Prepared for



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ASSESSMENT OF CORRECTIVE MEASURES REPORT

GEORGIA POWER COMPANY PLANT HAMMOND ASH POND 3 (AP-3)

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ASSESSMENT OF CORRECTIVE MEASURES REPORT

GEORGIA POWER COMPANY - PLANT HAMMOND

ASH POND 3 (AP-3)

This Assessment of Corrective Measures Report, Georgia Power Company - Plant Hammond Ash Pond 3 (AP-3), has been prepared in accordance with the United States Environmental Protection Agency coal combustion residual rule, specifically 40 Code of Federal (CFR) 257.97(a) and the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10(6)(a).

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Geosyntec[▷] consultants

LIST OF ACRONYMS

ACM	Assessment of Corrective Measures
AP	ash pond
CCR	coal combustion residuals
CFR	Code of Federal Regulations
cm/sec	centimeters per second
EPD	Environmental Protection Division
ft	feet
ft bgs	feet below ground surface
ft/day	feet per day
ft/ft	feet per foot
Georgia Power	Georgia Power Company
GWPS	Groundwater Protection Standard
HAR Rev 01	Hydrogeologic Assessment Report (Revision 01)
ISS	in-situ solidification/stabilization
K _h	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



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 (Georgia Power) Plant Hammond (Site) Ash Pond 3 (AP-3). Pursuant to 40 CFR § 257.96 and Georgia Rule 391-3-4-.10(6)(a), this ACM evaluates potential corrective measures to address a statistically significant level (SSL) of molybdenum identified in the *2020 Annual Groundwater Monitoring and Corrective Action Report* (Geosyntec, 2020a), which is the target constituent for corrective measures presented in this report. Of note, EPD Rules for Solid Waste Management 391-3-4-.10(6)(a) adopt the Federal CCR rule by reference. For ease of reference, the USEPA CCR rules are cited within this report.

The ACM was initiated on July 9, 2020, within 90 days of identifying the SSL on May 8, 2020. A 60-day extension until December 4, 2020 for completion of the ACM was documented on October 7, 2020. This ACM is the first step in identifying viable corrective measures to address the SSL 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. Due to the presence of a surface water feature in the downgradient direction of MW-41, installation of wells to horizontally characterize this area is infeasible. Georgia Power proactively collected surface water samples in July 2020 from three locations along Cabin Creek, two of which are applicable to evaluating the AP-3 groundwater/surface water samples collected. Therefore, based on molybdenum results for data collected to date, no molybdenum impacts to surface water have been detected, and horizontal delineation is complete. Vertical delineation is currently in progress.

Georgia Power conducted a human health and ecological risk evaluation to evaluate constituents that exhibit SSLs in groundwater (i.e., molybdenum) at AP-3. The risk evaluation used a conservative, health-protective approach that is consistent with US EPA risk assessment guidance, EPD regulations and guidance, and standard practice for risk assessment in the State of Georgia. As part of the risk evaluation, a well survey of potential groundwater wells within a three-mile radius of AP-3 was conducted and consisted of reviewing federal, state, and county records and online sources in addition to conducting a windshield survey of the area. The risk evaluation relied on groundwater data collected by Georgia Power from August 2016 to March 2020 in compliance with

the federal and state CCR rules. Based upon this risk evaluation, which included multiple conservative assumptions, concentrations of molybdenum detected in groundwater at AP-3 are not expected to pose a risk to human health or the environment. The *Risk Evaluation Report – Georgia Power Company – Plant Hammond Ash Pond 3* (Geosyntec, 2020d) and associated well survey are provided as **Appendix A**.

1.1 <u>Purpose</u>

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-3.

Once potential corrective measures are identified in this ACM, they are further evaluated using the criteria outlined in 40 CFR § 257.96 (c), 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 <u>Site Location and Description</u>

Plant Hammond is located in Floyd County, Georgia, approximately 10 miles west of Rome and is bordered by Georgia Highway 20 (GA-20) on the north, the Coosa River on the south, Cabin Creek and industrial land on the east, and sparsely populated, forested,

rural and industrial land on the west (**Figure 1**). The physical address of the plant is 5963 Alabama Highway, Rome, Georgia, 30165.

Plant Hammond is a four-unit, coal-fired electric generating facility. Georgia Power has submitted a new Integrated Resource Plan to the Georgia Public Service Commission in January 2019 which calls for the decertification of Plant Hammond. All four units are included in the decertification. The four units at Plant Hammond were retired on July 29, 2019 and no longer produce electricity.

AP-3 is a 25-acre former ash pond that was constructed in 1973 and 1974. Ash sluicing and placement operations at AP-3 commenced in June 1977. In the early 1980s, AP-3 was converted into a dry ash stacking area and, in the early 1990s, the pond stopped receiving CCR materials (i.e., AP-3 ceased receiving waste prior to the effective date of the CCR rule promulgated in April 2015).

1.3 <u>Pond Closure</u>

Georgia Power commenced closure of AP-3 in 2016 via closure in place and capping. A notification of intent to close AP-3 was placed in the Operating Record on December 7, 2015 and posted to Plant Hammond's CCR website within 30 days. The Closure Plan was submitted to the EPD as part of the closure permit application package, which described the closure activities and requirements in accordance with 40 CFR § 257.102. The Closure Plan and notification of closure completion are posted on Plant Hammond's publicly available website.

Because AP-3 was converted to a dry stacking operation in the early 1980s and operated as such until the early 1990s when the unit ceased receiving CCR material, AP-3 did not contain standing water and minimal liquid removal was required to prepare the subgrade for final cover system construction. The CCR material remaining in AP-3 was graded and a final cover system installed in the second quarter of 2018. The final cover system consists of a 60-mil high density polyethylene (HDPE) liner, geocomposite drainage media, a minimum 18-inch thick protective soil cover, and a 6-inch thick vegetative layer. The final cover system was designed to limit infiltration of precipitation by providing sufficient grades and slopes to promote precipitation runoff to discharge points along the intake and discharge canals along the perimeter of AP-3.

The closure of AP-3 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 waste boundary.

2.0 CONCEPTUAL SITE MODEL

The following section summarizes the geologic and hydrogeologic conditions at the Site as described in the *Hydrogeologic Assessment Report Revision 01 – Ash Pond 3* (HAR Rev 01) submitted to EPD under separate cover in support of the AP-3 closure permit application (Geosyntec, 2020b).

2.1 <u>Geology</u>

The Site is located within the Great Valley District of the Valley and Ridge Physiographic Province (Valley and Ridge) in 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. under the direction of Golder (Golder, 2018) indicates that AP-3 is underlain by the middle units of the Cambrian age Conasauga Formation, consisting of mostly shaley limestone. Based on review of site-specific subsurface investigations, the bedrock at AP-3 was identified as limestone or shaley limestone. AP-3 is underlain primarily by five lithologic units: (i) fill material, (ii) terrace alluvium, (iii) residuum, (iv) highly weathered/fractured limestone bedrock, and (v) unweathered limestone bedrock. The extent of these units in vicinity of AP-3 is presented in cross-sections A-A', B-B', C-C', and D-D', presented as **Figures 2A** through **2D**, respectively. Boring logs and well construction diagrams used to generate the cross-sections are provided in the HAR Rev 01.

Based on subsurface investigations the fill is composed of lean clay or gravelly lean clay with sand, sometimes identified by the presence of wood or roots. The terrace alluvium consists of unconsolidated sediments with high sand and gravel content associated with deposition from the Coosa River and Cabin Creek. Residual or native soils have been derived from the in-place weathering of the shaley limestone bedrock. The residuum is generally described as fat clay with typically only trace amounts of sand and rarely gravel. Just below the residuum clay layer is a gradational zone of varying proportions of clayey residuum and sand, gravel, and cobble-sized angular pieces of partially weathered limestone, grading into a zone of fractured limestone, before grading into unweathered, fresh limestone. The upper highly weathered zone appears more as residuum with various sized rock fragments. The lower zone becomes less clayey with depth and is estimated to be approximately 5 feet thick. Most of the limestone is described as medium to dark gray with a slabby or flaggy habit when broken in pieces by the sonic drilling. The limestone is very finely laminated with lighter and darker gray layers and also contains interbeds of calcareous shale.



2.2 <u>Hydrology and Groundwater Flow</u>

The uppermost aquifer at AP-3 is a regional groundwater aquifer that occurs within the residuum and the weathered and fractured bedrock. The uppermost aquifer is considered to be unconfined; however, localized, semi-confined conditions may be encountered due to the low-permeability clayey nature of the residual soils or as a result of perched groundwater or poorly interconnected fracture networks in the bedrock. Based on observations of soil types and horizontal conductivity values, the movement of groundwater in the soil and, to some degree, the highly weathered bedrock zone can be characterized as low-to moderately permeable, porous media flow. Groundwater flow in the more competent underlying bedrock is characterized as fracture flow. Flow direction within the area of AP-3 is generally from west to east. Groundwater level data are recorded during each groundwater sampling event from the AP-3 well network, depicted on Figure 3, and discussed in detail in Section 3.1.1. Well construction details are presented in **Table 1**. The data are used to generate potentiometric surface maps that depict the groundwater flow direction and to calculate hydraulic gradients. The potentiometric surface maps representing the March 2020 and September 2020 groundwater level data are provided on Figure 4 and Figure 5, respectively. Based on the March 2020 groundwater elevations, the hydraulic gradient across AP-3 was 0.01 feet per foot (ft/ft) and the groundwater flow velocity across AP-3 was approximately 0.18 ft/day (Geosyntec, 2020a).

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-3 that (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 current groundwater monitoring well network consists of seven upgradient compliance monitoring wells (HGWA-1, HGWA-2, HGWA-3, HGWA-43D, HGWA-44D, HGWA-45D, and HGWA-122) and five downgradient compliance monitoring wells (HGWC-120, HGWC-121A, HGWC-124, HGWC-125, and HGWC-126). Prior to November 2019, the certified compliance monitoring well network for AP-3 consisted of only four compliance monitoring wells (HGWA-122, HGWC-120, HGWC-121A, and HGWC-124). The original well network was certified by a professional engineer (PE) on April 17, 2019; the certification is maintained in the AP-3 Operating Records and posted on Georgia Power's website. Wells HGWC-125 and HGWC-126 were added to the network in May 2020 at the request of EPD. Wells HGWA-1, HGWA-2, HGWA-3, HGWA-43D, HGWA-44D, and HGWA-45D were incorporated into the AP-3 compliance well network in September 2020 to supplement HGWA-122 and further characterize background groundwater conditions upgradient of AP-3. Of this subset, wells HGWA-1, HGWA-2, and HGWA-3 were installed before January 2016 and also establish background groundwater conditions for Plant Hammond AP-1 and AP-2. Wells HGWA-43D, HGWA-44D, and HGWA-45D were installed in August 2020 and screened in bedrock to characterize groundwater conditions within lower portions of the aquifer than that provided by HGWA-1, HGWA-2, HGWA-3, and HGWA-122. Data from these three deeper wells will be used to better characterize background conditions for AP-3.

In addition, three delineation wells (MW-32, MW-41, and MW-46D) and three piezometers (MW-21, MW-23, and MW-39) are used to characterize groundwater conditions upgradient and downgradient of AP-3. The locations of the monitoring wells, delineation wells, and piezometers associated with AP-3 are shown on **Figure 3**; well construction details are listed in **Table 1**. Boring logs and well construction diagrams for the wells are provided in the HAR Rev 01. Additional groundwater monitoring details are provided in the 2020 Annual Groundwater and Corrective Action Monitoring Report (Geosyntec, 2020a).

3.1.2 SSLs for Appendix IV Constituents

Groundwater monitoring data collected during the initial Appendix IV sampling event in August 2019 and semiannual monitoring events in October 2019 and March 2020 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 *2020 Annual Groundwater and Corrective Action Monitoring Report* (Geosyntec, 2020a).

Based on the statistical analysis of Appendix IV constituents, the following constituents exceeded the state or federal GWPS for the identified assessment monitoring event:

October 2019 Assessment Monitoring Event

AP-3 (Federal CCR Rule):

• No SSLs were reported above federal GWPS.

AP-3 (State CCR Rule):

- Lithium: HGWC-120
- Molybdenum: HGWC-120

March 2020 Assessment Monitoring Event



AP-3 (Federal CCR Rule):

• No SSLs were reported above federal GWPS.

AP-3 (State CCR Rule):

• Molybdenum: HGWC-120

A groundwater exceedance notification acknowledging the October 2019 SSLs of lithium and molybdenum was placed in the Operating Record on May 8, 2020 pursuant to 40 CFR § 257.95(g) and § 257.105(h)(8). A reduced lithium groundwater concentration reported in March 2020 for HGWC-120 reduced the lower confidence interval to below the state GWPS of 0.03 mg/L, thereby no longer triggering an SSL status for the constituent. A notification acknowledging the March 2020 SSL of molybdenum was placed in the Operating Record on August 7, 2020.

3.2 Field Investigation Activities

Pursuant to 40 CFR § 257.96, groundwater in the vicinity of AP-3 continues to be monitored during the ACM phase in accordance with the assessment monitoring program established for AP-3 in 2019. The following summarizes the field investigation activities and data evaluations completed since submitting the *2020 Annual Groundwater Monitoring and Corrective Action Report* in July 2020 (Geosyntec, 2020a).

- *August 19-26, 2020*: HGWA-43D, 44D, and 45D were installed as background compliance wells. MW-46D was installed as a piezometer to evaluate groundwater conditions near HGWC-120.
- *September 2020*: Piezometers MW-32 and MW-41 were reclassified as horizontal delineation wells to horizontally characterize Appendix IV constituents downgradient of HGWC-120, and MW-46D was reclassified as a vertical delineation well to vertically characterize conditions of HGWC-120.
- August and September 2020: Two routine assessment monitoring events were conducted. The groundwater samples from the September 2020 event were analyzed for Appendix III and Appendix IV constituents, as well as the major cations and anions and select additional constituents (i.e., iron, manganese, and sulfide). The major ions and supplemental constituents were collected to characterize the geochemical conditions of groundwater. These data can also be

used to evaluate and compare downgradient conditions to background conditions, as well as in support of evaluating the corrective measures presented in Section 4.

The groundwater analytical results for the August and September 2020 events are summarized in **Table 3**. Also included in **Table 3** are data from prior sampling conducted throughout the installation of MW-32, MW-41, and MW-46D. Laboratory reports associated with the August and September 2020 data are provided in **Appendix B**.

3.3 <u>Delineation Summary</u>

Groundwater data from the semiannual assessment monitoring events conducted in March 2020 and September 2020 were used to generate the molybdenum isoconcentration maps presented on **Figure 6** and **Figure 7**, respectively. The data set includes delineation wells MW-32 and MW-41 in addition to the compliance monitoring wells. HGWA-43D, HGWA-44D, HGWA-45D, and MW-46D are screened at deeper intervals of the aquifer and therefore the September 2020 molybdenum data were not used to develop the iso-concentration map.

The data indicate molybdenum concentrations in excess of the state GWPS of 0.010 mg/Lare reported in wells HGWC-120, MW-32, and MW-41. Due to the presence of a surface water feature in the downgradient direction of MW-41 (refer to Figure 7), installation of an additional well to horizontally characterize this area is infeasible. Georgia Power proactively collected surface water samples in July 2020 from three locations along Cabin Creek, two of which are applicable to evaluating the AP-3 groundwater/surface water conditions. The surface water locations are shown on Figure 7. Sample location H-SCC NBR is located upstream of the Site, and therefore the data are considered representative of background conditions. Sample location H-SCC E41 is located immediately downgradient of MW-41. The surface water sample collected from both locations indicate molybdenum is not detected. Based on molybdenum results for data collected to date, no molybdenum impacts to surface water have been detected, and horizontal delineation is complete. The laboratory report associated with the surface water sampling event conducted July 17, 2020 is provided in Appendix B. Georgia Power anticipates sampling these locations on a semiannual basis to coincide with the semiannual assessment monitoring events.



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), 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) must be met by the corrective measure when selected:

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

Corrective measures selected for evaluation herein for potential use at AP-3 are anticipated to satisfy the above criteria to varying degrees of effectiveness.

4.2 <u>Summary of Corrective Measures</u>

The closure of AP-3, as described in Section 1.3, is a source control measure that reduces the potential for migration of CCR constituents to groundwater. Georgia Power has decided to install a *TreeWell*[®] system as an Advanced Engineering Method (AEM). The process of final design and installation of that *TreeWell* system is underway. While the purpose of the AEMs are different than corrective measures, Georgia Power plans to evaluate their effectiveness before determining if additional *TreeWell* or enhancements to the *TreeWell* system should be incorporated into this ACM. 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 molybdenum detected in groundwater above background concentrations. 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 (MNA)
- Permeable Reactive Barrier
- Phytoremediation
- Subsurface Vertical Barrier Walls

While in-situ solidification/stabilization (ISS) is generally considered a viable option for either small source areas or targeted zones within a larger footprint, this potential corrective measure is not a viable corrective measure at AP-3. The closure of AP-3 as previously described caps the CCR materials beneath an engineered cover system that minimizes the potential mobilization of CCR constituents into groundwater.

