWA-6	EPA 9320	337342		
2616928001	HGWA-4	Total Radium Calculation	338683		
2616928002	HGWA-5	Total Radium Calculation	338683		
2616928003	HGWA-6	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) DBIN seldms2 Cooler (Y/N) ŏ portog Rogulatory/Aktello (N/A) Received on JO#: 2616928 (N/X) entrotino (N/X) Ö Page: TEMP in C 1970 ω \sim はに DATE Signed: 04/02/19 100 61/2/4 41419 2616928 9ZZ/9ZZ wnipe D2' Cf' E' 204 betsy.mcdaniel@pacelabs.com, otals (App. III & D&O) homete O&G ,VI .qqA ,III .qqA) ste Paris etals (App. III & App. IV) Mallia Muhan 刨以 - 386T seavienA scsinvoices@southernco.com 327 (AP) or 328 (Huff) 1841C " Under lonsriisi Water Blaw Preservatives 1828203 HOB Pace Project Manager: Pace Profile #: 327 (IOF Invoice information: EONH ~ Company Name Grant 5560 POSZ Pace Quote 13 th Section C 2001 Address: pevieserdul OF CONTAINERS S SANDLER MANE AND SIGNATUR PRINT Name of SAMPLER: Φ SIGNATURE of SAMPLER: CONTE Grant Walter/Geografic 10 4/02/19 MPLE TEMP AT COLLECTION 4/5/19 Welle Martin Kronne 9/219 17 G 19402 [1:52 | 0402 | 12:11 8 COLLECTED KThe Wearente Lauren Petty, Geosynter Purchase Order #: SCS10348606 START Plant Hammond Required Project Information: Report To: Joju Abraham (GEGRAB CECOMP) MPLE TYPE MATRIX CODE (see valid codes to left) Project Name: Section B Copy To: MATRIX
Drinking Water
Water
Water
Water
Water
Product
SoulSold
Od
Wipe
Air
Cither
Tissue Beryllius Calentum, Chitorlium Liknim Ap II (3): Arsevic, Barium Georgia Power - Coal Combustion Residuals Fluoride, Lead, Molybderum Selevium, One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique SAMPLE ID Phone: (404)506-7239 Fe Atlanta, GA 30339 Email: jabrahām@southemco.com 2480 Maner Road Required Client Information: HGWA-4 Company: Page 12 of 15 #W3J

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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Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/V) Due Date: 05/01/19 Samples (N/A) ŏ When the Standard Control Cooler beleed Custod MO#:2616928 (N/A) g Received on Residual Chlorine (Y/N) CLIENT: GAPouer-CCR TEMP in C 4580 627 DATE Signed: 4/2 /19 F. ~. T 0 PR: BM 116 Radium 226/228 TDS, CI, F, SO4 Pace Project Manager: betsy modaniel@pacelabs.com. Pace Profile #: 327 (AP) or 328 (Huff) Metals (App. III & D&O) Pore Mets (App. III, App. IV, D&O alman. Metals (App. III & App. IV) (bekruber INK 339T, 363VIERA Attention: scsinvoices@southernco.com Company Name: Methanol PRINT Name of SAMPLER: NOCHIC MUSKUS Preservatives Na2S2O3 SIGNATURE OF SAMPLER, ADULLO ALLIM PLY Lano HOSN 7 Section C Invoice Information: ЮН 3 EONH Pace Quote: POSZH 475/14 OJ 5/1 Modia Marker Principal Mitter 1950 Address: Unpreserved S # OF CONTAINERS SAUPLE FAMALE AND SIGNATURE SAMPLE TEMP AT COLLECTION PATE (\$01 SNO 1012/2/19 DATE COLLECTED TIME 17.7.Xey Lauren Petty, Geosyntec SCS10348606 START Purchase Order #: SCS103486
Project Name: Plant Hammond G-4/219 Required Project Information: DATE Report To: Joju Abraham (GMCC+C BARD+D) **34YT 3J9MA8** 3 MATRIX CODE (see valid codes to left) Copy To: Section B MATRUX
Denking Water
Water
Waste Water
Product
SoluSolid
SoluSolid
Wipe
Au
Other
Tissue Flusher, lead Lithium, Malybelenum Selenium Assendix II (3): Arsenic, Barrom Gerylium, Cadmium, Chromium, Cobalt Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax Requested Due Date: Standard TAT (A-Z, 0-9 /, -) Sample lds must be unique One Character per box. SAMPLE ID 上のシャル jabraham@southemco.com 2480 Maner Road Required Client Information: Mianta, GA 30339 10 # Mati Page 14 of 15

		216	OON	AILIOI	opon Receipt	li .		
Face Anal	vtical Client Name:		<u>G1</u>	A	Power	F	Project #	
Tracking #:	x 🗌 UPS 🗌 USPS 🗎 Client	ф	Comm	ercial	Pace Other	i	0#:26	16928 Due Date: 05/01/1
Custody Seal on C	ooler/Box Present: yes	q	no	Seals	intact: yes	H	IENT: GAPour	
	☐ Bubble Wrap ☐ Bubble E		-					
Thermometer Use					[®] Blue None		Samples on ice, coo	ling process has begun
Cooler Temperatur		Bidlo	gical	Tissue	is Frozen: Yes No		contents: 4	of person examining,
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Sufficient Volume:		.⊒¶es	□№	□n/a	8.			
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All containers needing	preservation are found to be in	سل			13.		i.	
compliance with EPA r	ecommendation.	ÆTYes	□No	□n/a			·	
exceptions: VOA, coliforn	n, TOC, O&G, WI-DRO (water)	□Y∌s	_ □ 46		Initial when completed		Lot # of added preservative	
Samples checked for	r dechlorination:	□Yes	□No	DNA	14.			
Headspace in VOA	Vials (>6mm):	□Yes	□No	□ M/A	15.			
Trip Blank Present:		□Yes	□No	-EN/A	16.			
Trip Blank Custody	Seals Present	□Yes	□No	□ N/A				
Pace Trip Blank Lot	# (if purchased):							
Client Notification/	Resolution	-						
Person Conta	il ^t			Date/	Timo:		Field Data Required	Y / N
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Project Manager	Review:						Date:	
Note: Whenever there Certification Office (i.e.	is a discrepancy affecting North Car	olina c	compliar	nce san	ples, a copy of this form	n will	be sent to the North	Carolina DEHNR

F-ALLC003rev.3, 11September2006





April 13, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617072

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





CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617072

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.: 2617072

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2617072001	HGWC-15	Water	04/04/19 10:44	04/05/19 11:20	
2617072002	HGWC-16	Water	04/04/19 12:52	04/05/19 11:20	
2617072003	MW-21D	Water	04/04/19 15:38	04/05/19 11:20	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617072

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617072001	HGWC-15	EPA 6020B	JMW1, SER	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617072002	HGWC-16	EPA 6020B	JMW1, SER	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	MWB, RLC	3	PASI-GA
2617072003	MW-21D	EPA 6020B	JMW1, SER	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	MWB, RLC	3	PASI-GA



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617072

Date: 04/13/2019 07:37 AM

Sample: HGWC-15	Lab ID:	2617072001	Collecte	ed: 04/04/19	10:44	Received: 04/	05/19 11:20 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3010A			
Arsenic	0.00017J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 01:03	7440-38-2	
Barium	0.018	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 01:03	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 01:03	7440-41-7	
Boron	2.3	mg/L	2.0	0.051	20	04/09/19 10:55	04/11/19 19:01	7440-42-8	M6
Cadmium	0.0018	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 01:03	7440-43-9	
Calcium	214	mg/L	25.0	1.0	50	04/09/19 10:55	04/11/19 01:44	7440-70-2	M6
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 01:03	7440-47-3	
Cobalt	0.035	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 01:03	7440-48-4	
Lead	0.000072J	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 01:03	7439-92-1	
Lithium	0.00090J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 01:03	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 01:03	7439-98-7	
Selenium	0.00021J	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 01:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 01:03	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	926	mg/L	25.0	10.0	1		04/11/19 19:35		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	138	mg/L	5.0	0.48	20		04/10/19 08:46	16887-00-6	
Fluoride	0.066J	mg/L	0.30	0.029	1		04/09/19 22:04	16984-48-8	
Sulfate	528	mg/L	20.0	0.34	20		04/10/19 08:46	14808-79-8	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617072

Date: 04/13/2019 07:37 AM

Sample: HGWC-16	Lab ID:	2617072002	Collecte	ed: 04/04/1	9 12:52	Received: 04/	05/19 11:20 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Me	hod: Ef	PA 3010A		_	
Arsenic	0.00010J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 01:21	7440-38-2	
Barium	0.11	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 01:21	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 01:21	7440-41-7	
Boron	2.1	mg/L	2.0	0.051	20	04/09/19 10:55	04/11/19 19:49	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 01:21	7440-43-9	
Calcium	196	mg/L	10.0	0.41	20	04/09/19 10:55	04/11/19 19:49	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 01:21	7440-47-3	
Cobalt	0.00028J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 01:21	7440-48-4	
Lead	0.00016J	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 01:21	7439-92-1	
Lithium	0.0032J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 01:21	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 01:21	7439-98-7	
Selenium	0.000089J	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 01:21	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 01:21	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	704	mg/L	25.0	10.0	1		04/11/19 19:35		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	76.8	mg/L	1.2	0.12	5		04/10/19 09:09	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 22:27	16984-48-8	
Sulfate	251	mg/L	10.0	0.17	10		04/12/19 18:43	14808-79-8	



ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617072

Date: 04/13/2019 07:37 AM

Sample: MW-21D	Lab ID:	2617072003	Collecte	ed: 04/04/19	15:38	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 6	6020B Pre	paration Met	hod: EF	PA 3010A			
Arsenic	0.00019J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 01:25	7440-38-2	
Barium	0.075	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 01:25	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 01:25	7440-41-7	
Boron	5.2	mg/L	5.0	0.13	50	04/09/19 10:55	04/11/19 19:52	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 01:25	7440-43-9	
Calcium	427	mg/L	25.0	1.0	50	04/09/19 10:55	04/11/19 19:52	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 01:25	7440-47-3	
Cobalt	0.00034J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 01:25	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 01:25	7439-92-1	
Lithium	0.019J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 01:25	7439-93-2	
Molybdenum	0.033	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 01:25	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 01:25	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 01:25	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	1800	mg/L	25.0	10.0	1		04/11/19 19:35		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	299	mg/L	25.0	2.4	100		04/12/19 19:06	16887-00-6	В
Fluoride	0.10J	mg/L	0.30	0.029	1		04/09/19 22:50	16984-48-8	
Sulfate	915	mg/L	100	1.7	100		04/12/19 19:06	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2617072

Date: 04/13/2019 07:37 AM

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

Associated Lab Samples: 2617072001, 2617072002, 2617072003

METHOD BLANK: 2543175 Matrix: Water

Associated Lab Samples: 2617072001, 2617072002, 2617072003

		Blank	Reporting			0 111
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 00:58	
Barium	mg/L	ND	0.010	0.000060	04/11/19 00:58	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 00:56	
Boron	mg/L	ND	0.10	0.0026	04/11/19 00:58	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 00:58	
Calcium	mg/L	ND	0.50	0.021	04/11/19 00:58	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 00:58	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 00:58	
Lead	mg/L	ND	0.0050	0.000050	04/11/19 00:58	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 00:58	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 00:58	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 00:58	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 00:58	

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

MATRIX SPIKE & MATRIX SPIK	E DUPLIC	CATE: 25431	77		2543178							
			MS	MSD								
		2617072001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
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	
Beryllium	mg/L	ND	0.01	0.01	0.0088	0.0084	87	84	75-125	4	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.: 2617072

Date: 04/13/2019 07:37 AM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	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	RPD	Qual
Boron	mg/L	2.3	0.05	0.05	2.4	2.4	205	248	75-125	1	20	M6
Cadmium	mg/L	0.0018	0.01	0.01	0.012	0.011	97	96	75-125	1	20	
Calcium	mg/L	214	0.62	0.62	218	216	575	271	75-125	1	20	M6
Chromium	mg/L	ND	0.05	0.05	0.050	0.049	99	98	75-125	1	20	
Cobalt	mg/L	0.035	0.01	0.01	0.044	0.044	97	94	75-125	1	20	
Lead	mg/L	0.000072J	0.05	0.05	0.052	0.051	103	102	75-125	1	20	
Lithium	mg/L	0.00090J	0.05	0.05	0.046J	0.045J	90	88	75-125	2	20	
Molybdenum	mg/L	ND	0.05	0.05	0.052	0.052	104	103	75-125	1	20	
Selenium	mg/L	0.00021J	0.05	0.05	0.050	0.049	99	97	75-125	2	20	
Thallium	mg/L	ND	0.01	0.01	0.010	0.010	104	102	75-125	1	20	

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.:

2617072

QC Batch:

26251

Analysis Method:

SM 2540C

QC Batch Method: SM 2540C Analysis Description:

2540C Total Dissolved Solids

Associated Lab Samples:

2617072001, 2617072002, 2617072003

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

LCS

LCS

% Rec

% Rec

Qualifiers

Total Dissolved Solids

Units mg/L Conc. Result 400

Spike

404

101

Limits 84-108

SAMPLE DUPLICATE: 118508

Units

mg/L

Units

mg/L

118507

2617035009 Result

85.0

340

Dup Result

RPD

52

0

Max RPD

Qualifiers

10 D6

SAMPLE DUPLICATE:

Total Dissolved Solids

Date: 04/13/2019 07:37 AM

Total Dissolved Solids

118509

Parameter

2617069003 Result

Dup Result

50.0

341

RPD

Max RPD

Qualifiers

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.: 2617072

Date: 04/13/2019 07:37 AM

QC Batch: 26061 Analysis Method: EPA 300.0

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

Associated Lab Samples: 2617072001, 2617072002, 2617072003

METHOD BLANK: 117670 Matrix: Water

Associated Lab Samples: 2617072001, 2617072002, 2617072003

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

LABORATORY CONTROL SAMPLE:	117671					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	9.4	94	90-110	
Sulfate	mg/L	10	10.8	108	90-110	

MATRIX SPIKE & MATRIX SPIK	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117672											
			MS	MSD								
		2617069001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	6.9	10	10	16.0	16.1	91	92	90-110	1	15	
Fluoride	mg/L	0.042J	10	10	9.0	9.1	89	91	90-110	2	15	M1
Sulfate	mg/L	358	10	10	224	224	-1340	-1330	90-110	0	15	M1

MATRIX SPIKE SAMPLE:	117674						
Parameter	Units	2617069002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	7.2	10	16.3	91	90-110	
Fluoride	mg/L	0.045J	10	9.3	92	90-110	
Sulfate	mg/L	369	10	226	-1430	90-110 N	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.: 2617072

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: 04/13/2019 07:37 AM

B Analyte was detected in the associated method blank.

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

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

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.: 2617072

Date: 04/13/2019 07:37 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617072001	HGWC-15	EPA 3010A	468126	EPA 6020B	468248
2617072002	HGWC-16	EPA 3010A	468126	EPA 6020B	468248
2617072003	MW-21D	EPA 3010A	468126	EPA 6020B	468248
2617072001	HGWC-15	SM 2540C	26251		
2617072002	HGWC-16	SM 2540C	26251		
2617072003	MW-21D	SM 2540C	26251		
2617072001	HGWC-15	EPA 300.0	26061		
2617072002	HGWC-16	EPA 300.0	26061		
2617072003	MW-21D	EPA 300.0	26061		

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

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

Required Cilent Information:	Required Project Information:	Involce information:	- C - C - C - C - C - C - C - C - C - C
Company: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com	
		Company Name:	
Atlanta, GA 30339	[[Address:	Kogulalchy Aljaficy
1.3	Purchase Order #:SC310348606	Pace Quote:	
Phone: (404)506-7239 Fax	Project Name: Plant Hammond	Pace Project Manager: betsy modaniel@pacelabs.com,	State (Nocellar)
Due Date:	Project #:	Pace Profile #: 327 (AP) or 328 (Huff)	GA
		Service Raquested Analysis Filtered (YRI)	(NIXIDE
	(AMC		
MATRIX Defining 1	\$0000 20 20 20	Servaives	
SAMPLE ID	≹_%:	\$ (O8G 'V) .qq	(AW)
One Character per box. Whe (A-Z, 0-9 f, -) At At Sample ids must be unique Tissue	유 중 중 은 점 S) BGOD XIRTAM B) B9VF B19MAR	SAMPLE TEMP AT BOTH CONTAINER HANGS	nitoldO leublaeF
HGWC-16	17:39 WINIA 12:57	1 - N - C 2	1
MW-21D	414/9/5-34	∧ ∧ → ∧ 8 2 3 3 3	
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		#0M	2617072
		PH: 88	Due Date: 04/12/19
		CLIENT: G	GRPower-CCR
sultani (oannounge	The inclusion by Africanicki	THE CONTROL CO	
APP III 4-III (3): Arsealc, Barlum	m. Dalton Anderson (See H 14/19	9 1804 JAN 14-19	1804
Beryillym, Cadminm, Chroming,	1/1/12	4-4-192000 (175 vou / George de 14/19	8.00
15 Fluoride, Lead, Lithium,	15 low/6 cosyne		20033
odenum, Sclenium, Thailinm		Mag man dist	~
-	SAMBUERAGAE GAN	RE	9
	SIGNATURE OF SAMPLER.	Taiton Ander Len DATE Signed !!	ECOIVED
	Mare	/ 42/	TI — Res(Y 12) 50 C(Y 13) th