Phytoremediation is the use of plants to degrade, immobilize, or contain constituents in soil, groundwater, surface water, and sediments. Over recent decades, phytoremediation has emerged as a viable alternative to more active environmental cleanup technologies, especially for large areas with relatively low levels of constituents in shallow soils or groundwater. The effectiveness of groundwater remediation using traditional phytoremediation approaches may be limited by compacted soil conditions that impede root penetration or target groundwater that is too deep for root access. Given that groundwater wells at AP-3 that exhibited SSLs for molybdenum are screened to depths greater than 15 ft bgs, traditional plantings for phytoremediation are not expected to be successful.

Therefore, ISS and traditional phytoremediation are not considered applicable groundwater corrective measure for AP-3 and no detailed evaluations are discussed below or provided in **Table 4**.



4.2.1 Geochemical Approaches (In-Situ Injection)

Molybdenum can be precipitated and/or immobilized under different combinations of pH and redox conditions. A variety of pH and/or redox-altering technologies are available, with the most promising ones incorporating biological processes that promote the precipitation of insoluble minerals. Furthermore, chemical oxidants and reductants, and/or mechanical processes such as air sparging can be employed to alter geochemical conditions favorable to the attenuation of certain constituents, including molybdenum. These processes can be used to decrease the mobility of these constituents.

For example, insoluble (or sparingly soluble) molybdenite $[Mo(IV)S_{2}]$ may be formed under sulfate-reducing conditions by indigenous microbial populations. These conditions can be induced or enhanced by injecting electron donors such as emulsified vegetable oil (EVO), lactate, or ethanol into groundwater together with a sufficient supply of sulfate, if needed. Molybdenum can also be sorbed to aluminum and iron oxides as well as clay minerals.

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

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

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

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

While it is currently not well understood whether molybdenum can be efficiently attenuated using in-situ redox manipulations due to slow reaction kinetics, there is enough potentially supporting evidence to retain in-situ injections for further consideration as a corrective measure to address molybdenum in groundwater at AP-3, especially in smaller, more localized areas as indicated by current data.

4.2.2 Hydraulic Containment (Pump and Treat)

Generally, hydraulic containment (or control) refers to the use of groundwater extraction to artificially induce a hydraulic gradient and capture or control the migration of impacted groundwater. One example, groundwater pump and treat (P&T), is often considered to be a viable remedial technology at many sites (US EPA, 1996). This approach uses extraction wells or trenches to capture groundwater, which may subsequently require above-ground treatment and permitted discharge to a receiving water body or sewer system, reinjection into the aquifer, or reuse at the generating station. Groundwater P&T is often relatively slow 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 molybdenum. Extraction technologies also have the ability to overcome the limitations of in situ injection-based technologies (i.e., mixing and contact with affected materials, and to access impacted groundwater in lower permeability geologic formations such as fractured bedrock). Space constraints are mainly limited to the above-ground conveyance and treatment component of a P&T system since extraction wells can generally be installed into relatively tight spaces at the edge of waste or other points of compliance. Proximity of the extraction wells to Cabin Creek should be considered to avoid drawing water from Cabin Creek in lieu of groundwater. Consideration should also be given to the installation of extraction wells in the immediate vicinity of AP-3 due to geotechnical considerations in the context of the site-specific geology.

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 molybdenum in groundwater at AP-3 and will be retained for further evaluation.



4.2.3 Monitored Natural Attenuation

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

Attenuation mechanisms for inorganic constituents, such as molybdenum, are either physical (e.g., dilution, dispersion, flushing, and related processes) or chemical (e.g., sorption or oxidation reduction reactions). Select chemical processes can be facilitated by (bio)geochemical reactions. Per US EPA (2015b) "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)." Molybdenum undergoes sorption to iron and manganese oxides and can form insoluble minerals under sulfate-reducing conditions.

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 molybdenum, including dilution, dispersion, sorption, and precipitation, can be operational. A successful MNA approach requires a good understanding of hydrogeologic conditions and may require additional information and monitoring over an extended period of time. MNA may be used as a stand-alone corrective measure for groundwater impacted by dissolved molybdenum but is frequently used in combination with a second technology. At this time, MNA is a potentially viable corrective measure for molybdenum in groundwater at AP-3 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 molybdenum. The technology typically involves the installation of a subsurface wall constructed with reactive media such as zero-valent iron (ZVI), biologically active media (to induce oxidizing or reducing conditions), or clays, apatite, zeolites, and/or peat moss (to promote ionic exchange and/or sorption). PRBs have proven to be effective in passively treating several inorganic constituents found at CCR sites, including arsenic, selenium, and chromium (ITRC, 2011). The use of PRBs for molybdenum has been tested, but additional site-specific testing is needed to confirm the applicability of this technology to remove molybdenum from groundwater since it has shown early breakthrough with ZVI-type media in some studies (Morrison et al., 2006).

PRBs can be installed in downgradient locations using conventional excavation methods or one-pass trenching method. Excavated trenches get backfilled with reactive media to create a barrier that treats dissolved constituents as they passively flow through the PRB with the groundwater. 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 bentonitebased slurry wall construction, these configurations with a smaller treatment area help to lower construction and maintenance costs. Similar to slurry walls (see Section 4.2.6), PRBs are typically keyed into an underlying low-permeability unit such as a clay layer or bedrock. The installation depths of a PRB unit are generally limited to about 90 ft below ground surface (ft bgs). The installation of a PRB generally requires more space than extraction wells, but the system does not require above-ground treatment components; therefore, the overall treatment footprint is likely to be smaller compared to a P&T system.

While additional subsurface investigations, aquifer testing, reactive media testing, and compatibility testing of groundwater and a slurry wall component of a PRB will be needed to further evaluate the feasibility of installing a PRB at AP-3, the technology is currently considered to be a potentially viable corrective measure to address molybdenum in groundwater at AP-3 and will be retained for further evaluation.

4.2.5 Subsurface Vertical Barrier Walls

Subsurface vertical barrier walls (which include 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 groundwater movement. 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 piles.

The installation of these low-permeability walls is similar to the methods described for PRBs above. In general, sheet piling and trenching are typically limited to depths of approximately 50 ft bgs, even though specialty drilling/installation techniques can achieve depths up to 90 ft bgs. However, site-specific geologic and technology-specific considerations may limit this depth to shallower installations.

Groundwater pumping is required upgradient of the barrier wall to maintain an inward hydraulic gradient. The extracted groundwater may also require treatment in an above-ground treatment system, depending on the effluent discharge strategy.

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-3, the technology is currently considered to be a potentially viable corrective measure to address molybdenum at AP-3 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. 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**

As described in Section 1.3, source control at AP-3 is considered complete. Georgia Power closed AP-3 in 2018 via closure in place with the construction of a final engineered cover system, including a geomembrane component, to cap the unit. The closure of AP-3 in this manner provides a source control measure that reduces the potential for migration of CCR constituents to groundwater.

Georgia Power plans to proactively utilize adaptive management for Plant Hammond AP-3 to support the remedial strategy and to address changes in conditions (e.g., successful reduction of constituent concentrations or changing trends) as appropriate. Under an adaptive management strategy:

- A corrective measure will be installed or implemented to address current conditions;
- The performance of the corrective measure will be monitored, evaluated, and reported at least semiannually;
- The conceptual model will be updated as more data are collected; and
- Adjustments and augmentations will be made to the corrective measure(s), as needed, to assure that performance criteria and remedial goals are met.

5.2 Additional Data Gathering

Additional data gathering, data analysis, and site-specific evaluations are necessary to refine the conceptual site model and to 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 geochemical studies of the groundwater and aquifer media,

geochemical and/or groundwater flow or fate and transport modeling, material compatibility testing, bench scale studies, and pilot tests may require approximately 18 to 24 months 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

Additional data collection will be required to further evaluate the corrective measures presented within this report. Georgia Power will prepare semiannual progress reports to document Site groundwater conditions, results associated with additional data collection in support of the ACM, results of the ongoing vertical delineation of molybdenum in groundwater, and the progress in selecting and designing the corrective measure(s) in accordance with 40 CFR § 257.97(a). The initial semiannual progress report updating this ACM will be provided in February 2021 to coincide with the next groundwater monitoring and corrective action report; the semiannual progress report will be included as an appendix to the routine monitoring report. The semiannual progress report will also be posted individually to Georgia Power's website.

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

6.0 **REFERENCES**

- Geosyntec Consultants. 2019. 2018 Annual Groundwater Monitoring and Corrective Action Report Plant Hammond Ash Ponds 1 & 2 (AP-1 and AP-2), January 2019.
- Geosyntec Consultants. 2020a. 2020 Annual Groundwater Monitoring and Corrective Action Report Plant Hammond Ash Pond 3 (AP-3), July 2020.
- Geosyntec Consultants. 2020b. Hydrogeological Assessment Report (Revision 01) Plant Hammond Ash Pond 3 (AP-3), December 2020.
- ITRC (Interstate Technology & Regulatory Council). 2011. Permeable Reactive Barrier: Technology Update. PRB-5. Washington, D.C.: Interstate Technology & Regulatory Council, PRB: Technology Update Team. www.itrcweb.org.
- Morrison S.J., P.S. Mushovic, and P.L. Niesen. 2006. Early Breakthrough of Molybdenum and Uranium in a Permeable Reactive Barrier. Environ. Sci. Technol. 40(6): 2018-2024.
- U.S. Environmental Protection Agency. 1996. Final Guidance: Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Ground Water at CERCLA Sites, EPA 540/R-96/023, Office of Solid Waste and Emergency Response Directive 9283.1-12, October 1996.
- U.S. Environmental Protection Agency. 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance.* Office of Resource Conservation and Recovery – Program Implementation and Information Division, March 2009.
- U.S. Environmental Protection Agency. 2015a. Federal Register. Volume 80. No. 74. Friday April 17, 2015. Part II. Environmental Protection Agency. 40 CFR Parts 257 and 261. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. [EPA-HQ-RCRA– 2009–0640; FRL–9919–44–OSWER]. RIN–2050–AE81, April 2015.
- U.S. Environmental Protection Agency. 2015b. Use of Monitored Natural Attenuation for Inorganic Contaminants in Groundwater at Superfund Sites, Office of Solid Waste and Emergency Response Directive 9283.1-36, August 2015.

TABLES

Table 1 Monitoring Well Network Summary Plant Hammond AP-3, Floyd County, Georgia

Well ID	Hydraulic Location	Installation Date	Northing ⁽¹⁾	Easting ⁽¹⁾	Ground Surface Elevation ⁽²⁾ (ft)	Top of Casing Elevation ⁽²⁾ (ft)	Top of Screen Elevation ⁽²⁾ (ft)	Bottom of Screen Elevation ⁽²⁾ (ft)	Well Depth (ft BTOC) ⁽³⁾	Screen Interval Length
Compliance Monitorin	g Well									
HGWA-1	Upgradient	12/3/2014	1550423.32	1940770.00	592.32	595.21	573.12	563.12	32.49	10
HGWA-2	Upgradient	12/2/2015	1549796.87	1939845.15	585.29	587.92	570.29	560.29	27.95	10
HGWA-3	Upgradient	12/2/2015	1549794.41	1939833.39	585.23	587.74	553.23	543.23	44.51	10
HGWA-43D	Upgradient	8/26/2020	1550422.85	1940753.80	592.08	595.08	544.08	534.08	61.25	10
HGWA-44D	Upgradient	8/25/2020	1550409.13	1940756.18	592.01	594.79	491.76	481.76	113.28	10
HGWA-45D	Upgradient	8/19/2020	1551157.68	1941907.54	584.08	586.95	535.23	525.23	62.87	10
HGWA-122	Upgradient	11/20/2014	1551251.42	1941887.11	585.04	587.90	570.54	560.54	27.76	10
HGWC-120	Downgradient	6/27/2016	1551067.24	1942926.62	602.83	605.82	548.83	538.83	67.00	10
HGWC-121A	Downgradient	7/17/2017	1550607.97	1943030.44	582.31	584.69	556.71	546.71	37.98	10
HGWC-124	Downgradient	11/13/2014	1551624.93	1942781.05	579.80	582.52	557.80	547.80	35.12	10
HGWC-125	Downgradient	5/4/2020	1550821.41	1942962.87	605.70	608.89	556.03	546.03	63.19	10
HGWC-126 ⁽⁴⁾	Downgradient	11/25/2019	1550422.03	1942689.40	608.72	611.24	552.72	542.72	68.52	10
Delineation Well										
MW-32	Downgradient	11/22/2019	1551092.83	1943021.47	583.10	585.46	559.30	549.30	36.16	10
MW-41	Downgradient	5/18/2020	1551158.16	1943196.47	574.87	577.25	563.20	553.20	24.38	10
MW-46D	Downgradient	8/18/2020	1551056.48	1942929.10	603.17	605.72	513.92	503.92	102.05	10
Piezometer										
MW-21	Downgradient	12/3/2014	1550270.15	1941809.76	583.60	586.27	570.40	560.40	26.28	10
MW-23	Downgradient	11/24/2014	1551641.44	1942496.83	582.13	584.91	563.03	553.03	32.28	10
MW-39	Downgradient	3/16/2020	1551111.45	1943089.26	577.60	580.42	564.93	554.93	25.82	10

Notes:

ft = feet.

ft BTOC = feet below top of casing.

(1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Survey data certified May 19, 2020. HGWA-44D, HGWA-44D, HGWA-45D and MW-46D survey data certified September 10, 2020.

(2) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88). Survey data certified May 19, 2020. HGWA-43D, HGWA-9, HGWA-10 and MW-46D survey data certified September 10, 2020.

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

(4) Well HGWC-126 was originally installed as piezometer MW-31 but reclassified as a compliance monitoring well in May 2020.

Table 2
Summary of Groundwater Protection Standards
Plant Hammond AP-3, 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	0.053	2	2
Beryllium	mg/L	0.003	0.004	0.004
Cadmium	mg/L	0.0025	0.005	0.005
Chromium	mg/L	0.01	0.1	0.1
Cobalt	mg/L	0.005	0.006	0.005
Fluoride	mg/L	0.28	4	4
Lead	mg/L	0.005	0.015	0.005
Lithium	mg/L	0.03	0.04	0.03
Mercury	mg/L	0.0005	0.002	0.002
Molybdenum	mg/L	0.01	0.1	0.01
Selenium	mg/L	0.01	0.05	0.05
Thallium	mg/L	0.001	0.002	0.002
Combined Radium-226/228	pCi/L	1.81	5	5

Notes:

"mg/L" = milligrams per liter

"pCi/L" = picocuries per liter

 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). The background limits were from the March 2020 monitoring event.

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 is used; or (iii) background concentrations for constituents were the background level is higher than the MCL or rule-specified GWPS.

3. Under the existing Georgia EPD rules, the GWPS is: (i) the MCL, (ii) where the MCL is not established, the background concentration, or (iii) background concentrations for constituents were the background level is higher than the MCL.