· Control of the cont	Sample	Condition	Upon Receipt		
Pace Analy	tical Client Name:	GCA,	Powere	Project #	
Courier: Fed E	x 🗌 UPS 🗎 USPS 🗎 Client [☐ Commercial →	Pace Other	WO#:26	
	ooler/Box Present:yes	no Seals	intact:	PM: BM CLIENT: GAPou	Due Date: 04/12/19
	Bubble Wrap Bubble Bags	_		CLIENI: GHPON	Br-cck
Thermometer Used	II .~	e of Ice: Wei		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:	1/5/14 m
Chain of Custody P	resent: 🔎	es Ono On/A	1.		
Chain of Custody Fi	ااed Out: العالم	es □No □N/A	2.		
Chain of Custody R	elinquished:	es □No □N/A	3.		
Sampler Name & Si	gnature on COC:	es □No □N/A	4.		
Samples Arrived with	thin Hold Time:	es □No □N/A	5.		
Short Hold Time A	nalysis (<72hr):	es ⊡No □N/A	6.		
Rush Turn Around	Time Requested:	es 🕬 🗆 N/A	7.		
Sufficient Volume:	5	es □No □N/A	8.		
Correct Containers	Used: -□√	es 🗆 No 🗆 N/A	9.		
-Pace Container	s Used: •□	es 🗆 No 🗆 N/A			
Containers Intact:	-25	es 🗆 No 🗆 N/A	10.		
Filtered volume reco	eived for Dissolved tests	es 🗆 No 🗷 MIA	11.		
Sample Labels mate	ch COC:	es □no □n/a	12.		
-Includes date/tir	ne/ID/Analysis Matrix:	\mathcal{W}			
All containers needing	reservation 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)	es - ENO	Initial when completed	Lot # of added preservative	
Samples checked for	or dechlorination:	es □No J⊒N7A*	14.		
Headspace in VOA	Vials (>6mm): □	es 🗆 No 🗷 N/A	15.		
Trip Blank Present:		es □No □N /A	16.		
Trip Blank Custody	Seals Present	es 🗆 No 🖼 🗖 🧸			
Pace Trip Blank Lot	# (if purchased):				
Client Notification	Resolution:			Field Data Require	1? Y / N
Person Cont		Date/	Time:	Tiold Bala Hogana	, , ,,
Comments/ Reso					
-					
Project Manage	r Review:			Date:	
Note: Whenever there Certification Office (i.	e is a discrepancy affecting North Carolir out of hold, incorrect preservative, out	a compliance san of temp, incorrect	nples, a copy of this for containers)	m will be sent to the Nort	h Carolina DEHNR

F-ALLC003rev.3, 11September 2006 of 16





April 29, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617073

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.: 2617073

Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694

Delaware Certification EPA Region 4 DW Rad

Florida/TNI Certification #: E87683 Georgia Certification #: C040 Florida: Cert E871149 SEKS WET

Guam Certification Hawaii Certification Idaho Certification Illinois Certification Indiana Certification Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235 Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617 New Jersey/TNI Certification #: PA051 New Mexico Certification #: PA01457

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

Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3 Utah/TNI Certification #: PA014572017-9 USDA Soil Permit #: P330-17-00091 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 9526 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad Wyoming Certification #: 8TMS-L



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617073

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2617073001	HGWC-15	Water	04/04/19 10:44	04/05/19 11:20	
2617073002	HGWC-16	Water	04/04/19 12:52	04/05/19 11:20	
2617073003	MW-21D	Water	04/04/19 15:38	04/05/19 11:20	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617073

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617073001	HGWC-15	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617073002	HGWC-16	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617073003	MW-21D	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.: 2617073

Sample: HGWC-15 PWS:	Lab ID: 26170730 Site ID:	O01 Collected: 04/04/19 10:44 Sample Type:	Received:	04/05/19 11:20	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.122 ± 0.231 (0.531) C:92% T:NA	pCi/L	04/17/19 08:36	13982-63-3	
Radium-228		0.390 ± 0.335 (0.679) C:83% T:87%	pCi/L	04/18/19 12:30) 15262-20-1	
Total Radium	Total Radium Calculation	0.512 ± 0.566 (1.21)	pCi/L	04/22/19 11:17	7440-14-4	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617073

Sample: HGWC-16 PWS:	Lab ID: 26170730 Site ID:	O2 Collected: 04/04/19 12:52 Sample Type:	Received:	04/05/19 11:20	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.217 ± 0.246 (0.484) C:77% T:NA	pCi/L	04/17/19 08:36	13982-63-3	
Radium-228		0.743 ± 0.401 (0.730) C:86% T:79%	pCi/L	04/18/19 12:30	15262-20-1	
Total Radium	Total Radium Calculation	0.960 ± 0.647 (1.21)	pCi/L	04/22/19 11:17	7 7440-14-4	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617073

Sample: MW-21D PWS:	Lab ID: 2617073 Site ID:	O03 Collected: 04/04/19 15:38 Sample Type:	Received:	04/05/19 11:20	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.276 ± 0.222 (0.361) C:95% T:NA	pCi/L	04/17/19 08:36	13982-63-3	
Radium-228	EPA 9320	0.515 ± 0.378 (0.745) C:85% T:80%	pCi/L	04/18/19 12:30	0 15262-20-1	
Total Radium	Total Radium Calculation	0.791 ± 0.600 (1.11)	pCi/L	04/22/19 11:17	7 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617073

QC Batch: 337917 Analysis Method: EPA 9315

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

Associated Lab Samples: 2617073001, 2617073002, 2617073003

METHOD BLANK: 1644525 Matrix: Water

Associated Lab Samples: 2617073001, 2617073002, 2617073003

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

Radium-226 0.221 \pm 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.



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617073

QC Batch: 337911 Analysis Method: EPA 9320

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

Associated Lab Samples: 2617073001, 2617073002, 2617073003

METHOD BLANK: 1644521 Matrix: Water

Associated Lab Samples: 2617073001, 2617073002, 2617073003

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.



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2617073

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 03:33 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617073

Date: 04/29/2019 03:33 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617073001	HGWC-15	EPA 9315	337917		
2617073002	HGWC-16	EPA 9315	337917		
2617073003	MW-21D	EPA 9315	337917		
2617073001	HGWC-15	EPA 9320	337911		
2617073002	HGWC-16	EPA 9320	337911		
2617073003	MW-21D	EPA 9320	337911		
2617073001	HGWC-15	Total Radium Calculation	339290		
2617073002	HGWC-16	Total Radium Calculation	339290		
2617073003	MW-21D	Total Radium Calculation	339290		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

COLUMN MROGUIATORY Agency (N/A) saidwes (N/A) Cooler ŏ Polices Custody (N/A) Received on g MO# 2617073 Residual Chlorine (Y/N) Page: TEMP in C 30 30 2933 4-4-19 1804 DATE Signed: OU/OU/14 BATE 61/4/1 ACCEPTED BY (AFFILATION 8SZ/9ZZ muiba9 D2' CI' E' 204 7227 (O&C & III & Q&A) aleteN betsy modaniel@pacelabs.com Mets (App. III, App. IV, D&O Jan Jak Pore Metals (App. III & App. IV) N/X Analyses Test Attention: scsinvoices@southernco.com Company Name: Pace Profile #: 327 (AP) or 328 (Huff) Olher SIGNATURE OF SAMPLER: & CONT. COLLEGE Nethanol Preservatives Na2S2O3 PRINT Name of SAMPLER: Grant Walter HOBN ace Project Manager ЮН nvoice Information: еомн 3 ace Quote: 4-4-8 2030 15204 0933 DOLONIA 1004 Section C SAMPLERWANEANDSIGNATURE Address: Jupreserved 3 S # OF CONTAINERS **DITE** 115/19 22 SAMPLE TEMP AT COLLECTION | JP:44 DATE WT 6 OM AN 10:23 OHEN PER RETWOMSHED BY JAFFILATION APP I (3): Acente, Brium, Boylling Grad Walto / Georgabee COLLECTED Garreta Copy To: Lauren Petty, Geosyntec Purchase Order #: SCS10348606 Project Name: Plant Hammond Project #: START Required Project Information: Report To: Joju Abraham DATE (G-GRAB C-COMP) BAYT BJAMAS Molen MATRIX CODE (see valid codes to left) Section B Cadmium, Chromium, Cobalt, Fluorida MATRIX
Directory Wester
Waster
Waster
Waster
Waster
Waster
Waster
Waster
Col
Wipe
Au
Gher
Tissue Abbritolial countering Lead, Lithium, Molybolerum, Phone: (404)\$05-7239 |Fax: Requested Due Date: Stork Band TRY (A-Z, 0-9 / , -) Sample Ids must be unique SAMPLE ID One Character per box. Schiller, Thelling Required Client Information: Company: Georgia Power - Coal med postantant@southernco.com 2480 Maner Road あり、ス Allanta, GA 30339 Address: ē 6.7 . 6 Ö LEW # Page 12 of 14

- 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) PLE CONTINONS peln Samples (N/A) ŏ Cooler Due Date: 05/03/19 - Regulatory Aparcy Series Constitution perceg Custody 6 (N/A) 8 Received on Residual Chlorina (Y/V) MO#:2617073 Divi GMET 120 20 25 0833 CLIENT: GRPower-CCR 4-4-19 1804 Ander Lan Date Signed ! 4 / 2019 DATE 11/4/11 8\$\$\825 mulbeA PM: BM LDS' CI' L' 204 Metals (App. III & D&O) betsy modaniel@pacelabs.com ACCEPTED BY LAFFILIATION Mets (App. III, App. IV, D&O man ノーセスァルブン Pert & Metals (App. III & App. IV) N٨ Analyses Test Attention: scsinvoices@southernco.com 327 (AP) or 328 (Huff tenanteM Preservatives Na2S2O3 Bioni HOSN Pace Quote: Pace Project Manager: HCI Section C Invoice Information: Palter EONH n 8 Company Name ace Profile #: 0433 1520¢ 4-4-9 400x 1804 Address: Unpreserved H SAMPLER NAME AND SIGNATURE 5 2 SHENIATION TO 6 1 मामिटः १ पामित १८:34 मामि 644M9 12:344MP 12:52AB PRINT Name of SAMPLER: POLICE SAMPLE TEMP AT COLLECTION Anothers on (Ges 74/4/19 SIGNATURE OF GAMPLER: 61/2/1 SS DATE COLLECTED REINOVISHED BY (AFFILIATION からなって TIME Lauren Petty, Geosyntec Purchase Order # SCS10348606 START Plant Hammond Required Project Information: DATE Report To: Joju Abraham (G-GRAB C-COMP) **34YT 3J9MA2** APP TI 4-TV (3). Arsenic, Barlum, Dalton MATRIX CODE (see valid codes to left) 3 4 Project Name: Project #: Copy To: Section B 8 ₹₹60 ~ 49 \$ \$ ₽ £ Beryillsom, Cadmism, Chromison MATRUX
Derixing Water
Water
Water
Waste Water
Product
SourSoad
Oil
Wipe
Wipe
Au
Cha besits Elwaride, lead, lithium, Selenium, Thailliam Georgia Power - Coal Combustion Residuals ADDITIONAL COLLIDARS One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique ピーンタの土 MW-2ID SAMPLE ID Email: jabraham@southernco.com 2480 Maner Road (404)506-7239 Required Cilent Information: Morlisbarram Requested Due Date Allanta, GA 30339 Ó 9 9 8 . V # MaTi Page 13 of 14

	- Carr	1315	OUTIC	AILIO!	opon Keceipi			
Face Anal	<i>ytical</i> Client Name:	1	5(7	4_	Powere		Project #	
Courier: Fed I	Ex UPS USPS Client		Comm	ercial .	Pace Other		JO#:26	
	ooler/Box Present: yes		no	Seals	intact: ves	11 *	M: BM	Due Date: 05/03
	☐ Bubble Wrap ☐ Bubble 8						LIENT: GAPO	er-CCR
Thermometer Use	l: 23 -				Blue None	\vdash	Samples on ice co	oling process has begun
Cooler Temperatu	II.			_	is Frozen: Yes No		Date and Initia	s, of person examining
Temp should be abov					Comments:		contents:	7/5/19 m
Chain of Custody P	resent:	_⊒nes	□No	□n/a	1.	İ		
Chain of Custody F	illed Out:	_ ZYes	□No	□n/a	2.			
Chain of Custody R	elinquished:	ÆYes	□No	□n/a	3.	-		
Sampler Name & S	gnature on COC:	ÆYes	□No	□n/a	4.			
Samples Arrived wit	thin Hold Time:	EYes	□No	□n/a	5.			
Short Hold Time A	nalysis (<72hr):	□Yes	<u>⊟</u> 400	[™] □N/A	6.			
Rush Turn Around	Time Requested:	□Yes	[] 46	□n/a	7.			
Sufficient Volume:		€IYes	□No	□n/a	8.			
Correct Containers	Used:	TYES	□No	□n/a	9.		:	
-Pace Container	s Used:	TYES	□No	□n/a				
Containers Intact:		EJY es	□No	□n/a	10.			
Filtered volume rece	lved for Dissolved tests	□Y∌s	□No	-DN/A	11.			
Sample Labels mate	n COC:	□¥°ES	□No	□n/a	12.			
-Includes date/tir	ne/ID/Analysis Matrix:		ω	_			:	
All containers needing p	reservation have been checked.	₽y is	□No	□n/a	13.			
All containers needing compliance with EPA r	preservation are found to be in ecommendation.	-DY s	□No	□n/a				
exceptions: VOA, coliforn	m. TOC, O&G, WI-DRO (water)	□Yes⊶	- □NO		Initial when completed		Lot # of added preservative	
Samples checked for	r dechlorination:	□Yes	□No ·	.DNA	14.	ĺ	:	
Headspace in VOA	Vials (>6mm):	□Yes	□No .	-EN/A	15.			
Trip Blank Present:		□Yes	□№	₽ N7R	16.			
Trip Blank Custody	Seals Present	□Yes	□No	□ N/A				
Pace Trip Blank Lot	# (if purchased):							
Client Notification/	Resolution:	\dashv					Field Data Required	2 V / M
Person Conta				Date/1	Time [.]	li	Field Data Required	? Y / N
Comments/ Resol	·					h -		
						ĺ		-
							· · · · · · · · · · · · · · · · · · ·	
Project Manager	Review:						Date:	
Note: Whenever there Certification Office (i.e	is a discrepancy affecting North Care out of hold, incorrect preservative, o	rolina co	ompliar emp. in	nce sam	nples, a copy of this for	m wi	I be sent to the North	Carolina DEHNR
	D				· · · · · · · · · · · · · · · · · · ·	11		

F-ALLC008rev.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.: 2617150

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.: 2617150

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.: 2617150

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617150001	MW-22	Water	04/05/19 09:59	04/08/19 15:30
2617150002	MW-23D	Water	04/05/19 11:33	04/08/19 15:30
2617150003	HGWC-14	Water	04/05/19 12:52	04/08/19 15:30
2617150004	HGWC-17	Water	04/05/19 12:25	04/08/19 15:30
2617150005	HGWC-18	Water	04/05/19 14:25	04/08/19 15:30



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617150

Sample ID	Method	Analysts	Analytes Reported	Laboratory
MW-22	EPA 6020B	JMW1, SER	13	PASI-A
	SM 2540C	RLC	1	PASI-GA
	EPA 300.0	RLC	3	PASI-GA
MW-23D	EPA 6020B	JMW1, SER	13	PASI-A
	SM 2540C	RLC	1	PASI-GA
	EPA 300.0	RLC	3	PASI-GA
HGWC-14	EPA 6020B	JMW1, SER	13	PASI-A
	SM 2540C	RLC	1	PASI-GA
	EPA 300.0	RLC	3	PASI-GA
HGWC-17	EPA 6020B	JMW1, SER	13	PASI-A
	SM 2540C	RLC	1	PASI-GA
	EPA 300.0	RLC	3	PASI-GA
HGWC-18	EPA 6020B	JMW1	13	PASI-A
	SM 2540C	RLC	1	PASI-GA
	EPA 300.0	RLC	3	PASI-GA
	MW-22 MW-23D HGWC-14 HGWC-17	MW-22 EPA 6020B SM 2540C EPA 300.0 MW-23D EPA 6020B SM 2540C EPA 300.0 HGWC-14 EPA 6020B SM 2540C EPA 300.0 HGWC-17 EPA 6020B SM 2540C EPA 300.0 HGWC-18 EPA 6020B SM 2540C EPA 300.0 EPA 6020B SM 2540C EPA 300.0 EPA 6020B SM 2540C	MW-22	Sample ID Method Analysts Reported MW-22 EPA 6020B JMW1, SER 13 SM 2540C RLC 1 EPA 300.0 RLC 3 MW-23D EPA 6020B JMW1, SER 13 SM 2540C RLC 1 EPA 300.0 RLC 3 HGWC-14 EPA 6020B JMW1, SER 13 SM 2540C RLC 1 EPA 300.0 RLC 3 HGWC-17 EPA 6020B JMW1, SER 13 SM 2540C RLC 1 EPA 300.0 RLC 3 HGWC-18 EPA 6020B JMW1, SER 13 SM 2540C RLC 1 EPA 6020B JMW1 13 SM 2540C RLC 3