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

	Well ID:	HGWA-1	HGWA-1	HGWA-2	HGWA-2	HGWA-3	HGWA-3	HGWA-43D	HGWA-44D	HGWA-45D	HGWA-122	HGWA-122
	Sample Date:	8/28/2020	9/15/2020	8/5/2020	9/15/2020	8/25/2020	9/15/2020	9/16/2020	9/16/2020	9/25/2020	8/24/2020	9/15/2020
	Parameter ^(1,2)											
	Boron		0.017 J		0.044 J		0.0071 J	0.061 J	0.23	0.16		0.22
Ξ	Calcium		103		21.1		73.1	56.0	30.0	56.8		75.8
	Chloride		13.4		5.0		6.0	4.1	4.1	3.6		3.6
APPENDIX	Fluoride	0.080 J	0.082 J	< 0.050	< 0.050	< 0.050	< 0.050	0.058 J	0.22	0.21	0.075 J	0.096 J
PE	рН ⁽³⁾	7.02	7.15	5.17	5.22	7.14	7.29	7.52	7.83	7.57	6.54	6.68
AF	Sulfate		47.3		51.5		44.7	43.0	43.0	6.8		41.4
	TDS		265		124		258	272	270	263		267
	Antimony	< 0.00028	< 0.00028	< 0.00028	< 0.00028	< 0.00028	< 0.00028	0.00051 J	0.00049 J	< 0.00028	< 0.00028	0.0010 J
	Arsenic	< 0.00078		< 0.00078		< 0.00078		< 0.00078	< 0.00078	< 0.00078	< 0.00078	
	Barium	0.036	0.035	0.11	0.12	0.11	0.12	0.26	0.24	0.49	0.041	0.039
	Beryllium	< 0.000046	< 0.000046	0.00014 J	0.00013 J	< 0.000046	< 0.000046	< 0.000046	< 0.000046	< 0.000046	< 0.000046	< 0.000046
	Cadmium	< 0.00012		< 0.00012		< 0.00012		< 0.00012	< 0.00012	< 0.00012	< 0.00012	
N	Chromium	< 0.00055	< 0.00055	0.00067 J	< 0.00055	< 0.00055	< 0.00055	< 0.00055	0.0012 J	< 0.00055	0.00093 J	0.00067 J
XI	Cobalt	< 0.00038	< 0.00038	0.018	0.021	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038
Q	Fluoride	0.080 J	0.082 J	< 0.050	< 0.050	< 0.050	< 0.050	0.058 J	0.22	0.21	0.075 J	0.096 J
APPENDIX	Lead	0.000070 J	< 0.000036	0.000085 J	0.000080 J	< 0.000036	0.000042 J	0.000050 J	0.00021 J	< 0.000036	0.000077 J	0.000043 J
Ā	Lithium	0.00087 J	0.00087J	0.0015 J	0.0015 J	0.0027 J	0.0026 J	0.0018 J	0.014 J	0.0049 J	< 0.00081	< 0.00081
	Mercury	< 0.000078		< 0.000078		< 0.000078		< 0.000078	< 0.000078	< 0.000078	< 0.000078	
	Molybdenum	< 0.00069	< 0.00069	< 0.00069	< 0.00069	< 0.00069	< 0.00069	0.0044 J	0.0019 J	0.0014 J	0.0031 J	0.0045 J
	Combined Radium 226/228	0.000 U	0.748 U	0.778 U	0.756 U	0.330 U	0.161 U	0.531 U	0.422 U	1.07 U	0.883 U	0.375 U
	Selenium	< 0.0016		< 0.0016		< 0.0016		< 0.0016	< 0.0016	< 0.0016	< 0.0016	
	Thallium	< 0.00014		< 0.00014		< 0.00014		< 0.00014	< 0.00014	< 0.00014	< 0.00014	
	Bicarbonate Alkalinity		307		26.1		187	251	294	272		202
_	Iron		0.087		0.78		0.26	0.02 J	0.42	0.48		0.031 J
EN	Magnesium		4.3		2.5		4.6	18.3	15.1	19.4		5.6
OCH	Manganese		0.18		0.61		0.22	0.010 J	0.020 J	0.053		0.0055 J
GEOCHEM	Potassium		0.34		0.89		0.46	0.97	3.2	2.1		0.90
Ŭ	Sodium		21.1		7.4		4.9	14.0	50.3	19.0		7.1
	Sulfide		< 0.050		< 0.050		< 0.050	< 0.050	0.11	0.68		< 0.050

Notes:

--- = Parameter was not analyzed

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

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

U = Indicates the parameter was not detected above the minimum detection concentration (MDC, specific to combined radium)

(1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for 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 6010D/6020B, Mercury was analyzed by EPA Method 7470A, anions were analyzed by EPA Method 300.0, TDS was analyzed by Standard Method 2450C-2011, and combined radium by EPA Methods 9315/9320. (3) The pH value presented was recorded at the time of sample collection in the field.

(4) Cabin Creek surface water sampling location; refer to included Figure 3 for locations. Non-detect values reported below the RL.

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

	Well ID:	HGWC-120	HGWC-120	HGWC-121A	HGWC-121A	HGWC-124	HGWC-124	HGWC-125	HGWC-125	HGWC-126	HGWC-126
	Sample Date:	8/26/2020	9/21/2020	8/26/2020	9/28/2020	8/27/2020	9/28/2020	8/25/2020	9/21/2020	8/25/2020	9/18/2020
	Parameter ^(1,2)										
	Boron		0.93		2.3		0.43	1.4	1.4	0.016 J	0.041 J
Ш	Calcium		152		167		107	186	155	130	119
XI	Chloride		2.4		23.2		2.5	10.6	12.1	8.7	8.4
APPENDIX	Fluoride	0.48	0.33	0.16	0.15	< 0.050	< 0.050	0.16	0.11	0.52	0.43
PE	рН ⁽³⁾	6.96	6.98	6.73	6.93	7.15	7.27	6.36	6.22	6.78	6.97
AF	Sulfate		225		182		86	353	352	62.8	62.7
	TDS		272		<10.0		176	772	956	505	452
	Antimony	< 0.00028	< 0.00028	< 0.00028	< 0.00028	< 0.00028	< 0.00028	< 0.00028	< 0.00028	< 0.00028	< 0.00028
	Arsenic	< 0.00078		< 0.00078		< 0.00078		< 0.00078		< 0.00078	
	Barium	0.041	0.046	0.057	0.56	0.062	0.071	0.045	0.042	0.23	0.21
	Beryllium	< 0.000046	< 0.000046	< 0.000046	< 0.000046	< 0.000046	< 0.000046	< 0.000046	< 0.000046	< 0.000046	< 0.000046
	Cadmium	< 0.00012		< 0.00012		< 0.00012		< 0.00012		< 0.00012	< 0.00055
IV	Chromium	< 0.00055	0.00065 J	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	< 0.00055	0.00096 J	< 0.00038
XI	Cobalt	0.0023 J	0.0041 J	< 0.00038	< 0.00038	< 0.00038	< 0.00038	0.0087	0.012	< 0.00038	< 0.00038
	Fluoride	0.48	0.33	0.16	0.15	< 0.050	< 0.050	0.16	0.11	0.52	0.43
APPENDIX	Lead	< 0.000036	< 0.000036	< 0.000036	< 0.000036	< 0.000036	0.000075 J	< 0.000036	< 0.000036	0.000045 J	< 0.000036
W	Lithium	0.023 J	0.023 J	0.0071 J	0.0076 J	0.00091 J	0.0011 J	0.0037 J	0.00385 J	0.0037 J	0.0035 J
	Mercury	< 0.000078		< 0.000078		< 0.000078		< 0.000078		< 0.000078	
	Molybdenum	0.050	0.043	< 0.00069	< 0.00069	0.00091 J	0.00090 J	0.00099 J	< 0.00069	< 0.00069	< 0.00069
	Combined Radium 226/228	0.357 U	0.553 U	1.96	0.761 U	0.494 U	0.477 U	1.65	1.45	1.82	0.841 U
	Selenium	< 0.0016		< 0.0016		< 0.0016		< 0.0016		< 0.0016	
	Thallium	< 0.00014		< 0.00014		< 0.00014		< 0.00014		< 0.00014	
	Bicarbonate Alkalinity		599		376		240		205		451.0
_	Iron		0.4		0.044		0.48		0.13		1.4
IEN	Magnesium		19.9		23.6		9.6		24.3		22.0
ЮСН	Manganese		1.3		0.68		0.24		2.3		0.15
GEOCHEM	Potassium		7.40		1.2		0.94		3.8		0.91
Ŭ	Sodium		9.9		35.3		5.6		22.0		28.5
	Sulfide		< 0.050		< 0.050		< 0.050		< 0.050		0.068 J

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

	Well ID:	MW-32	MW-32	MW-32	MW-32	MW-32	MW-41	MW-41	MW-41	MW-46D	H-SCC NBR ⁽⁴⁾	H-SCC E41 ⁽⁴⁾
	Sample Date:	1/3/2020	1/22/2020	3/25/2020	8/26/2020	9/28/2020	6/15/2020	8/26/2020	9/28/2020	9/25/2020	7/17/2020	7/17/2020
	Parameter ^(1,2)											
	Boron	1.1		1.2		1.3	1.2		1.2	0.51		
E	Calcium	150		170		173	174		173	78.3		
IX	Chloride	2.4		2.2		2.5	2.3		2.5	3.7		
APPENDIX	Fluoride	0.36		0.34	0.33	0.33	0.21	0.24	0.25	0.68		
PE	рН ⁽³⁾	6.83	6.68	6.86	6.75	6.9	6.88	6.74	7.00	7.56		
AP	Sulfate	210		204		245	219		154	149		
	TDS	645		641		272	674		392	449		
	Antimony				0.00035 J	< 0.00028		< 0.00028	< 0.00028	< 0.00028		
	Arsenic				< 0.00078			< 0.00078				
	Barium			0.062	0.055	0.053	0.074	0.066	0.071	0.040		
	Beryllium				< 0.000046	< 0.000046		< 0.000046	< 0.000046	< 0.000046		
	Cadmium				< 0.00012			< 0.00012				
2	Chromium			< 0.00039	< 0.00055	0.00058 J	< 0.00039	< 0.00055	< 0.00055	0.00075 J		
	Cobalt			0.0031 J	0.0048 J	0.0047 J	0.0012 J	0.00068 J	0.00066 J	0.00041 J		
R	Fluoride	0.36		0.34	0.33	0.33	0.21	0.24	0.25	0.68		
APPENDIX	Lead			< 0.000046	< 0.000036	< 0.000036	< 0.000046	< 0.000036	< 0.000036	0.000048 J		
AF	Lithium			0.034	0.031	0.032	0.028 J	0.027 J	0.028 J	0.015 J		
	Mercury				< 0.000078			< 0.000078				
	Molybdenum	0.060	0.059	0.062	0.065	0.062	0.035	0.039	0.036	0.027	< 0.010	< 0.010
	Combined Radium 226/228				0.281 U	1.01 U	0.948 U	1.53	0.409 U	0.594 U		
	Selenium				< 0.0016			< 0.0016				
	Thallium				< 0.00014			< 0.00014				
	Bicarbonate Alkalinity					315	315		313	238		
	Iron					0.021 J	0.20		0.16	0.42		
IEM	Magnesium					20.8	23.4		21.4	16.5		
CH	Manganese					1.6	0.88		0.85	0.31		
GEOCHEM	Potassium					7.7	6.5		6.7	3.8		
	Sodium					8.0	9.6		8.1	53.6		
	Sulfide					< 0.050	< 0.050		< 0.050	0.30		

Table 4 Evaluation of Groundwater Corrective Measures Plant Hammond AP-3, Floyd County, Georgia

	Regulatory Citation for Criteria:	40 CFR 2:	57.96(C)(1)
Corrective Measure	Description	Performance	Reliabili
Geochemical Approaches (In-Situ Injection)	Use of an injection well network, or other means of introducing reagents or air into the subsurface, to provide suitable reagents for either anaerobic or aerobic attenuation of molybdenum (Mo). Under anaerobic conditions, Mo may be attenuated within sparingly soluble sulfide minerals. Under aerobic conditions, soluble iron or manganese and oxygen (either via air sparging or through a chemical oxidant) would be injected to promote the formation of iron or manganese (oxy-) hydroxides for subsequent sorption of Mo onto these mineral phases. If sufficient iron is present in groundwater, the use of air sparging alone may be considered to precipitate iron (oxy-) hydroxides for sorption. In-situ chemical oxidation (ISCO) or in-situ chemical reduction (ISCR) can be used to chemically alter the redox environment in the subsurface to affect the mobility of certain inorganic compounds, including Mo.	The effective immobilization of Mo under promoted anaerobic condition (involving the injection of an electron donor together with iron or manganese and sulfur) requires careful study and testing. While aerobic approaches are somewhat less complex, additional aquifer characterization is needed to further evaluate these options. It is currently not well understood whether Mo can be efficiently attenuated using in-situ redox manipulations due to slow reaction kinetics. Mo attenuation under both aerobic and anaerobic conditions needs to be further evaluated but is expected to occur. Mo is more strongly sorbed to aluminum oxides than other metal oxides, and it is generally less sorptive and more mobile compared to other inorganics [e.g., arsenic (As)].	Reliability dependent on permeability of the distribution of secondary iron or manganese approach), or electron donors and soluble ir be consistently distributed (for anaerobic ap injected materials can be distributed througl and/or pilot-scale treatability testing progran biogeochemical processes that would effecti groundwater.
Hydraulic Containment (Pump and Treat)	Hydraulic containment refers to the use of groundwater extraction to induce a hydraulic gradient for hydraulic capture or control the migration of impacted groundwater. This approach uses extraction wells or trenches to capture groundwater, which may subsequently require above-ground treatment and permitted discharge to a receiving water feature, reinjection into the groundwater, or reuse (e.g., land application, CCR conditioning, etc.). It is applicable to a variable mix of inorganic constituents, including dissolved Mo.	Hydraulic containment is effective, but it is unclear whether full groundwater remediation can be achieved without further understanding attenuation mechanisms at the Site. At AP-3, 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. Proximity of the extraction system to Cabin Creek needs to be considered to avoid capturing surface water.	Generally reliable for hydraulic containmen groundwater remediation goals can be achie without further understanding attenuation m
Monitored Natural Attenuation (MNA)	MNA relies on natural attenuation processes to achieve site-specific remediation objectives within a reasonable time frame relative to more active methods. Under certain conditions (e.g., through sorption, mineral precipitation or oxidation-reduction reactions), MNA effectively reduces the dissolved concentrations of inorganic constituents in groundwater. Attenuation mechanisms for inorganic constituents at CCR sites, including Mo, are either physical (e.g. dilution, dispersion, flushing, and related processes) or chemical (sorption or oxidation reduction reactions). Chemical attenuation processes include precipitation, and sorption reactions such as adsorption on the surfaces of soil minerals, absorption into the matrix of soil minerals, or partitioning into organic matter. Further, oxidation-reduction (redox) reactions, via abiotic or biotic processes, can transform the valence states of some inorganic constituents to less soluble and thus less mobile forms. For Mo, the main attenuation process includes sorption to iron and manganese oxides and formation of insoluble minerals under sulfate-reducing conditions.	Physical and chemical MNA mechanisms for Mo, including dilution, dispersion, sorption, and oxidation reduction reactions can be effective at achieving groundwater protection standards (GWPS) within a reasonable time frame.	Reliable as long as the aquifer conditions th favorable and/or are being enhanced and su present. MNA may be used as a stand-alone impacted by dissolved Mo, but is frequently 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 removal of Mo. The carbon could be composed of peat moss, mulch or another carbon source. Exact placement of the PRB is determined by site-specific 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.	achieve GWPS for Mo as impacted groundwater passes through the reactive barrier. Mo redox kinetics may be slow and hence a thicker wall might be	Reliable groundwater corrective measure tee loss of reactivity over time may require re-ir of the remedy. Additional data collection, i pilot study, is needed to better characterize and/or select the appropriate reactive media
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; sheet piling and trenching are typically limited to depths of approximately 50 feet belowground surface (ft bgs); specialty drilling/installation techniques can achieve depths greater up to approximately 90 ft bgs. However, site-specific geologic and technology-specific considerations may limit this depth to shallower installations. Within the context of AP-3, 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 Mo above GWPS could either be directed to "treatment gates" for passive treatment (in a PRB) or migration of impacted groundwater could be minimized via barrier wall installation. Additional subsurface investigations, aquifer testing, and compatibility testing with site-specific groundwater will be needed.	Generally reliable as a barrier to groundwat downgradient groundwater is incidental and

Table 4 Evaluation of Groundwater Corrective Measures Plant Hammond AP-3, Floyd County, Georgia

	40 CFR 257.96(C)(1)	40 CFR 257.96(C)(1)	40 CFR 257.96
Corrective Measure	Ease of Implementation	Potential Impacts	Time Requirement to B
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 at 2 months). However, a thorough pre-design i modeling, and/or bench- and/or pilot-testing v parameters prior to design and construction o may take up to 24 months. Once installed, th within the treatment area may be relatively qu process kinetics of each targeted constituent. of the injected materials throughout the treatr
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 Mo. Operation and maintenance (O&M) requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.	Moderate. The main potential impacts are related to the presence and operation of an on-site above-ground water treatment facility and related infrastructure to convey and treat extracted groundwater. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone. Proximity of the extraction system to Cabin Creek needs to be considered to avoid capturing surface water.	Installation of extraction wells and/or trenche quickly (1 to 2 months). However, additional installation, and permit approval may be requ months. The initiation of the approach would the wastewater treatment infrastructure. Hyd relatively quickly after startup of the extractic with respect to the time to achieve GWPS with better understand attenuation mechanisms for
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 attenuation mechanisms and capacity can be t 24 months.
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. Depth to competent bedrock varies on a small-scale (feet to tens of feet) spatially depending on the weathering characteristics of the fractured bedrock, limiting the feasibility of constructing a PRB along the entire length and depth of the affected areas	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 rel depending on the final location and configura testing would be required to obtain design pa construction of the remedy, which may take u time to achieve GWPS downgradient of the P 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. Depth to competent bedrock varies on a small-scale (feet to tens of feet) spatially depending on the weathering characteristics of the fractured bedrock, limiting the feasibility of constructing a barrier wall along the entire length and depth of the affected areas	Minimal impacts are expected following the construction of the remedy. Short- term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures. Changes to groundwater flow patterns due to installation of the barrier wall are expected, which can affect other aspects of groundwater corrective action. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone that may result in the mobilization of other constituents that may require treatment.	Installation of a barrier wall can be accomplis months), depending on the final location and design phase and additional aquifer and comp which may take up to 24 months. Once instal constituents dissolved in groundwater is antic this approach does not treat the downgradient prevents migration from a source area, it will term and coupled with other approaches.