Date: 05/01/2019 03:28 PM

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2617150

Sample: MW-22	Lab ID:	2617150001	Collecte	ed: 04/05/19	9 09:59	Received: 04/	08/19 15:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical I	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3010A			
Arsenic	ND	mg/L	0.10	0.0012	20	04/10/19 19:59	04/11/19 21:28	7440-38-2	D3
Barium	0.036	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 07:51	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 07:51	7440-41-7	
Boron	2.1	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 21:28	7440-42-8	
Cadmium	0.00064J	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 07:51	7440-43-9	
Calcium	178	mg/L	10.0	0.41	20	04/10/19 19:59	04/11/19 21:28	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 07:51	7440-47-3	
Cobalt	0.022	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 07:51	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 07:51	7439-92-1	BC
Lithium	0.0013J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 07:51	7439-93-2	
Molybdenum	0.00013J	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 07:51	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 07:51	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 07:51	7440-28-0	
2540C Total Dissolved Solids	Analytical I	Method: SM 2	540C						
Total Dissolved Solids	890	mg/L	25.0	10.0	1		04/11/19 20:53		
300.0 IC Anions 28 Days	Analytical I	Method: EPA 3	300.0						
Chloride	131	mg/L	6.2	0.60	25		04/15/19 19:25	16887-00-6	
Fluoride	0.13J	mg/L	0.30	0.029	1		04/10/19 22:49	16984-48-8	
Sulfate	392	mg/L	25.0	0.42	25		04/15/19 19:25	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2617150

Date: 05/01/2019 03:28 PM

Sample: MW-23D	Lab ID:	2617150002	Collecte	ed: 04/05/19	11:33	Received: 04/	08/19 15:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3010A			
Arsenic	ND	mg/L	0.10	0.0012	20	04/10/19 19:59	04/11/19 21:35	7440-38-2	D3
Barium	0.061	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 07:58	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 07:58	7440-41-7	
Boron	3.0	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 21:35	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 07:58	7440-43-9	
Calcium	352	mg/L	25.0	1.0	50	04/10/19 19:59	04/15/19 11:07	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 07:58	7440-47-3	
Cobalt	0.0012J	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 07:58	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 07:58	7439-92-1	BC
Lithium	0.0021J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 07:58	7439-93-2	
Molybdenum	0.0014J	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 07:58	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 07:58	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 07:58	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	1400	mg/L	25.0	10.0	1		04/11/19 20:53		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	195	mg/L	6.2	0.60	25		04/15/19 19:48	16887-00-6	
Fluoride	0.14J	mg/L	0.30	0.029	1		04/10/19 23:10	16984-48-8	
Sulfate	585	mg/L	25.0	0.42	25		04/15/19 19:48	14808-79-8	



Project: Plant Hammond Pace Project No.: 2617150

Date: 05/01/2019 03:28 PM

Sample: HGWC-14	Lab ID:	2617150003	Collecte	ed: 04/05/19	9 12:52	Received: 04/	08/19 15:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: El	PA 3010A			
Arsenic	ND	mg/L	0.10	0.0012	20	04/10/19 19:59	04/11/19 21:42	7440-38-2	D3
Barium	0.016	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 08:05	7440-39-3	
Beryllium	0.00027J	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 08:05	7440-41-7	
Boron	12.5	mg/L	5.0	0.13	50	04/10/19 19:59	04/15/19 11:11	7440-42-8	
Cadmium	0.000079J	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 08:05	7440-43-9	
Calcium	606	mg/L	50.0	2.1	100	04/10/19 19:59	04/15/19 11:39	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 08:05	7440-47-3	
Cobalt	0.021	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 08:05	7440-48-4	
Lead	0.0012J	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 08:05	7439-92-1	BC
Lithium	ND	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 08:05	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 08:05	7439-98-7	
Selenium	0.00091J	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 08:05	7782-49-2	
Thallium	0.00028J	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 08:05	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	2310	mg/L	25.0	10.0	1		04/11/19 20:53		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	227	mg/L	5.0	0.48	20		04/15/19 20:11	16887-00-6	
Fluoride	0.66	mg/L	0.30	0.029	1		04/10/19 23:31	16984-48-8	
Sulfate	1520	mg/L	50.0	0.85	50		04/15/19 20:34	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2617150

Date: 05/01/2019 03:28 PM

Sample: HGWC-17	Lab ID:	2617150004	Collecte	ed: 04/05/19	9 12:25	Received: 04/	08/19 15:30 Ma	atrix: Water		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020 MET ICPMS	Analytical	Method: EPA	 6020B Pre	paration Met	hod: EF	•		-	_	
Arsenic	ND	mg/L	0.10	0.0012	20	04/10/19 19:59	04/11/19 21:49	7440-38-2	D3	
Barium	0.022	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 08:12	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 08:12	7440-41-7		
Boron	5.9	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 21:49	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 08:12	7440-43-9		
Calcium	340	mg/L	25.0	1.0	50	04/10/19 19:59	04/15/19 11:14	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 08:12	7440-47-3		
Cobalt	0.016	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 08:12	7440-48-4		
Lead	0.000076J	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 08:12	7439-92-1	BC	
Lithium	0.00074J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 08:12	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 08:12	7439-98-7		
Selenium	0.000093J	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 08:12	7782-49-2		
Thallium	0.00013J	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 08:12	7440-28-0		
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C							
Total Dissolved Solids	1260	mg/L	25.0	10.0	1		04/11/19 20:53			
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0							
Chloride	195	mg/L	6.2	0.60	25		04/15/19 20:56	16887-00-6		
Fluoride	0.16J	mg/L	0.30	0.029	1		04/10/19 23:52	16984-48-8		
Sulfate	642	mg/L	25.0	0.42	25		04/15/19 20:56			



Project: Plant Hammond

Pace Project No.: 2617150

Date: 05/01/2019 03:28 PM

Sample: HGWC-18	Lab ID:	2617150005	Collecte	ed: 04/05/19	9 14:25	Received: 04/	08/19 15:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: Ef	PA 3010A			
Arsenic	0.0015J	mg/L	0.10	0.0012	20	04/10/19 19:59	04/11/19 22:23	7440-38-2	D3
Barium	0.021	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 08:20	7440-39-3	
Beryllium	0.0022J	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 08:20	7440-41-7	
Boron	6.4	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 22:23	7440-42-8	
Cadmium	0.0017	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 08:20	7440-43-9	
Calcium	400	mg/L	25.0	1.0	50	04/10/19 19:59	04/15/19 11:18	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 08:20	7440-47-3	
Cobalt	0.14	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 08:20	7440-48-4	
Lead	0.0015J	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 08:20	7439-92-1	BC
Lithium	0.0084J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 08:20	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 08:20	7439-98-7	
Selenium	0.0018J	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 08:20	7782-49-2	
Thallium	0.00014J	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 08:20	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	1610	mg/L	25.0	10.0	1		04/11/19 20:54		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	217	mg/L	12.5	1.2	50		04/15/19 21:19	16887-00-6	
Fluoride	0.37	mg/L	0.30	0.029	1		04/11/19 00:12	16984-48-8	
Sulfate	1030	mg/L	50.0	0.85	50		04/15/19 21:19	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2617150

Date: 05/01/2019 03:28 PM

 QC Batch:
 468616
 Analysis Method:
 EPA 6020B

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

 Associated Lab Samples:
 2617150001, 2617150002, 2617150003, 2617150004, 2617150005

METHOD BLANK: 2545217 Matrix: Water

Associated Lab Samples: 2617150001, 2617150002, 2617150003, 2617150004, 2617150005

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:31	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:31	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:31	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:31	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:31	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:31	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:31	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:31	
Lead	mg/L	ND	0.0050	0.000050	04/11/19 20:31	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:31	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:31	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:31	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:31	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	97	80-120	
Beryllium	mg/L	0.01	0.010	103	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	100	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.050	101	80-120	
Cobalt	mg/L	0.01	0.010	101	80-120	
Lead	mg/L	0.05	0.050	100	80-120	
Lithium	mg/L	0.05	0.052	105	80-120	
Molybdenum	mg/L	0.05	0.050	100	80-120	
Selenium	mg/L	0.05	0.050	100	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	ATE: 25452	19		2545220							
Parameter	Units	92424526001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.01	0.01	0.0094	0.0092	94	92	75-125	2	20	
Barium	mg/L	6.0 ug/L	0.05	0.05	0.053	0.054	95	95	75-125	0	20	
Beryllium	mg/L	0.34 ug/L	0.01	0.01	0.0098	0.0098	95	94	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.: 2617150

Date: 05/01/2019 03:28 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	ATE: 25452	19		2545220							
			MS	MSD								
	9	2424526001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron	mg/L	4.0J ug/L	0.05	0.05	0.053J	0.055J	97	101	75-125	3	20	
Cadmium	mg/L	ND	0.01	0.01	0.010	0.0099	100	98	75-125	2	20	
Calcium	mg/L	5980 ug/L	0.62	0.62	6.5	6.5	87	81	75-125	1	20	
Chromium	mg/L	1.4 ug/L	0.05	0.05	0.050	0.050	98	98	75-125	0	20	
Cobalt	mg/L	0.91 ug/L	0.01	0.01	0.011	0.011	98	98	75-125	0	20	
Lead	mg/L	3.1 ug/L	0.05	0.05	0.050	0.049	93	92	75-125	1	20	
Lithium	mg/L	3.8 ug/L	0.05	0.05	0.048J	0.050	89	93	75-125	4	20	
Molybdenum	mg/L	0.14J ug/L	0.05	0.05	0.049	0.049	99	98	75-125	1	20	
Selenium	mg/L	ND	0.05	0.05	0.048	0.047	96	94	75-125	2	20	
Thallium	mg/L	ND	0.01	0.01	0.0099	0.0098	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.:

2617150

QC Batch:

26252

Analysis Method:

SM 2540C

QC Batch Method: SM 2540C Analysis Description:

2540C Total Dissolved Solids

Associated Lab Samples:

2617150001, 2617150002, 2617150003, 2617150004, 2617150005

LABORATORY CONTROL SAMPLE:

Parameter

118510

Spike

LCS

LCS % Rec % Rec

Qualifiers

Total Dissolved Solids

Units mg/L Conc. 400 Result 408

102

Limits 84-108

SAMPLE DUPLICATE: 118512

2617150003 Result

Dup Result

RPD

Max RPD

Qualifiers

Parameter **Total Dissolved Solids**

Date: 05/01/2019 03:28 PM

Units mg/L

2310

2380

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.: 2617150

Date: 05/01/2019 03:28 PM

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

Associated Lab Samples: 2617150001, 2617150002, 2617150003, 2617150004, 2617150005

METHOD BLANK: 117979 Matrix: Water

Associated Lab Samples: 2617150001, 2617150002, 2617150003, 2617150004, 2617150005

Parameter	Units	Blank Result	Reporting 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		10.2	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	E DUPLIC	CATE: 117981	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						
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.: 2617150

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 03:28 PM

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

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617150

Date: 05/01/2019 03:28 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617150001	MW-22	EPA 3010A	468616	EPA 6020B	468672
2617150002	MW-23D	EPA 3010A	468616	EPA 6020B	468672
2617150003	HGWC-14	EPA 3010A	468616	EPA 6020B	468672
2617150004	HGWC-17	EPA 3010A	468616	EPA 6020B	468672
2617150005	HGWC-18	EPA 3010A	468616	EPA 6020B	468672
2617150001	MW-22	SM 2540C	26252		
2617150002	MW-23D	SM 2540C	26252		
2617150003	HGWC-14	SM 2540C	26252		
2617150004	HGWC-17	SM 2540C	26252		
2617150005	HGWC-18	SM 2540C	26252		
2617150001	MW-22	EPA 300.0	26135		
2617150002	MW-23D	EPA 300.0	26135		
2617150003	HGWC-14	EPA 300.0	26135		
2617150004	HGWC-17	EPA 300.0	26135		
2617150005	HGWC-18	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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Section C Invoice Information:	Attention: sca	Address:	Paca Ouoto:	Pace Project Manager.	Pace Profile #:		T COLLECTION	HNO3 HSEO4 PUBLISHEL ROK CONTAINE	98 65 X	MS PS 2 3	12521952) / な て	,					Out Wile	5765 A 1943	4/2/19 Aus /	9111 61/8/		SAMPLER: (; a)	$\mathbb{T}^{\mathcal{A}}$
ation:	En .	Lauren Peny, Geosyntec	Sinadene	Hammond		COLLECTED	START END	DATE DATE	30	三 (3 %) X (2 %) X (3 %)	50/ic 58/0				2/2/2				NOT THE BLANK BY A SPECIAL TOWN	WEGET/ CONTROL	when brought	$\neg \neg$		PRINT Name of SAMPLER:	SIGNATURE of SAMPLER:
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Client Information:	Georgia Power - Coal Combustion Residuals			Phone: (404)506-7239 Fax P		AIGLERI	SAMPLEID On Soulsond	One Character per box. Who Ar (A-Z, 0-9 i, -) One One Sample ids must be unique Tissue	TO MY	WW-230									apamonturenturians	I (3) Axaic, Barren, Profiler	adrive. (hrosian while	33	TO DOMESTAN SCHOOL HALLING		
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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.

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Carried Co.	Sample	Condition	Opon Receipt		
Face Analy	tical Client Name:	GCA	Power	Project #	
Tracking #:	x UPS USPS Client [Commercial		WO#: 26 PM: BM CLIENT: GRPOW	Due Date: 04/15/1
				CLIENT: CHI OM	
Packing Material:		None		· · · ·	
Thermometer Use		e of Ice: Well			oling process has begun
Cooler Temperatu	<u> </u>	ological lissue	is Frozen: Yes No		4/8/19 MZ
Temp should be abov		1	Comments:		
Chain of Custody P		es No N/A			
Chain of Custody F		es ONO ON/A			
Chain of Custody R		es 🗆 No 🗆 N/A			
Sampler Name & S		es 🗆 No 🗆 N/A			
Samples Arrived wi	_	Yes DNO DN/A			
Short Hold Time A					
		Yes □NO □N/A			
Sufficient Volume:		Yes ONO ON/A			
Correct Containers		Yes □No □N/A			
-Pace Containe		res □No □N/A	· · · · · · · · · · · · · · · · · · ·		
Containers Intact:		res □No □N/A			
		res 🗆 No 🗆 N/A			
Sample Labels ma			12.		
	me/ID/Analysis Matrix: preservation have been checked.	Yes DNo DN/A	13		
A.U		_		,	
compliance with EPA		Yes □No □N/A			
exceptions: VOA, colifo	rm, TOC, O&G, WI-DRO (water)	Yes 🗖 No	Initial when completed	Lot # of added preservative	
Samples checked	or dechlorination:	Yes □No ☑N/A	14.		
Headspace in VO	Vials (>6mm):	Yes □No □NA	15.		
Trip Blank Present		Yes □No ☑ÑÃ	16.		
Trip Blank Custody	Seals Present	Yes □No ☑M	\		
Pace Trip Blank Lo	ot # (if purchased):				
Client Notificatio	n/ Resolution:			Field Data Requir	ed? Y / N
	tacted:	Date	/Time:		
	olution:				
				<u> </u>	
				 	
Project Manag	er Review:			Date:	
					W. O
	ere is a discrepancy affecting North Card l.e out of hold, incorrect preservative, o			form will be sent to the N	prtn Carolina DEHNR

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May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617152

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.: 2617152

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 #: 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.: 2617152

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2617152001	MW-22	Water	04/05/19 09:59	04/08/19 15:30	
2617152002	MW-23D	Water	04/05/19 11:33	04/08/19 15:30	
2617152003	HGWC-14	Water	04/05/19 12:52	04/08/19 15:30	
2617152004	HGWC-17	Water	04/05/19 12:25	04/08/19 15:30	
2617152005	HGWC-18	Water	04/05/19 14:25	04/08/19 15:30	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617152

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617152001	MW-22	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617152002	MW-23D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617152003	HGWC-14	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617152004	HGWC-17	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617152005	HGWC-18	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.: 2617152