7.96(C)(2)
to Begin/Complete
be accomplished relatively quickly (1 to ign investigation, geochemical ing will be required to obtain design on of the corrective measure, which I, the time required to achieve GWPS y quick but depends on the attenuation ent. The time for complete distribution eatment area is also variable.
aches can be accomplished relatively onal aquifer testing, system design and equired, which may take up to 24 ould be contingent on the start-up of Hydraulic containment can be achieved action system, but uncertainty exists 5 without additional data collection to 5 for Mo.
ady in place. Demonstrating be time-consuming and can take up to
d relatively quickly (6 to 12 months), guration. However, bench- and/or pilot- 1 parameters prior to design and ke up to 24 months. Once installed, the he PRB is anticipated to be relatively
uplished relatively quickly (6 to 12 and configuration. However, some ompatibility testing will be required, istalled, preventing migration of initicipated to be relatively quick. Since lient area of impacted groundwater but will likely have to be maintained long-

 Table 4

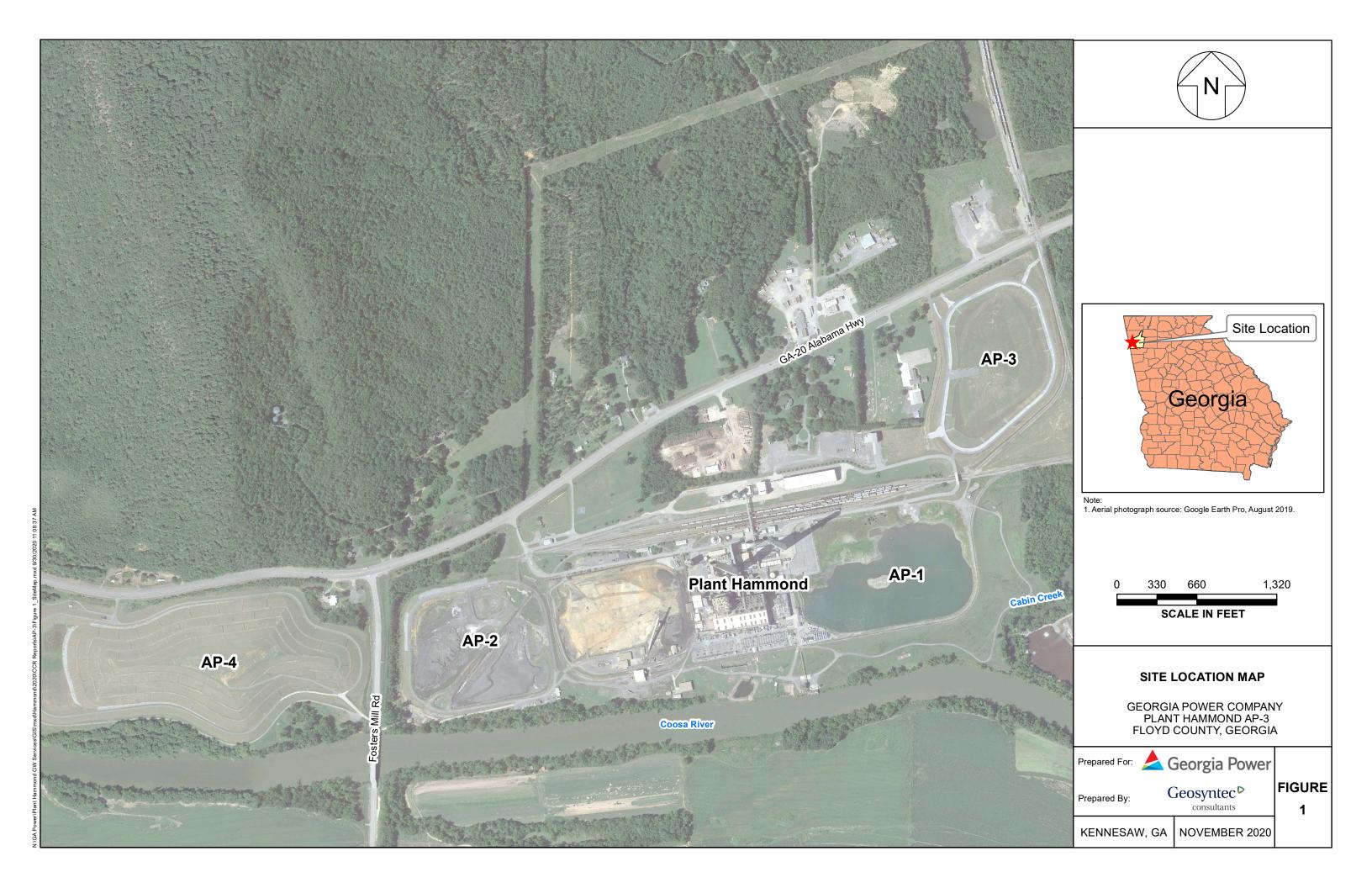
 Evaluation of Groundwater Corrective Measures

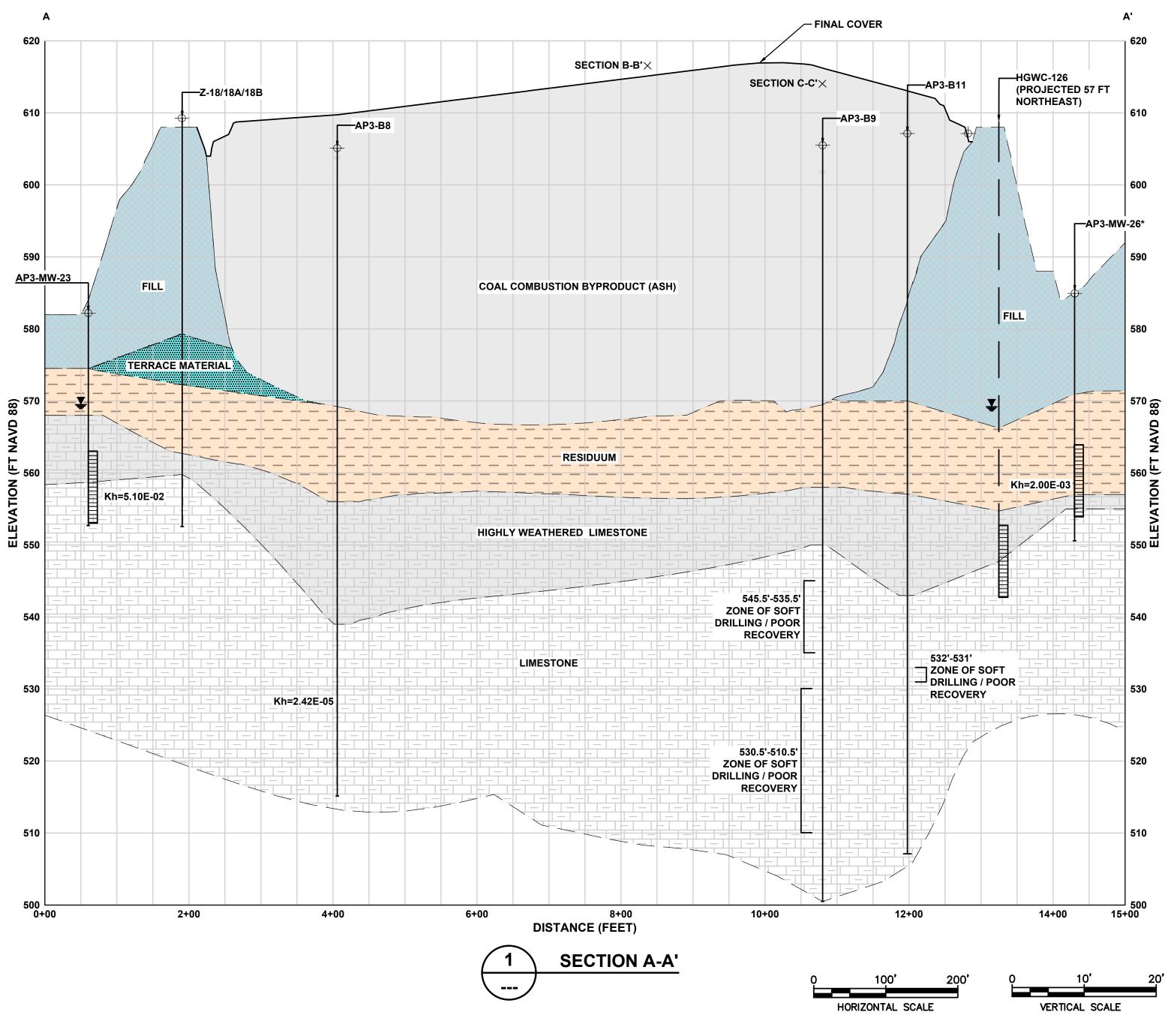
 Plant Hammond AP-3, Floyd County, Georgia

	40 CFR 257.96(C)(3)				
Corrective Measure	Institutional Requirements	Other Env or Public Health Requirements	Relative C		
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 Mo results for surface water collected to date, no Mo impacts to surface water have been detected. Potential for mobilization of redox-sensitive constituents exists during implementation of an anerobic attenuation approach. Following installation, the remedy is passive.	Medium (depending on expanse of inject volume required per derived		
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 Mo results for surface water collected to date, no Mo impacts to surface water have been detected. 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 du treatment system, and volum		
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 Mo results for surface water collected to date, no Mo impacts to surface water have been detected.	Low to med		
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 Mo results for surface water collected to date, no Mo impacts to surface water have been detected. 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 not necess		
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 Mo results for surface water collected to date, no Mo impacts to surface water have been detected. 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 complexity of above-groun		

Costs
ection network required and injectate ved design parameters)
duration, complexity of above-ground ume of water processed)
nedium
al O&M requirements if replacement is essary
nd depth of wall, remedy duration and und treatment system)

FIGURES





LEGEND

SOIL BORING (DASHED WHERE PROJECTED)

-	GROUNDWATER ELEVATION (SEPTEMBER 14, 2020)
	SCREEN INTERVAL
	FINAL COVER

SOIL LAYER DESCRIPTIONS COAL COMBUSTION BYPRODUCT (ASH) FILL (LEAN CLAY OR GRAVELLY LEAN CLAY WITH SAND) TERRACE MATERIAL (CLAYEY SAND, SANDY CLAY, GRAVELLY SILTY CLAY) RESIDUUM (LEAN CLAY, LEAN CLAY WITH GRAVEL, FAT CLAY OR SANDY FAT CLAY) HIGHLY WEATHERED LIMESTONE (CLAYEY GRAVEL, SANDY LEAN CLAY WITH GRAVEL)

LIMESTONE

NOTES:

VERTICAL EXAGGERATION: 10X

1. SUBSURFACE LITHOLOGIC ELEVATIONS BETWEEN BORINGS ARE INTERPRETED BASED ON AVAILABLE INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE.

2. ELEVATIONS OF LITHOLOGIC UNITS WERE ESTIMATED BASED ON GROUND SURFACE ELEVATIONS OF SOIL BORINGS.

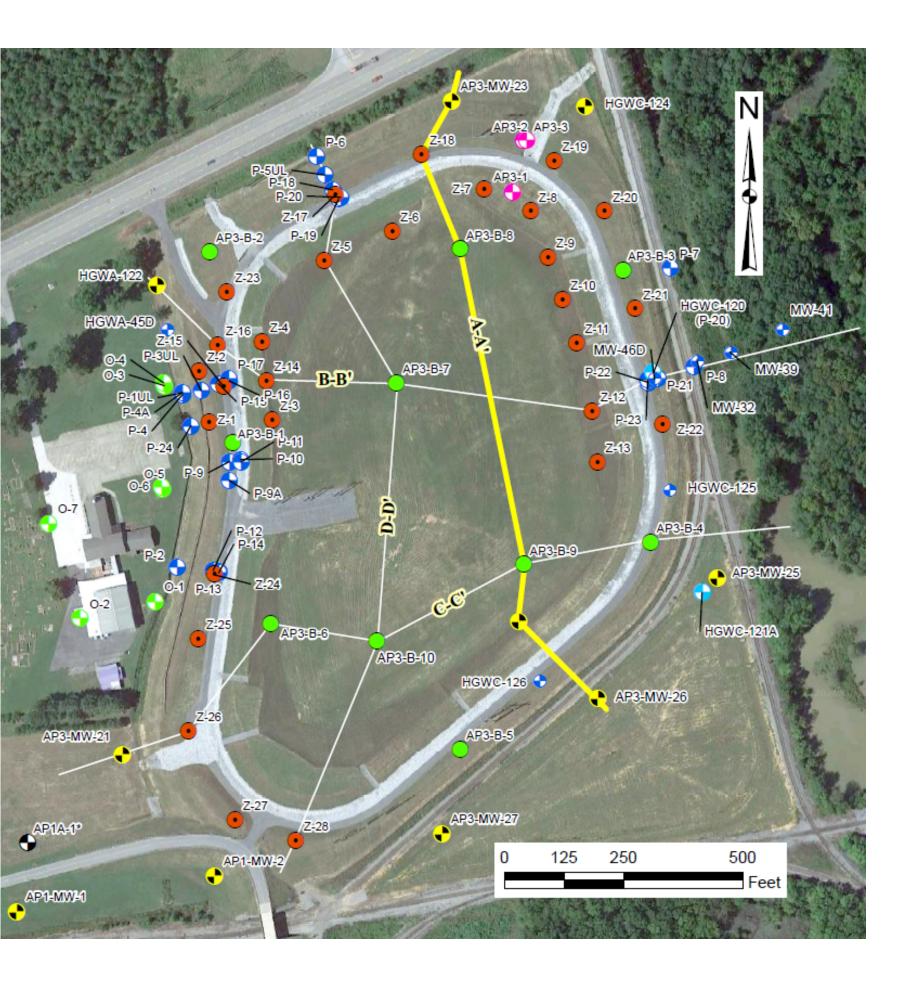
3. BORING LOGS AND HYDROGEOLOGIC INFORMATION FOR SOIL BORINGS Z1 THROUGH Z28 AND P1 THROUGH P24 (1976 & 1977), AP3-1, AP3-2, AND AP3-3 (2010), MONITORING WELLS AROUND ASH PONDS AP1 AND AP3 (2014), P20 AND P21 (2016) WERE PROVIDED BY SOUTHERN COMPANY SERVICES. SOIL BORINGS/PIEZOMETERS AP3-B1 THROUGH AP3-B11 WERE INSTALLED BY GEOSYNTEC CONSULTANTS IN FEBRUARY 2017. MONITORING WELL HGWC-126 WAS INSTALLED BY GEOSYNTEC CONSULTANTS IN 2019.

4. HORIZONTAL HYDRAULIC CONDUCTIVITY (Kh) IN CM/SEC. VERTICAL HYDRAULIC CONDUCTIVITY (Kv) IN CM/SEC.

5. EXISTING TOPOGRAPHIC MAP USED IN THE GEOLOGIC SECTION WAS BASED ON DRAWING NUMBER ES1844S1 PROVIDED BY SOUTHERN COMPANY SERVICES.

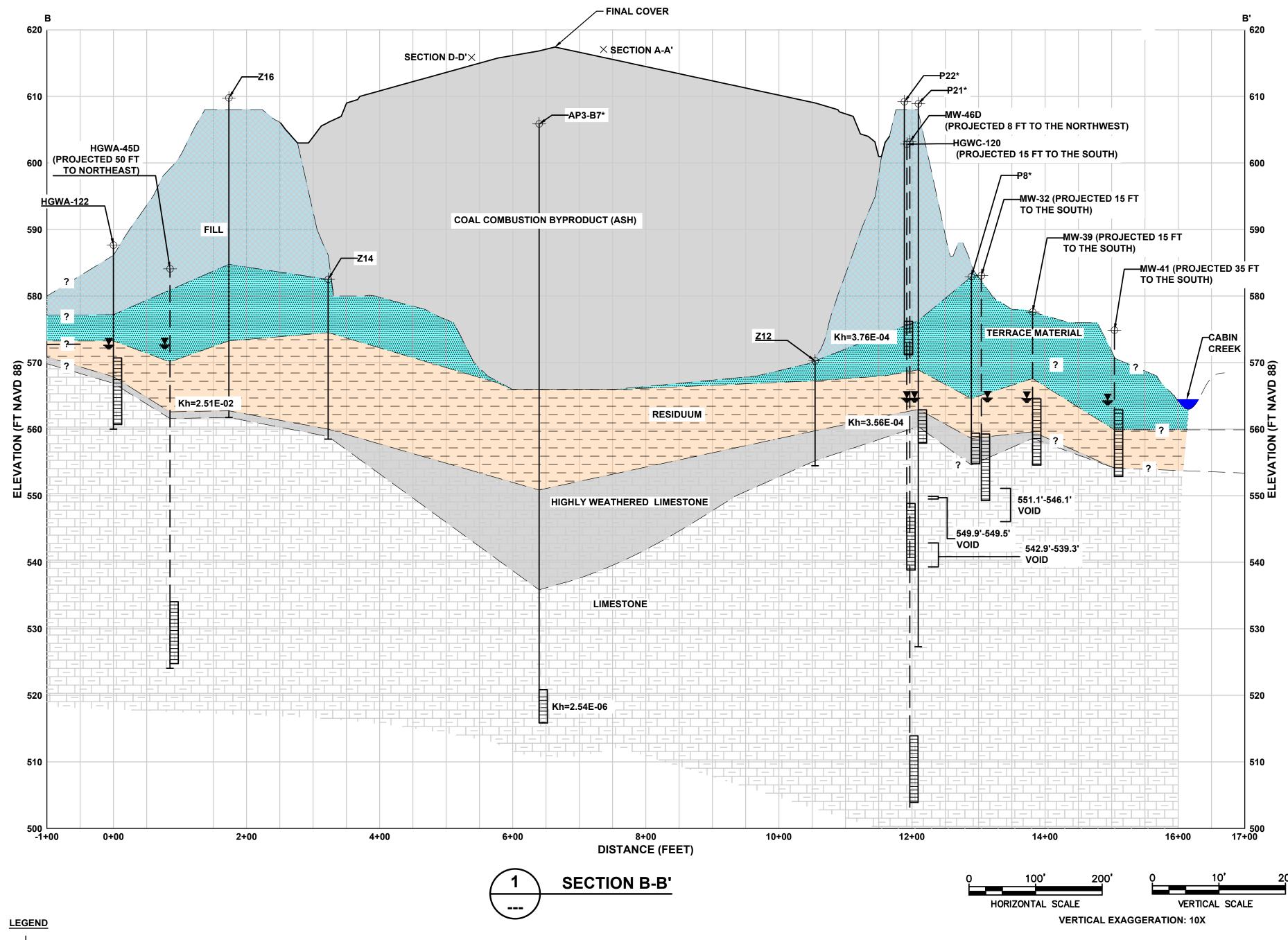
6. THE FINAL COVER CONSISTS OF A 60 MIL HDPE (HIGH DENSITY POLYETHYLENE) LINER, GEOCOMPOSITE DRAINAGE MEDIA, A MINIMUM 18-INCH PROTECTIVE SOIL COVER, AND A 6-INCH VEGETATIVE LAYER TO ESTABLISH VEGETATION.