Sample: MW-22 PWS:	Lab ID: 26171520 Site ID:	O1 Collected: 04/05/19 09:59 Sample Type:	Received:	04/08/19 15:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.381 ± 0.272 (0.444) C:93% T:NA	pCi/L	04/18/19 08:0	5 13982-63-3	
Radium-228		0.674 ± 0.557 (1.13) C:81% T:73%	pCi/L	04/18/19 15:33	3 15262-20-1	
Total Radium	Total Radium Calculation	1.06 ± 0.829 (1.57)	pCi/L	04/22/19 11:27	7 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2617152

Sample: MW-23D PWS:	Lab ID: 26171520 Site ID:	O2 Collected: 04/05/19 11:33 Sample Type:	Received:	04/08/19 15:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.524 ± 0.328 (0.520) C:92% T:NA	pCi/L	04/18/19 08:05	13982-63-3	
Radium-228		0.408 ± 0.470 (0.992) C:83% T:71%	pCi/L	04/18/19 15:33	3 15262-20-1	
Total Radium	Total Radium Calculation	0.932 ± 0.798 (1.51)	pCi/L	04/22/19 11:27	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2617152

Sample: HGWC-14 PWS:	Lab ID: 26171520 Site ID:	O3 Collected: 04/05/19 12:52 Sample Type:	Received:	04/08/19 15:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.689 ± 0.372 (0.571) C:97% T:NA	pCi/L	04/18/19 08:00	13982-63-3	
Radium-228		0.740 ± 0.491 (0.955) C:84% T:73%	pCi/L	04/18/19 15:33	3 15262-20-1	
Total Radium	Total Radium Calculation	1.43 ± 0.863 (1.53)	pCi/L	04/22/19 11:27	7 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2617152

Sample: HGWC-17 Lab ID: 2617152004 Collected: 04/05/19 12:25 Received: 04/08/19 15:30 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 0.275 ± 0.261 (0.500) Radium-226 pCi/L 04/18/19 08:05 13982-63-3 C:96% T:NA EPA 9320 $0.793 \pm 0.521 \quad (1.02)$ Radium-228 pCi/L 04/18/19 15:33 15262-20-1 C:81% T:75% Total Radium Total Radium 1.07 ± 0.782 (1.52) pCi/L 04/22/19 11:27 7440-14-4 Calculation



Project: Plant Hammond

Pace Project No.: 2617152

Sample: HGWC-18 PWS:	Lab ID: 26171520 Site ID:	05 Collected: 04/05/19 14:25 Sample Type:	Received:	04/08/19 15:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		1.13 ± 0.443 (0.451) C:92% T:NA	pCi/L	04/18/19 08:00	13982-63-3	
Radium-228		1.09 ± 0.540 (0.976) C:85% T:80%	pCi/L	04/18/19 15:33	3 15262-20-1	
Total Radium	Total Radium Calculation	2.22 ± 0.983 (1.43)	pCi/L	04/22/19 11:27	7 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617152

QC Batch: 337915 Analysis Method: EPA 9320

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

Associated Lab Samples: 2617152001, 2617152002, 2617152003, 2617152004, 2617152005

METHOD BLANK: 1644524 Matrix: Water

Associated Lab Samples: 2617152001, 2617152002, 2617152003, 2617152004, 2617152005

Parameter $Act \pm Unc (MDC) Carr Trac$ 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.: 2617152

QC Batch: 337923 Analysis Method: EPA 9315

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

Associated Lab Samples: 2617152001, 2617152002, 2617152003, 2617152004, 2617152005

METHOD BLANK: 1644541 Matrix: Water

Associated Lab Samples: 2617152001, 2617152002, 2617152003, 2617152004, 2617152005

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

Radium-226 0.170 \pm 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.: 2617152

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.: 2617152

Date: 05/01/2019 02:10 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617152001	MW-22	EPA 9315	337923		
2617152002	MW-23D	EPA 9315	337923		
2617152003	HGWC-14	EPA 9315	337923		
2617152004	HGWC-17	EPA 9315	337923		
2617152005	HGWC-18	EPA 9315	337923		
2617152001	MW-22	EPA 9320	337915		
2617152002	MW-23D	EPA 9320	337915		
2617152003	HGWC-14	EPA 9320	337915		
2617152004	HGWC-17	EPA 9320	337915		
2617152005	HGWC-18	EPA 9320	337915		
2617152001	MW-22	Total Radium Calculation	339294		
2617152002	MW-23D	Total Radium Calculation	339294		
2617152003	HGWC-14	Total Radium Calculation	339294		
2617152004	HGWC-17	Total Radium Calculation	339294		
2617152005	HGWC-18	Total Radium Calculation	339294		

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L	Pag					SAMPLE	RAMME AND SIGNATURE	ND SIC	WATUR		Ting.							等				o النات	_	-		•	
	ge 14					PRIN	NT Name of SAMPLER:	of SAME	LER	35 ; ()	£4.74		1. 1.			ľ						ni 9M	Ceivec	(N	18(0dy 1990 1990 1910		(N/
	4 of 1					SIGN	NATURE of SAMPLER:	of SAMP	LER:	2/5			1.16			8	DATE Signed:	1	1/1->/	3			ᅦ	(人) ICG	385 Co	stni Sini	W
	 16																										

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Intact (V/V) Regulatory Agency Samples SAMPLE CONDITIONS (N/A) Cooler ŏ Custody JO#: 2617152 (N/A) ð Received on Residual Chlorine (Y/N) TEMP in C THE 15.50 5451 1945 114 АССЕРТЕР ВУ ЛАТПИЛОИ 4/3/14 6115/1 Ñ DATE Signed: 8ZZ/9ZZ Wnipes Tollie Musica I Carry Me LDS, CL, F, SO4 (O2G 8 III .qqA) stateM betsy modaniel@pacelabs com Aets (App. III, App. IV, D&O nder 500 Metals (App. III & App. IV) 129T ZOSYIRAM NIĂ Attention: scsinvoices@southernco.com 327 (AP) or 328 (Huff) Methanol KOSSZ6N Preservatives НОВИ Pace Project Manager. Pace Profile #. 327 invoice information: PRINT Name of SAMPLER: Dall DA $\overline{\omega}$ (4) CONH Company Name +520¢ THE PHY 1945 Section C SAMPLER NAME AND SIGNATURE SIGNATURE OF SAMPLER: Address: pewasaudun OF CONTAINERS (12cd) 4/5/19 SAMPLE TEMP AT COLLECTION 61211 DATE Nollia Whirthm 11 medy 1/5/19 200 15. E. RELINQUISHED BY / AFFILIATION COLLECTED Angles 501 Var. wt 10 W 11/5/14 OF Lauren Petty, Geosyntec 4/4/4/12 Purchase Order # SCS10348506 Project Name: Plant Hammond START Required Project Information: Report To: Joju Abraham Jal Hon (GeGRAB CeCOMP) BRYT BJRMA (Ref of seboo bilay see) 3000 XIRTA Copy To. Section B MATRIX
Dinning Water
Water
Water
Water
Water
Product
Product
Osio:Solid
Osi
Wipe
Asi
Cither
Tissue APPITTA II (3): Arsenic Baring Cadmina Chramina Lithium, Maybdenium Selevium ADDITIONAL COMMENTS Georgia Power - Coal Combustion Residuals shalt, Flascide, Lead a One Character per box. (A-Z, 0-9 /, -). Sample Ids must be unique SAMPLE ID J. Wanta, GA 30339 7 2480 Maner Road Phone: (404)506-7239 Requested Due Date: Required Cilent Information: Zorallinan. M3 1 1 2 20 Page Company: 10 7 8 7 9 3 6 # W31 15 of 16