7. *: WATER LEVEL EVELAVTION IS NOT KNOWN DUE TO WELL BEING ABANDONED PRIOR TO SEPTEMBER 2020.



KEY MAP

Geologic Section A-A'	
Georgia Power Company Plant Hammond AP3 Floyd County, Rome, Georgia	
	FIGURE



- SOIL BORING (DASHED WHERE PROJECTED) **GROUNDWATER ELEVATION (SEPTEMBER 14, 2020)** T
- SCREEN INTERVAL
- FINAL COVER

	NO	TES:
	1.	SUBSU INFORM
	2.	ELEVA [.] BORING
SOIL LAYER DESCRIPTIONS	_	
COAL COMBUSTION BYPRODUCT (ASH)	3.	BORING THROU AND AI
FILL (LEAN CLAY OR GRAVELLY LEAN CLAY WITH SAND)		PIEZON
TERRACE MATERIAL (CLAYEY SAND, SANDY CLAY, GRAVELLY SILTY CLAY)	4.	HORIZO
RESIDUUM (LEAN CLAY, LEAN CLAY WITH GRAVEL, FAT CLAY OR SANDY FAT CLAY)	5.	EXISTIN ES1844
HIGHLY WEATHERED LIMESTONE (CLAYEY GRAVEL, SANDY LEAN CLAY WITH GRAVEL)	6.	THE FII DRAINA ESTAB
		TO SEP

SURFACE LITHOLOGIC ELEVATIONS BETWEEN BORINGS ARE INTERPRETED BASED ON AVAILABLE DRMATION AND SHOULD BE CONSIDERED APPROXIMATE.

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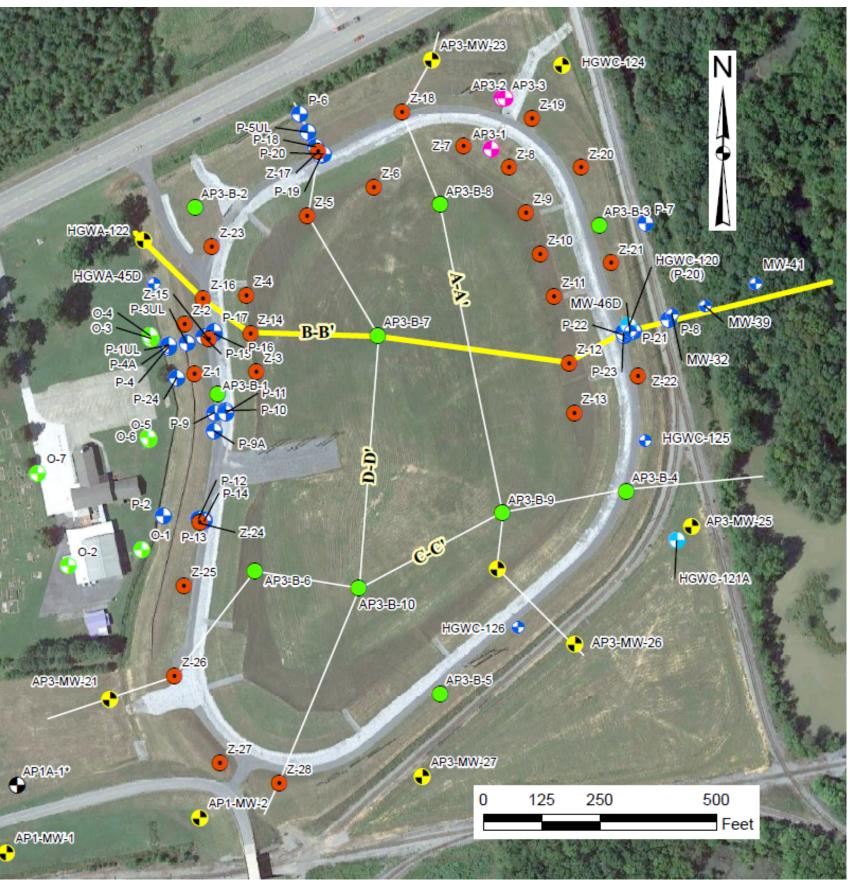
ING LOGS AND HYDROGEOLOGIC INFORMATION FOR SOIL BORINGS Z1 THROUGH Z28 AND P1 DUGH P24 (1976 & 1977), AP3-1, AP3-2, AND AP3-3 (2010), MONITORING WELLS AROUND ASH PONDS AP1 AP3 (2014), P20 AND P21 (2016) WERE PROVIDED BY SOUTHERN COMPANY SERVICES. SOIL BORINGS/ OMETERS AP3-B1 THROUGH AP3-B11 WERE INSTALLED BY GEOSYNTEC CONSULTANTS IN FEBRUARY 2017.

IZONTAL HYDRAULIC CONDUCTIVITY (Kh) IN CM/SEC. VERTICAL HYDRAULIC CONDUCTIVITY (Kv) IN CM/SEC.

TING TOPOGRAPHIC MAP USED IN THE GEOLOGIC SECTION WAS BASED ON DRAWING NUMBER 44S1 PROVIDED BY SOUTHERN COMPANY SERVICES.

FINAL COVER CONSISTS OF A 60 MIL HDPE (HIGH DENSITY POLYETHYLENE) LINER, GEOCOMPOSITE INAGE MEDIA, A MINIMUM 18-INCH PROTECTIVE SOIL COVER, AND A 6-INCH VEGETATIVE LAYER TO ABLISH VEGETATION.*: WATER LEVEL EVELAVTION IS NOT KNOWN DUE TO WELL BEING ABANDONED PRIOR SEPTEMBER 2020.

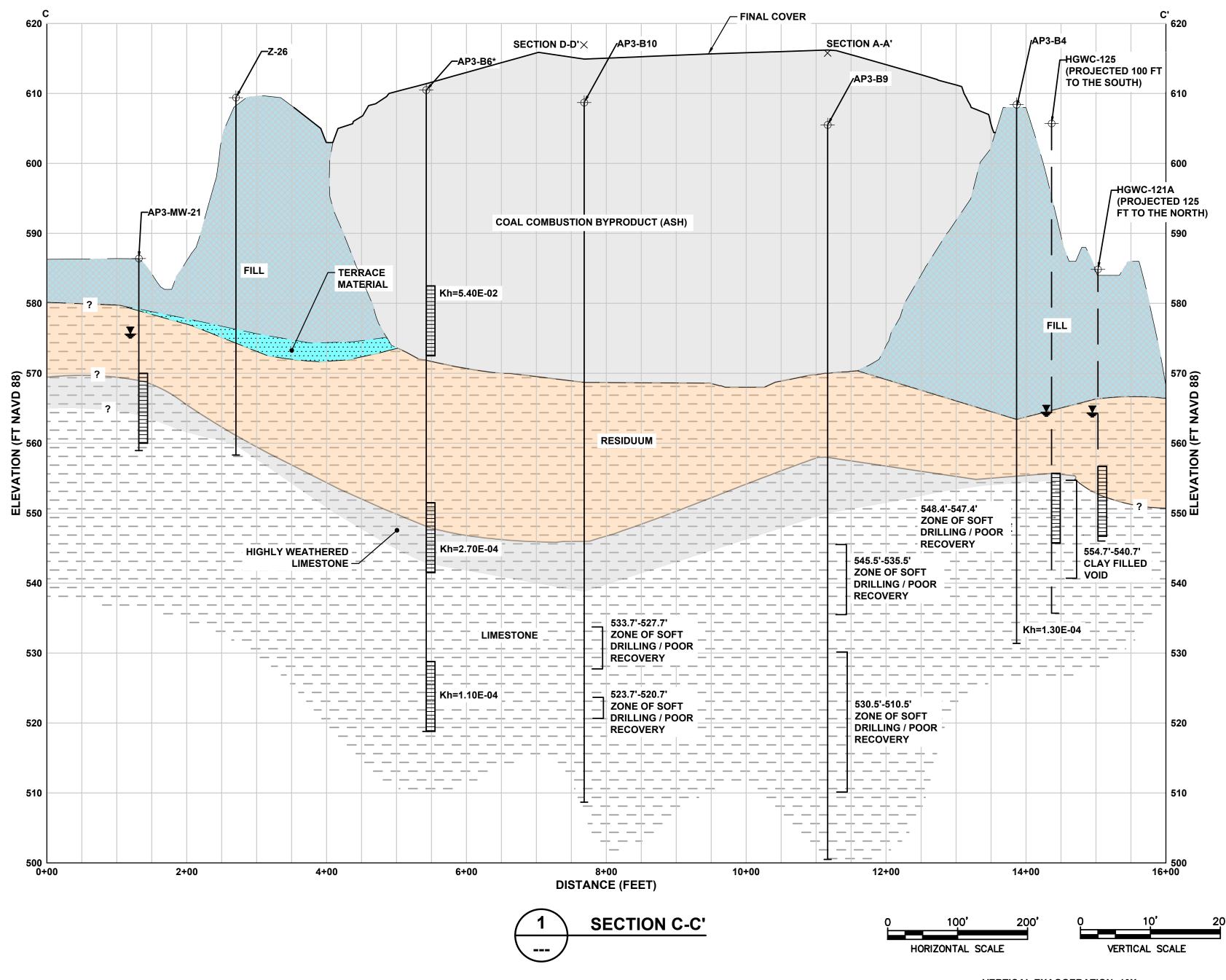
7. *: WATER LEVEL EVELAVTION IS NOT KNOWN DUE TO WELL BEING ABANDONED PRIOR TO SEPTEMBER 2020.



KEY MAP

Geologic Section B-B' Georgia Power Company Plant Hammond AP3 Floyd County, Rome, Georgia	
Geosyntec [▶]	F

FIGURE



<u>LEGEND</u>

SOIL BORING (DASHED WHERE PROJECTED)

GROUNDWATER ELEVATION (SEPTEMBER 14, 2020)
SCREEN INTERVAL

	NO	IES.
FINAL COVER	1.	SUBSI INFOR
	2.	ELEVA BORIN
SOIL LAYER DESCRIPTIONS COAL COMBUSTION BYPRODUCT (ASH)	3.	BORIN THROU AND A PIEZO 2017. I
FILL (LEAN CLAY OR GRAVELLY LEAN CLAY WITH SAND)		
TERRACE MATERIAL (CLAYEY SAND, SANDY CLAY, GRAVELLY SILTY CLAY)	4.	HORIZ SEC.
RESIDUUM (LEAN CLAY, LEAN CLAY WITH GRAVEL, FAT CLAY OR SANDY FAT CLAY)	5.	EXISTI ES184
HIGHLY WEATHERED LIMESTONE (CLAYEY GRAVEL, SANDY LEAN CLAY WITH GRAVEL)	6.	THE F

LIMESTONE -----

NOTES:

VERTICAL EXAGGERATION: 10X

JBSURFACE LITHOLOGIC ELEVATIONS BETWEEN BORINGS ARE INTERPRETED BASED ON AVAILABLE FORMATION AND SHOULD BE CONSIDERED APPROXIMATE.

EVATIONS OF LITHOLOGIC UNITS WERE ESTIMATED BASED ON GROUND SURFACE ELEVATIONS OF SOIL ORINGS.

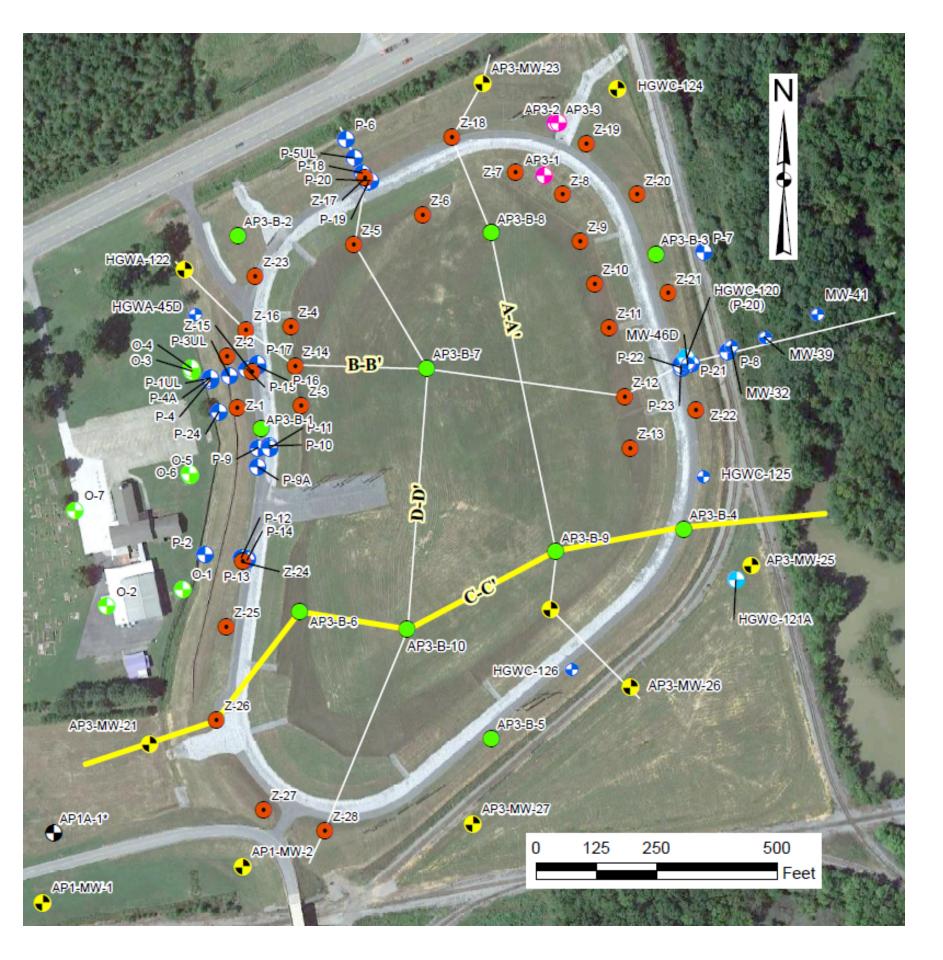
DRING LOGS AND HYDROGEOLOGIC INFORMATION FOR SOIL BORINGS Z1 THROUGH Z28 AND P1 IROUGH P24 (1976 & 1977), AP3-1, AP3-2, AND AP3-3 (2010), MONITORING WELLS AROUND ASH PONDS AP1 ND AP3 (2014), P20 AND P21 (2016) WERE PROVIDED BY SOUTHERN COMPANY SERVICES. SOIL BORINGS/ EZOMETERS AP3-B1 THROUGH AP3-B11 WERE INSTALLED BY GEOSYNTEC CONSULTANTS IN FEBRUARY 17. MONITORING WELL HGWC-125 WAS INSTALLED BY GEOSYNTEC CONSULTANTS IN MAY 2020.

DRIZONTAL HYDRAULIC CONDUCTIVITY (Kh) IN CM/SEC. VERTICAL HYDRAULIC CONDUCTIVITY (Kv) IN CM/

(ISTING TOPOGRAPHIC MAP USED IN THE GEOLOGIC SECTION WAS BASED ON DRAWING NUMBER 31844S1 PROVIDED BY SOUTHERN COMPANY SERVICES.

HE FINAL COVER CONSISTS OF A 60 MIL HDPE (HIGH DENSITY POLYETHYLENE) LINER, GEOCOMPOSITE DRAINAGE MEDIA, A MINIMUM 18-INCH PROTECTIVE SOIL COVER, AND A 6-INCH VEGETATIVE LAYER TO ESTABLISH VEGETATION.

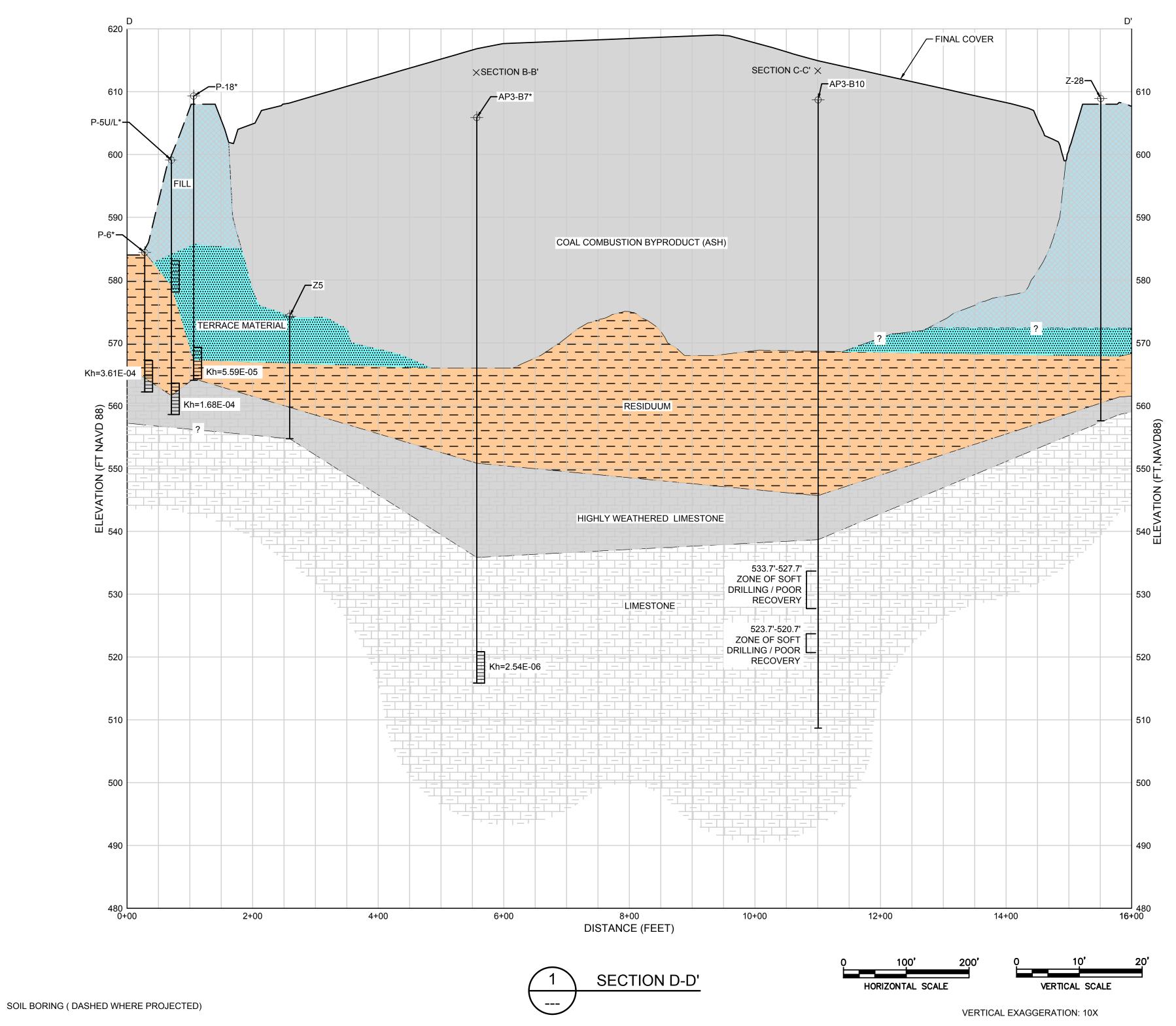
7. *: WATER LEVEL EVELAVTION IS NOT KNOWN DUE TO WELL BEING ABANDONED PRIOR TO SEPTEMBER 2020.



<u>KEY MAP</u>

Geologic Section C-C'	
Georgia Power Company Plant Hammond AP3 Floyd County, Rome, Georgia	
	FIGU

2C



<u>LEGEND</u>



SCREEN INTERVAL

COAL COMBUSTION BYPRODUCT (ASH)

FILL (LEAN CLAY OR GRAVELLY LEAN CLAY WITH SAND)

RESIDUUM (LEAN CLAY, LEAN CLAY WITH GRAVEL, FAT CLAY OR SANDY FAT CLAY)

TERRACE MATERIAL (CLAYEY SAND, SANDY CLAY, GRAVELLY

HIGHLY WEATHERED LIMESTONE (CLAYEY GRAVEL, SANDY

FINAL COVER

SOIL LAYER DESCRIPTIONS

NOTES: BORINGS.

3. BORING LOGS AND HYDROGEOLOGIC INFORMATION FOR SOIL BORINGS Z1 THROUGH Z28 AND P1 THROUGH P24 (1976 & 1977), AP3-1, AP3-2, AND AP3-3 (2010), MONITORING WELLS AROUND ASH PONDS AP1 AND AP3 (2014), P20 AND P21 (2016) WERE PROVIDED BY SOUTHERN COMPANY SERVICES. SOIL BORINGS/PIEZOMETERS AP3-B1 THROUGH AP3-B11 WERE INSTALLED BY GEOSYNTEC CONSULTANTS IN

FEBRUARY 2017.

5. EXISTING TOPOGRAPHIC MAP USED IN THE GEOLOGIC SECTION WAS BASED ON DRAWING NUMBER ES1844S1 PROVIDED BY SOUTHERN COMPANY SERVICES.

LIMESTONE

SILTY CLAY)

LEAN CLAY WITH GRAVEL)

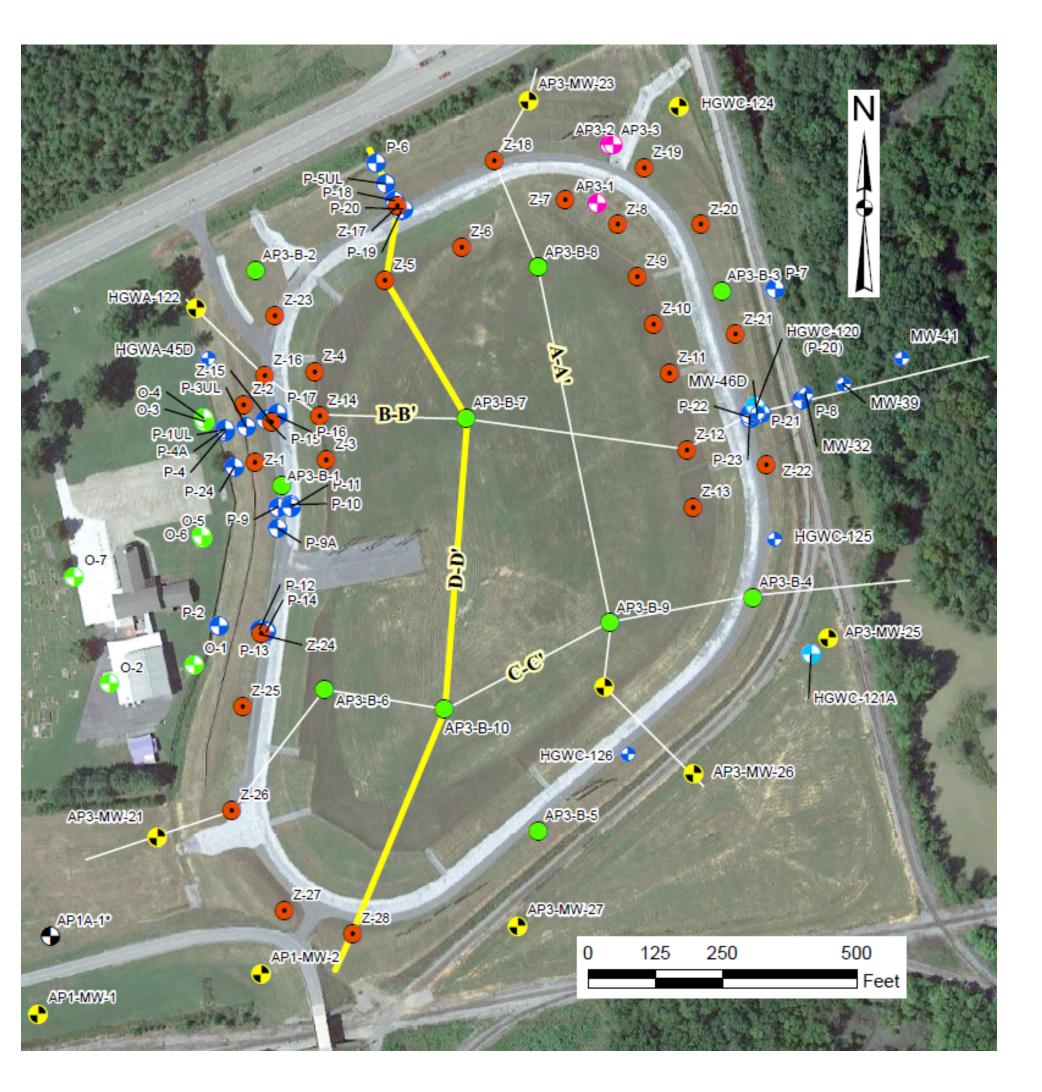
1. SUBSURFACE LITHOLOGIC ELEVATIONS BETWEEN BORINGS ARE INTERPRETED BASED ON AVAILABLE INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE.

2. ELEVATIONS OF LITHOLOGIC UNITS WERE ESTIMATED BASED ON GROUND SURFACE ELEVATIONS OF SOIL

4. HORIZONTAL HYDRAULIC CONDUCTIVITY (Kh) IN CM/SEC. VERTICAL HYDRAULIC CONDUCTIVITY (Kv) IN CM/SEC.

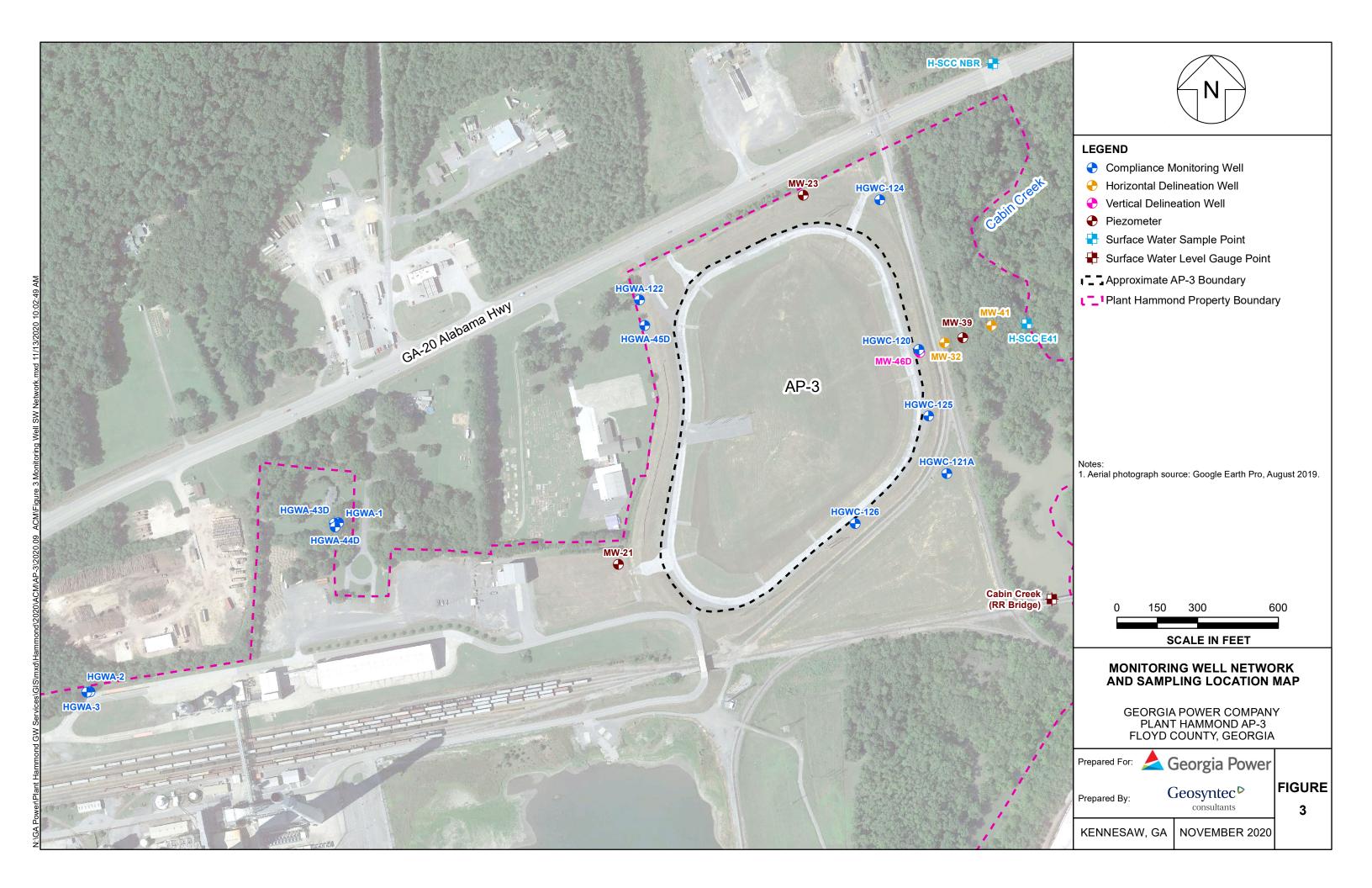
6. THE FINAL COVER CONSISTS OF A 60 MIL HDPE (HIGH DENSITY POLYETHYLENE) LINER, GEOCOMPOSITE DRAINAGE MEDIA, A MINIMUM 18-INCH PROTECTIVE SOIL COVER, AND A 6-INCH VEGETATIVE LAYER TO ESTABLISH VEGETATION.

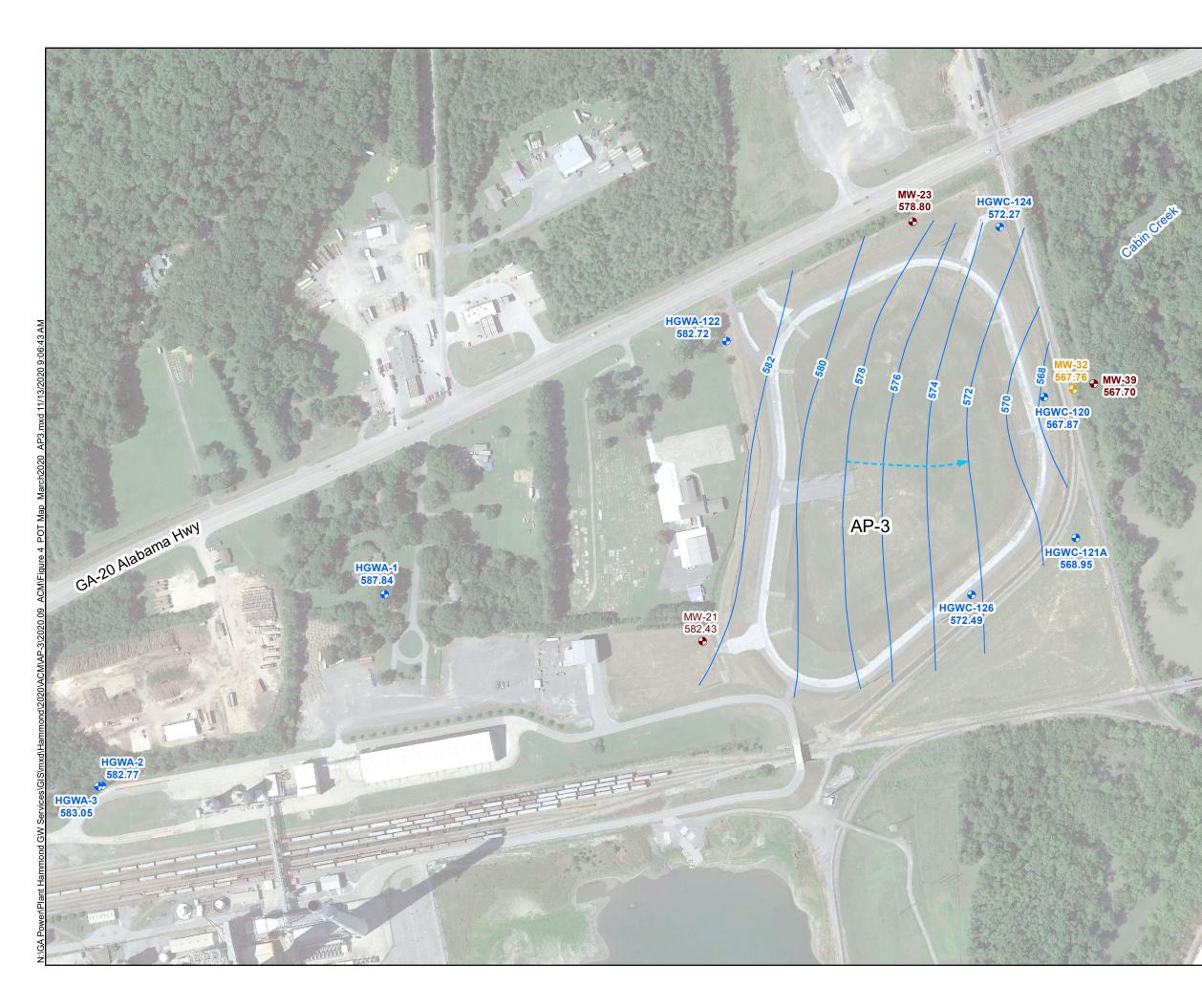
7. *: WATER LEVEL EVELAVTION IS NOT KNOWN DUE TO WELL BEING ABANDONED PRIOR TO SEPTEMBER 2020.