- Caracana	Sample	Condition	Sport Receipt		
Face Analy	tical Client Name:	GLA 1	Power	Project #	
	x UPS USPS Client	کر Commercial	Pace Other	WO#:20	
	ooler/Box Present:			PM: BM CLIENT: GAP	Due Date: 05/06/ uer-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None [Other		
Thermometer Used		e of Ice: Wel			ling process has begun
Cooler Temperatur	e /·/ Bio	ogical Tissue is	s Frozen: Yes No	Date and Initial contents:	s of person examining
Temp should be above	freezing to 6°C	(Comments:		7-7
Chain of Custody Pr	esent:	es 🗆 No 🗆 N/A	1		
Chain of Custody Fi	led Out:	es □No □N/A	2.		
Chain of Custody Re	elinquished:	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):	es ☐N/A ☐N/A	6.		
Rush Turn Around	Time Requested:	es DNO DN/A	7.		
Sufficient Volume:	43	es □No □N/A	8.		
Correct Containers	Used:	es 🗆 No 🗆 N/A	9.		
-Pace Container	s Used:	es □No □N/A			
Containers Intact:	Æ	es □No □N/A	10.		
Filtered volume rec	eived for Dissolved tests	res □No □N/A	11.		
Sample Labels mat	ch COC: ما	es 🗆 No 🗆 N/A	12.		
-Includes date/ti		ω			
	reseasinting have been checked	es □no □n/a	13.		
All containers needing	preservation are found to be in	res 🗆 No 🗆 N/A	į		
compliance with EPA	recommendation.		Initial when	Lot # of added	
exceptions: VOA, colifo	rm, TOC, O&G. WI-DRO (water)	res 🖾 No	completed	preservative	
Samples checked f	or dechlorination:	Yes □No ☑N/A	14.		
Headspace in VOA	Vials (>6mm): □	Yes □No □NA	15.		
Trip Blank Present		Yes □No ØÑ/A	16.		
Trip Blank Custody	Seals Present	Yes □No ☑N/A			
Pace Trip Blank Lo	t # (if purchased):				
Oli and Manifi and an	(81-4)			Field Data Require	ed? Y / N
Client Notification		Date/	Time:	Tield Bald Hogelin	
	acted:	Date			
Commence, recor					
·					
				İ	
Ducinet **	ar Boulous			Date:	
Project Manage	el Lealem:			_	
Note: Whenever the	re is a discrepancy affecting North Caro	ina compliance sa	mples, a copy of this f	orm will be sent to the No	rth Carolina DEHNR
Certification Office (e out of hold, incorrect preservative, or	It of temp, incorred	t containers)		003rev.3. 11Septe mber 2 00 6of 16

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Unon Recein





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 Collected: 04/05/19 08:50 Received: 04/08/19 15:30 Matrix: 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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony			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

Parameter

Spike

LCS

LCS

% Rec

Qualifiers

Total Dissolved Solids

Units mg/L

mg/L

Conc. 400 Result 408 % Rec 102 Limits 84-108

SAMPLE DUPLICATE: 118512

2617150003 Result

Dup Result

RPD

Max RPD

Total Dissolved Solids

Date: 05/01/2019 03:04 PM

Units

2310

2380

3

Qualifiers

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.

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 SPIKE DUPLICATE: 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	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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Section A Required	Company:	Address:	Atlant	E E	Phone	Verding			ITEM #		8				9				0		C						Page	13 of

(Comments)	Sampl	e Condition	Upon Receipt		
Face Anal	<i>ytical</i> Client Name:	GIA	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
Cooler Temperatu			i s Frozen : Yes No	Date and Initia	ls of person examining
Temp should be abov		4	Comments:		
Chain of Custody P		res □No □N/A		<u> </u>	
Chain of Custody F		res □No □N/A			*****
Chain of Custody R		es □No □N/A			
Sampler Name & S		es 🗆 No 🗆 N/A			
Samples Arrived wi		es □No □N/A			-0
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Sufficient Volume:		es Ono On/A			
Correct Containers		res ONO ON/A	9.		
-Pace Container Containers Intact:		es ONO ON/A	40		
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Sample Labels mat		es Ono On/A		<u> </u>	
-Includes date/til			12.		
	reservation have been checked	es DNo DN/A	12		
All containers needing compliance with EPA	preservation are found to be in	es DNo DN/A	13.		
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es DNo	Initial when completed	Lot # of added preservative	
Samples checked for	or dechlorination:	res 🗆 No 🗷 N/A			
Headspace in VOA		es □No □NA			
Trip Blank Present:		res □No ☑Ñ/Ā		† · · · · · · · · · · · · · · · · · · ·	
Trip Blank Custody	Seals Present	res 🗆 No 🔎 N/A		:	
Pace Trip Blank Lot	# (if purchased):			<u> </u>	
Client Notification	Resolution:			Field Data Require	d? Y / N
Person Cont		Date/1	Гime:	ried bata require	, , , , , , , , , , , , , , , , , , ,
Comments/ Reso					
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Project Manage	Review:			Date:	
Note: Mhanning the	io a diamental and a second				
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:	O1 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 08:2	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: EPA 9315

Analysis Description: 93

Analysis Method:

EPA 9315 9315 Total Radium

Associated Lab Samples: 2617149001

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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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	
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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
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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 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.: 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	9 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	thod: 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	thod: 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	0.029	1		04/11/19 03:19	16984-48-8	_
Sulfate	0.38J	mg/L	1.0	0.023	1		04/11/19 03:19		



Project:

Plant Hammond

Pace Project No.:

2617207

QC Batch:

468895

QC Batch Method: EPA 7470A Analysis Method:

EPA 7470A

Analysis Description:

7470 Mercury

Associated Lab Samples:

2617207001, 2617207002

Matrix: Water

METHOD BLANK: 2546716 Associated Lab Samples:

2617207001, 2617207002

Blank

Reporting

Parameter

Units

Result

Limit

MDL Analyzed Qualifiers

Mercury

mg/L

ND

0.00020

0.00010

83

04/15/19 18:06

LABORATORY CONTROL SAMPLE:

Parameter

2546717

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Mercury

Mercury

mg/L

92424398001

Result

Units

mg/L

Units

0.0025

2546719 MSD

0.0025

MS

0.0021

MSD

MS MSD

80-120

% Rec

Max RPD

Parameter

Date: 05/03/2019 02:13 PM

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

2546718

ND

MS Spike

0.0025

Spike Conc. Conc.

Result Result 0.0019 0.0019 % Rec % Rec 77

Limits 75-125

77

RPD

0 25

Qual

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

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 RPD

Qualifiers

Total Dissolved Solids

Date: 05/03/2019 02:13 PM

Units mg/L

2310

2380

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.: 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	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						
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							Ñ	Section C	o												_			'	ĺ		.	Г	
Require	illent Information:	Required Project Information:	roject	Informa	ţou:				₽ 	Involce Information:	5	vation.						ı	ļ		ſ			Page:	: 0	_		ŏ	-		
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Phone:		Project Name: Plant Hammond	ا آيو	Plant H.	pucume				٦	Pace Project Manager.	yect M	anage		belsy.	betsy.mcdaniel@pacelabs.com.	el O	ocelab	S.CO.II.					State/Assettler		988	Y Ports			N. W.	8	
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Page						SAUPLER N	VAMERAND SIGNATUR Name of SAMPLER:	SAMPL	2	8373	1													<u>J</u>	,	L 1001	<u> </u>			T	
e 14 of						SIGNA	SIGNATURE of SAMPLER:	SAMPLI		Notio	Social of	3 <i>2</i>	73	MUSTOS	3 3		ă.	DATE Signed:	ned:	12	0	61/e/h	15	1	ni 9M3T	Received Ice Ice	(Y/N) Custody Sealed	Cooler (Y/N)	Samples Intect (Y/V)		
15										Ц			-							$\ $			$\ $	┨	1		$\ $	1	ıll	,	

5	Sample	e Contaition	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	er-CCR
Packing Material:	Bubble Wrap Bubble Bag	None	Other		÷
Thermometer Use		e of Ice: Wet	_	Samples on ice co	olingprocess has begun
Cooler Temperatu		_	is Frozen: Yes No	Date and Initial	s of person examining
Temp should be abov			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 ☑No □N/A	6.		
		es ⊠No □N/A	7.		
Sufficient Volume:		es 🗆 No 🗆 N/A	8.		
Correct Containers		es 🗆 No 🗆 N/A			
-Pace Container	s Used:	res □No □N/A			
Containers Intact:	ď	res □No □N/A	10.		
Filtered volume rec	eived for Dissolved tests	Yes □No ☑AN/A	11.	i	
Sample Labels mat	ch COC:	es □no □n/a	12.		
-Includes date/ti	me/ID/Analysis Matrix:	$ \omega $			
All containers needing	oreservation 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			
exceptions: VOA. colifo	m. TOC, O&G, WI-DRO (water)	Yes □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 ØÑ/A	16.		
Trip Blank Custody	Seals Present	res 🗆 No 🗘 MA	,		
Pace Trip Blank Lo	# (if purchased):				
Client Notification	/ Resolution:			Field Data Require	1? Y / N
Person Cont		Date/	Time:		
Comments/ Reso					
				!	
	<u>:</u>			: 	
					-
Project Manage	r Review:			Date:	
	e is a discrepancy affecting North Caroli e out of hold, incorrect preservative, ou			rm 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) bery 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 Mussen lase 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> RATRIX CODE (see valid codes to left) Section B Copy To: Project #: MATRIX
Direking Water
Water
Waste Water
Product
SourSould
Out
Wipe
Au
Cither
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:	æ	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