KEY MAP

Geosyntec [▶]	FIG
Georgia Power Company Plant Hammond AP3 Floyd County, Rome, Georgia	
Geologic Section D-D'	







LEGEND

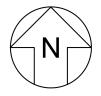
- Compliance Monitoring Well
- Horizontal Delineation Well
- Piezometer
- --- Groundwater Elevation Iso-Contour
- Approximate Groundwater Flow Direction



- 1. Water level elevation recorded on March 23, 2020. Elevation provided in feet (ft) referenced to the North American Vertical Datum (NAVD) 88.
- The map shows only the wells/piezometers installed at the time of the gauging event. Surface water sampling and gauging points along Cabin Creek were not established until after the March 2020 event.
- 3. Aerial photograph source: Google Earth Pro, August 2019.





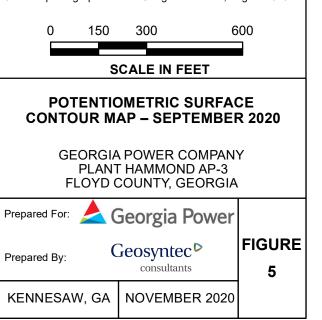


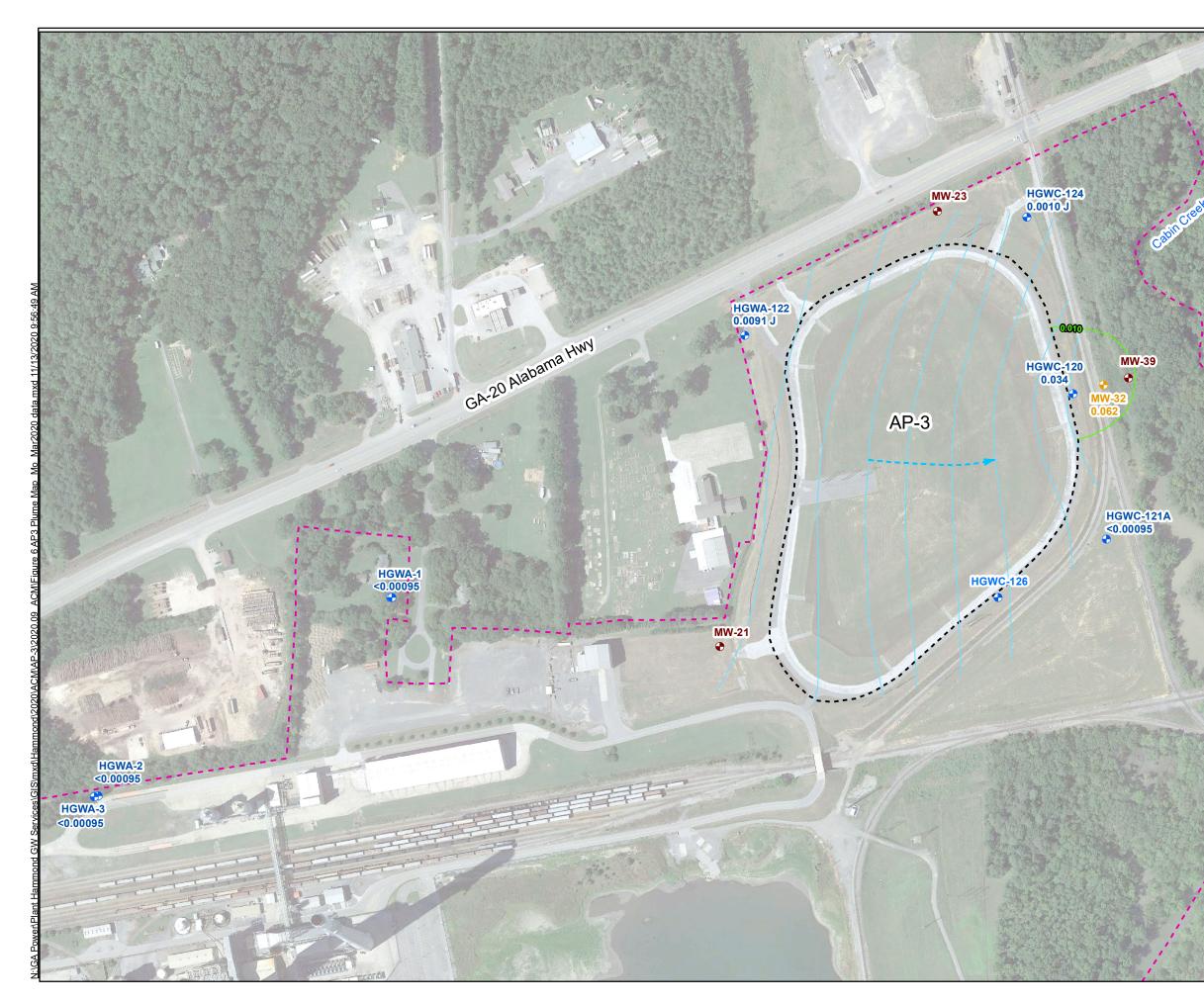
LEGEND

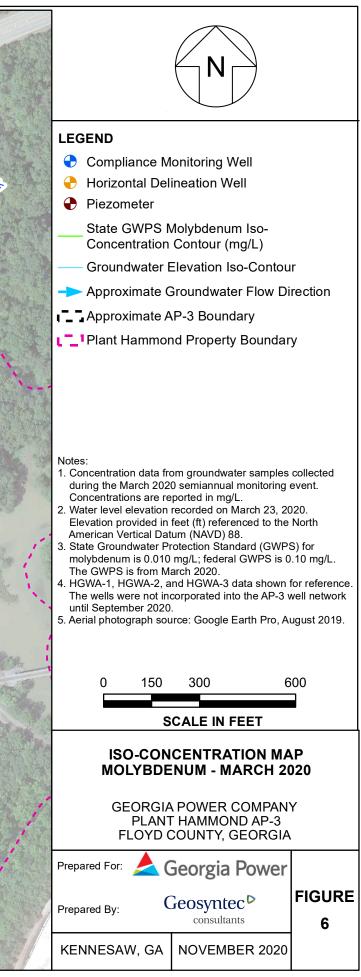
- Compliance Monitoring Well
- Horizontal Delineation Well
- Vertical Delineation Well
- Piezometer
- Surface Water Sample Point
- Surface Water Level Gauge Point
- Groundwater Elevation Iso-Contour
- -> Approximate Groundwater Flow Direction

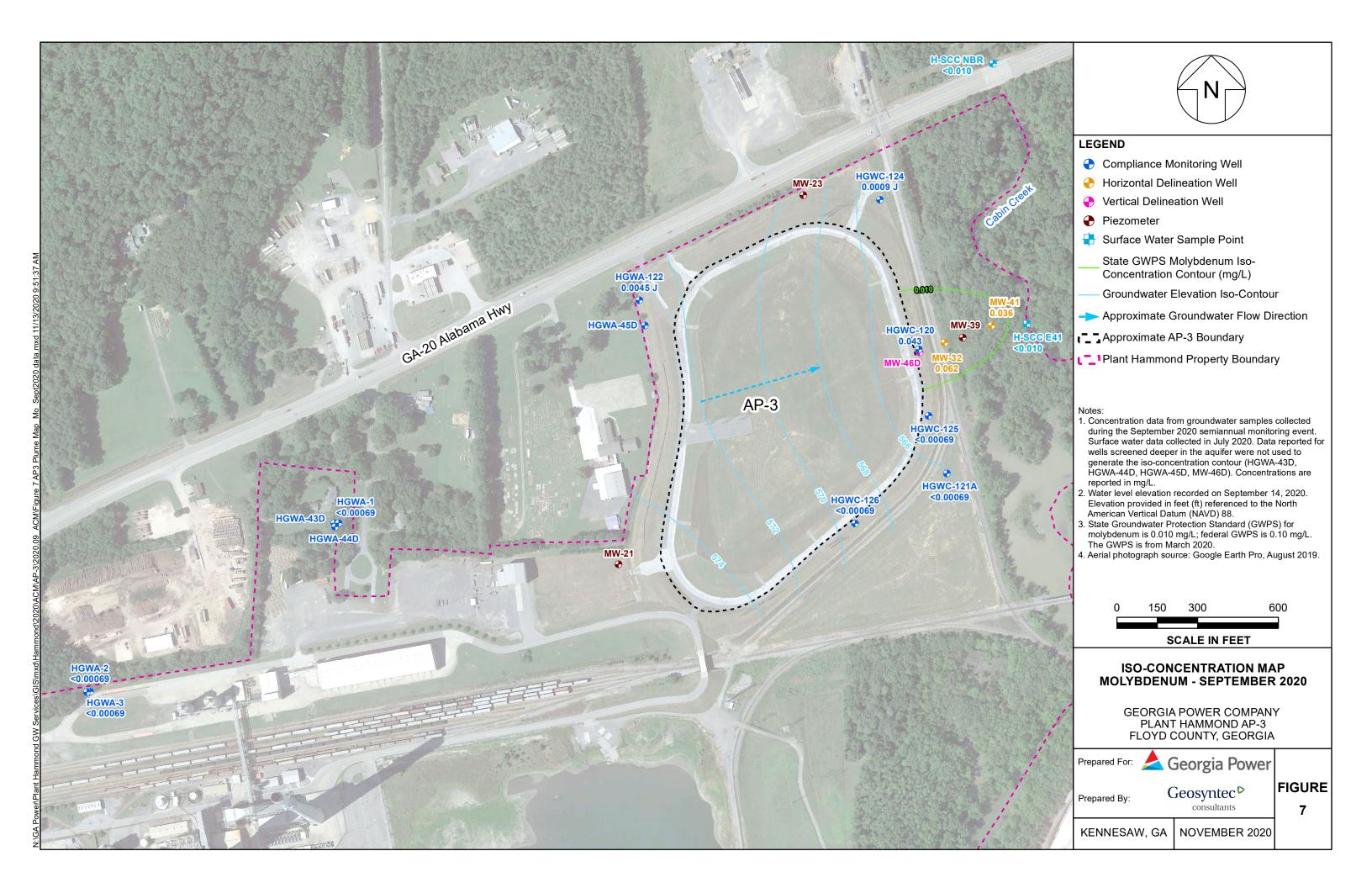
Notes:

- 1. Water level elevation recorded on September 14, 2020. Elevation provided in feet (ft) referenced to the North American Vertical Datum (NAVD) 88.
- Water elevation in parentheses were not used in development of groundwater contours due to wells being screened at a different elevation in the formation/aquifer.
 Aerial photograph source: Google Earth Pro, August 2019.









APPENDIX A

Risk Evaluation Report





RISK EVALUATION REPORT PLANT HAMMOND ASH POND 3 ROME, FLOYD COUNTY, GEORGIA

Prepared for

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Prepared by

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Project Number GZ7112H

December 2020

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LIST OF ACRONYMS AND ABBREVIATIONS

amsl	above mean sea level
AP	Ash Pond
CCR	Coal combustion residual
CEM	Conceptual Exposure Model
COPI	constituent of potential interest
EPD	[Georgia] Environmental Protection Division
ft	feet
GWPS	groundwater protection standards
HSRA	Hazardous Site Response Act
HDPE	high-density polyethylene
HAR	Hydrogeologic Assessment Report
IRIS	Integrated Risk Information System
MCL	Maximum Contaminant Level
mg/l	milligrams per liter
PE	Professional Engineer
RRS	Risk Reduction Standard
RSL	Regional Screening Levels
RME	Resonable Maximum Exposure
SSL	statistically significant level
USEPA	United States Environmental Protection Agency
VRP	Voluntary Remediation Program

EXECUTIVE SUMMARY

Georgia Power's Plant Hammond (site) is a former four-unit, coal-fired electric generating facility owned and operated by Georgia Power that was retired on July 29, 2019. The site is located along the Coosa River, approximately 10 miles west of Rome, Floyd County, Georgia. Coal combustion residual (CCR) material resulting from such power generation have historically been transferred and stored in four ash ponds (AP) AP-1, AP-2, AP-3, and AP-4 in compliance with applicable regulations. This report focuses on AP-3.

AP-3 was constructed in 1974, and CCR sluicing and placement began in June 1977. In the early 1980s, AP-3 was converted into a dry CCR stacking area and the pond ceased receiving CCR material in the early 1990s. Georgia Power has closed AP-3 in place pursuant to the Federal CCR Rule¹, 40 Code of Federal Regulations (CFR) Part 257 Subpart D - *Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments*, and the Georgia Environmental Protection Division (EPD) *Coal Combustion Residuals* Rule 391-3-4-.10 (State CCR Rule). The closure of AP-3 was initiated on December 7, 2015. Following the closure of AP-3 and the installation of a geomembrane cap system, Georgia Power submitted a Construction Certification Report to EPD on December 13, 2018 to document the closure activities. Pursuant to Rule 391-3-4.10(2)(a), which incorporates the definitions under the 40 C.F.R. § 257.53, AP-3 meets the definition of an inactive CCR surface impoundment. Georgia Power submitted a permit application for the closure of AP-3 to EPD on November 20, 2018. Post closure care including semiannual groundwater monitoring and reporting is required for at least 30 years following closure in place per Federal and State CCR rules.

This report presents the results of a risk evaluation for molybdenum, the only CCR constituent exhibiting a statistically significant level (SSL) in groundwater at AP-3 from samples collected between 2016 through March 2020. Using methods consistent with United States Environmental Protection Agency (USEPA) guidance, concentrations of molybdenum detected in groundwater at AP-3 are not expected to pose a risk to human health or the environment. Molybdenum is not an SSL-related constituent based on the federal groundwater protection standards (GWPS) established pursuant to 40 C.F.R. § 257.95(h)(2) and does not exceed health-based criteria. USEPA revised the Federal CCR

¹ The full citation for the Federal CCR Rule is: 40 C.F.R. § 257, Subpart D – *Standards for the Disposal* of *Coal Combustion Residuals in Landfills and Surface Impoundments*. The rule was finalized with an effective date of October 14, 2015 and last amended August 28, 2020 with an effective date of September 28, 2020 (USEPA, 2020a).

Rule on July 30, 2018, updating the GWPS for cobalt, lead, lithium, and molybdenum values (USEPA, 2018). While the updated federal health-based GWPS are expected to govern molybdenum, it was identified as an SSL-related constituent using the background-based GWPS established for AP-3 pursuant to the State CCR Rule. The risk evaluation relies on groundwater data collected by Georgia Power in compliance with the Federal and State CCR rules. For the purposes of the risk evaluation, a conservative (i.e., health-protective) approach was used that is consistent with Georgia EPD regulations and guidance, USEPA guidance, and accepted practices for risk assessment in the State of Georgia.

Consistent with USEPA guidance, this risk evaluation used a tiered approach to evaluate potential risks, which included the following steps:

- 1. Development of a conceptual exposure model (CEM) for AP-3.
- 2. Initial groundwater risk screening: Comparison of groundwater concentrations of molybdenum (the only SSL-related constituent) to conservative, health-protective criteria and/or background concentrations to assess whether it may pose a risk to human health.
- 3. Development of risk conclusions and identification of associated uncertainties.

Using this approach that includes multiple conservative assumptions, molybdenum in onsite groundwater monitoring wells was detected at concentrations below its healthprotective screening criterion within the AP-3 property boundary. Accordingly, concentrations of molybdenum detected in groundwater at AP-3 are not expected to pose a risk to human health or the environment. Therefore, further risk evaluation of groundwater is not warranted. Compliance groundwater monitoring for AP-3 under the Federal and State CCR rules will continue. Georgia Power will evaluate the data and update this evaluation, if necessary.

1 INTRODUCTION

This report summarizes a risk evaluation of AP-3 at Plant Hammond (site) (**Figure 1**). AP-3 is located on the east side of the site property and is upgradient of Cabin Creek. Georgia Power has closed AP-3 in place in accordance with the Federal CCR Rule, 40 CFR § 257.102(d) and the State CCR Rule, 391-3-4-.10(7). The CCR material remaining in AP-3 was graded and a final cover system including a high-density polyethylene (HDPE) liner was installed to prevent infiltration to the maximum extent feasible and promote surface runoff from the unit.

This report presents the results of a risk evaluation for molybdenum, the only CCR constituent exhibiting a statistically significant level (SSL) in groundwater at AP-3. Using methods consistent with USEPA guidance, concentrations of molybdenum detected in groundwater at AP-3 are not expected to pose a risk to human health or the environment. Molybdenum is not an SSL-related constituent based on the federal GWPS established pursuant to 40 C.F.R. § 257.95(h)(2) and does not exceed health-based criteria. USEPA revised the Federal CCR Rule on July 30, 2018, updating the GWPS for cobalt, lead, lithium, and molybdenum values (USEPA, 2018b). While the updated federal health-based GWPS are expected to govern molybdenum, it was identified as an SSL-related constituent using the background-based GWPS established for AP-3 pursuant to the Georgia EPD Rule 391-3-4-.10(6)(a).

The risk evaluation includes the development of a site-specific CEM and a stepwise risk screening process for molybdenum, the SSL-related constituent identified in HGWC-120. The evaluation relies on a conservative, health-protective approach that is consistent with the risk evaluation approaches outlined in the Voluntary Remediation Program (VRP) (Georgia Voluntary Remediation Act, OCGA 12-8-100) and USEPA Regional Screening Levels (RSLs) User's Guide (USEPA, 2020b). This evaluation also incorporated principles and assumptions consistent with Georgia EPD's Rules for Solid Waste Management (EPD, 2018b). Based on the results of the risk evaluation for molybdenum, a site-specific recommended path forward is provided.

The remainder of the report is organized as follows:

Section 2, Basis and Background for the Development of the Conceptual Exposure Model – Presents site-specific information related to the site history, monitoring network, topography and surface hydrology, geology and hydrogeology, potential transport pathways, and receptors that could potentially be exposed to the SSL-related constituent. *Section 3, Risk Evaluation Screening* – Describes the process for the risk-based screening of SSL-related constituents to identify constituents of potential interest (COPIs).

Section 4, Uncertainty Assessment – Describes the uncertainties associated with the risk screening process.

Section 5, Conclusions – Presents the conclusions of the risk evaluation.

Section 6, References – Provides reference information for the sources cited in this document.

2 BASIS AND BACKGROUND FOR THE DEVELOPMENT OF THE CONCEPTUAL EXPOSURE MODEL

This section provides a brief overview of the site location and operational history, site regulatory status, and geology/hydrogeology.

A CEM representing the site-specific processes and conditions that are relevant to the potential migration of groundwater and potential exposure to SSL-related constituents has been developed based on a review and compilation of information previously presented in AP-3 documents, including the *Hydrogeologic Assessment Report (HAR) (Revision 01) for* Ash Pond 3 (Geosyntec, 2020a), 2019 Semiannual Groundwater Monitoring & Corrective Action Report – Plant Hammond - Ash Pond 3 (Geosyntec, 2020b); 2020 Annual Groundwater Monitoring & Corrective Action Report – Plant Hammond - Ash Pond 3 (Geosyntec, 2020c). The CEM includes a conservative evaluation of assumed potential transport pathways, potential exposure pathways and potential human and ecological receptors.

2.1 Site Description

The site is located in Floyd County, Georgia, approximately 10 miles west of the city of Rome. The site occupies about 1,100 acres and is bordered by Georgia Highway 20 (GA-20) on the north, the Coosa River on the south, Cabin Creek and industrial land on the east, and sparsely populated, forested, rural and industrial land on the west. A site location map and a detailed site map is included as **Figure 1**.

AP-3 was constructed in 1974, and CCR sluicing and placement began in June 1977. In the early 1980s, AP-3 was converted into a dry CCR stacking area and the pond ceased receiving CCR material in the early 1990s. The closure of AP-3 was initiated on December 7, 2015. Following the closure of AP-3 and the installation of a geomembrane cap system, Georgia Power submitted a Construction Certification Report on December 13, 2018 to document the closure activities. Pursuant to the State CCR Rule, 391-3-4.10(2)(a), which incorporates the definitions under the Federal CCR Rule 40 C.F.R. § 257.53, AP-3 meets the definition of an inactive CCR surface impoundment. Georgia Power submitted a permit application for the closure of AP-3 to EPD on November 20, 2018. Per CCR rules for closure in place, post closure care including semiannual groundwater monitoring and reporting is required at AP-3 for at least 30 years following closure.

As detailed in the 2020 Annual Groundwater Monitoring & Corrective Action Report – Plant Hammond - Ash Pond 3 (Geosyntec, 2020c), the groundwater monitoring network at AP-3

consists of 12 wells for the upgradient and downgradient groundwater monitoring system at the site. Seven of these wells (HGWA-1, HGWA-2, HGWA-3, HGWA-43D, HGWA-44D, HGWA-45D, and HGWA-122) are designated for monitoring of background conditions upgradient of the ash ponds, and five wells (HGWC-124, HGWC-120, HGWC-121A, HGWC-125, and HGWC-126) are intended for monitoring of conditions downgradient of AP-3. The monitoring well network for AP-3 is shown on **Figure 2**. Based on the conceptual site model and the observed hydrogeologic conditions at the site, downgradient well locations are distributed along the eastern, outside perimeter of the site, in the general direction of groundwater flow. Both background and downgradient wells are screened in the same water-bearing horizon along the zone of primary groundwater transport within the highly weathered bedrock and upper portion of the competent bedrock. In addition to the wells designated for the detection monitoring network, there are five piezometers located around the perimeter of AP-3 that are utilized for monitoring of groundwater elevations (Geosyntec, 2020c).

Semiannual groundwater monitoring and reporting for AP-3 is performed in accordance with the monitoring program requirements of the Georgia EPD Solid Waste Management Program.

2.1.1 Topography and Surface Hydrology

Generally, the property slopes very gently southeastward towards the Coosa River and Cabin Creek. The natural topographic relief across the facility is less than 20 feet, with higher elevations north of the site towards GA-20, and lower elevations south toward the Coosa River. The artificial fill berms around the perimeter of AP-3 reach elevations of approximately 610 feet above mean sea level (ft amsl), with stacked and capped CCR within AP-3 reaching nearly 615 ft amsl. Surface water drainage is oriented generally north to south in the area of the Site, with tributaries, including Cabin Creek, feeding into the westward flowing Coosa River (Geosyntec, 2019).

2.1.2 Geology and Hydrogeology

The following information is provided in the 2020 Annual Groundwater Monitoring & Corrective Action Report – Plant Hammond - Ash Pond 3 (Geosyntec, 2020c) and presented below:

The Site is located within the Great Valley District of the Valley and Ridge Physiographic Province (Valley and Ridge) in 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. under the direction of Golder (Golder, 2018) indicates that AP-3 is underlain by the middle units of the Cambrian age Conasauga Formation, consisting of mostly shaley limestone. Based on review of site-specific subsurface investigations, the bedrock at AP3 was identified as limestone or shaley limestone. AP-3 is underlain primarily by five lithologic units; (i) fill material, (ii) terrace alluvium, (iii) residuum, (iv) highly weathered/fractured limestone bedrock, and (v) unweathered limestone bedrock.

. . . .

The uppermost aquifer at AP-3 is a regional groundwater aquifer that occurs within the residuum and the weathered and fractured (limestone) bedrock. The uppermost aquifer is considered to be unconfined; however, localized, semiconfined conditions may be encountered due to the low-permeability clayey nature of the residual soils, or as a result of perched groundwater or poorly interconnected fracture networks in the bedrock. Based on observations of soil types and horizontal conductivity values, the movement of groundwater in the soil, and to some degree the highly weathered bedrock zone, can be characterized as low-to moderate permeability, porous media flow. Groundwater flow in the more competent underlying bedrock is characterized as fracture flow. Flow direction within the area of AP-3 is generally from west to east.

The potentiometric surface contours provided in the 2020 Annual Groundwater Monitoring & Corrective Action Report – Plant Hammond - Ash Pond 3 (Geosyntec, 2020c) are provided on Figure 3.

2.2 Potential Exposure Pathways and Receptors

A variety of geologic, hydrogeologic, and geochemical mechanisms can occur in the subsurface and serve to attenuate constituent concentrations in groundwater such as soil or rock characteristics, the local geology and hydrogeology, and the distance the groundwater must travel before reaching a potential receptor. The CEM (**Figure 4**) depicts the conservative potential exposure pathways and receptors included in the risk evaluation.

The following potential exposure pathways and receptors were considered:

- On-site industrial worker: The groundwater exposure pathway for the on-site industrial worker was considered incomplete because there are no wells on-site that are classified for potential use as potable wells.
- On-site construction worker: While there is a potential for limited exposure to groundwater by a future construction worker through dermal contact with on-site shallow groundwater during subsurface activities, future construction workers would be expected to have little to no direct contact with on-site groundwater due to safety procedures outlined in their site-specific health and safety plans.
- On-site resident: The groundwater exposure pathway for on-site residents was considered incomplete because the site is zoned heavy-industrial and there is no residential use on-site under current site conditions and future residential use of the site is considered unlikely (Floyd County, 2019).
- Off-site industrial/construction worker: The potential for off-site worker exposure through direct contact with groundwater was addressed qualitatively through the evaluation of hypothetical off-site residential receptors. Health-protective screening levels for residential receptors would be more conservative than industrial and construction worker screening levels.
- Off-site resident: The groundwater exposure pathway for hypothetical off-site residential receptors was assumed to be potentially complete. Nearby zoning is Agricultural Residential with the exception of some Community Commercial zoning across Alabama Highway to the north of the site (Floyd County, 2019). An off-site well survey of potential groundwater wells within a three-mile radius of the site (as well as AP-1, AP-2, and AP-4) was conducted and consisted of reviewing Federal, State, and County records and online sources, in addition to conducting a windshield survey of the area (Newfields, 2020). The off-site well survey is included as

Appendix A. Results of the survey are presented on **Figure 5**. Hypothetical off-site residential receptors in the downgradient groundwater flow direction identified in the well survey are located on the opposite side of Cabin Creek, which may be a hydraulic discharge boundary for groundwater downgradient of AP-3.

Concentrations of the state SSL-related constituent molybdenum in on-site groundwater monitoring wells and piezometers are below health-protective screening levels within the site property boundary (i.e., on-site at AP-3). As a conservative measure, assumed potential off-site residential exposure to molybdenum was evaluated using on-site groundwater wells inside the perimeter of the property boundary and downgradient of AP-3. This comparison makes the conservative assumption that on-site groundwater has the potential to migrate to off-site drinking water wells through advective transport in groundwater without any attenuation in the aquifer media through factors such as dilution, dispersion, or adsorption. Accordingly, the risk evaluation screening for the off-site resident receptor assumed that this receptor may be potentially exposed by ingestion and dermal contact with groundwater through its hypothetical use as a future potable water source.

- Off-site recreational surface water receptor: The surface water exposure pathway for hypothetical recreational receptors was addressed qualitatively through the evaluation of on-site groundwater data. Molybdenum concentrations are below the health-protective screening criteria in on-site groundwater. Therefore, evaluation of the surface water pathway was not necessary.
- Off-site ecological surface water receptors: The surface water exposure pathway for off-site ecological receptors was addressed qualitatively through the evaluation of on-site groundwater data. Molybdenum concentrations are below health-protective screening criteria in on-site groundwater. Therefore evaluation of the surface water pathway was not necessary.

3 RISK EVALUATION SCREENING

The CEM developed in Section 2 was used to identify the potential exposure pathways to human receptors that should be considered in the risk evaluation. The initial step in the risk evaluation is the comparison of SSL-related constituent concentrations from groundwater samples collected between 2016 through March 2020 to relevant, health-protective levels. The approach used is consistent with the Georgia EPD regulations and guidance, USEPA guidance, and standard practice for risk assessment in the State of Georgia. Georgia EPD allows for the site-specific evaluation of risk in programs such as the Voluntary Remediation Program (VRP) (EPD, 2009).

The initial risk evaluation screening was performed for the potential groundwater exposure pathway by comparing the concentrations of molybdenum in groundwater samples from monitoring well HGWC-120 (identifed as a state SSL-related constituent and not a federal SSL-related constituent²) to health-protective screening criteria. These criteria included risk reduction standards (RRS) established in accordance with the Hazardous Site Response Act (HSRA) for drinking water and site-specific background for the protection of human health. If the maximum concentration of the SSL-related constituent exceeded the screening criterion, the constituent was identified as a COPI for further evaluation in the refined risk evaluation. The methodology and screening criteria used were identified in accordance with regulatory guidance and standard risk assessment practices using an approach designed to conservatively overestimate possible exposures and risks, providing an additional level of confidence in the conclusions. The methodology is summarized on **Figure 6** and discussed in more detail below.

3.1 Data Used in Risk Evaluation Screening

This section provides information on the groundwater dataset used in the risk evaluation screening and refined risk evaluation.

3.1.1 Groundwater Data

For the initial risk screening evaluation, groundwater data from samples collected between 2016 through March 2020 from a single on-site well that was identified to have

² A state SSL-related constituent is determined by comparing the confidence intervals developed to either the constituent's Maximum Contaminant Level (MCL), if available, or the calculated background interwell prediction limit. A federal SSL-related constituent is determined by comparing the confidence intervals developed to either the constituent's MCL, if available, the USEPA RSL, if no MCL is available, or the calculated background interwell prediction limit.

a state SSL-related constituent, molybdenum, were used in the risk screening evaluation for hypothetical off-site residential exposure. The data for the well with the identified state SSL-related constituent, HGWC-120, was screened against the relevant health-protective screening criteria.

Groundwater data used in the risk screening level evaluation were collected from the uppermost aquifer and are considered to be representative of groundwater conditions at the site. The groundwater dataset used in the risk evaluation and is presented in **Appendix B.** Method detection limits for the groundwater datasets used in the risk evaluation were reviewed and confirmed to be less than the screening levels.

3.1.2 Background Groundwater Quality

Statistical analysis of groundwater monitoring data are performed at the site pursuant to §257.93-95 following the professional engineer (PE)-certified Statistical Analysis Method Certification (October, 2017, revised January 2020) (Geosyntec, 2020d) and the Unified Guidance (USEPA, 2009) for AP-3; background values are routinely updated under the program. For the data set presented, seven monitoring wells in the certified monitoring well network are designated as an upgradient (background) location for AP-3, HGWA-1, HGWA-2, HGWA-3, HGWA-43D, HGWA-44D, HGWA-45D, and HGWA-122. The statistical analyses performed on the groundwater data were described most recently in the *2020 Annual Groundwater Monitoring & Corrective Action Report* (Geosyntec, 2020c); text from that document is presented below.

The Sanitas groundwater statistical software was used to perform the analyses. Sanitas is a decision-support software package, that incorporates the statistical tests required of Subtitle C and D facilities by USEPA regulations and guidance as recommended in the USEPA document Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance (Unified Guidance) (USEPA, 2009). Time series plots generated by Sanitas are used to identify suspected outliers, or extreme values that would result in limits that are not representative of the current background data population. Suspected outliers at all wells are formally tested using Tukey's box plot method and, when identified, flagged in the computer database with "o" and deselected prior to construction of statistical limits. Background well data were updated following the Unified Guidance recommendation, evaluating recent background data using Tukey's box plot method for outliers and Sen's Slope/Mann-Kendall methods for potential trends.

3.2 Groundwater Screening Evaluation

The process of screening constituents detected in groundwater against human health screening levels for groundwater is discussed below and presented in **Figure 6**. The risk based drinking water screening level for molybdenum evaluated under the VRP approach presented herein was calculated following the HSRA methodology for Type 2 RRSs for residential receptors. The Hazardous Site Response Act, Rule 391-3-19.07(1) notes that *"[a]ll risk reduction standards will, when implemented, provide adequate protection of human health and the environment."* In addition, Rule 391-3-19.07(3) notes a corrective action, if needed, may be considered complete when *"a site meets any or a combination of the applicable risk reduction standards described in Rule 391-3-19-07."*

In accordance with standard methodologies approved by the Georgia EPD and because RRS have not already been established for molybdenum under HSRA, a site-specific riskbased screening value was calculated using the default exposure factors for residential receptors and the methodology found in Appendix III of the HSRA rule (EPD, 2018b). Accordingly, the calculated screening value is equivalent to a Type 2 groundwater RRS protective of potential residential exposures. Toxicity values for molybdenum used in the calculations were identified in the Integrated Risk Information System (IRIS). The risk-based screening value was calculated using USEPA's RSL calculator (USEPA, 2020b) assuming a target hazard quotient of 1, consistent with Georgia EPD guidance applicable in other contexts (EPD, 2018b). The calculations of the risk-based screening value for molybdenum are presented in **Appendix C**.

As a conservative measure, groundwater data collected from the well, HGWC-120, identified to have a state SSL-related constituent (i.e., molybdenum) were compared to the calculated residential screening criteria and the site-specific background value for groundwater.

Table 1 presents the maximum detected concentration of the SSL-related constituent (0.04 mg/L), which was used to represent potential off-site groundwater quality for comparison to the risk-based screening level of 0.10 mg/L for hypothetical off-site residential receptors. As noted in **Table 1**, molybdenum was not detected at concentrations that exceeded its screening level and was not retained as a COPI. Since molybdenum was not retained as a COPI, a refined risk evaluation was not necessary.

4 UNCERTAINTY ASSESSMENT

USEPA guidance stresses the importance of providing an analysis of uncertainties so that risk managers are better informed when evaluating risk assessment conclusions (USEPA, 1989). The uncertainty assessment provides a better understanding of the key uncertainties that are most likely to affect the risk assessment results and conclusions.

The potential uncertainties associated with the risk evaluation are as follows:

Health-Protective Screening Criteria Uncertainties:

- In accordance with standard methodologies approved by the Georgia EPD, an equivalent Type 2 risk-based value was selected as the screening criterion for molybdenum. Selection of the screening criteria is considered appropriate for risk quantification for AP-3. Georgia EPD Rule 391-3-19.07(1) notes that "[a]ll risk reduction standards will, when implemented, provide adequate protection of human health and the environment." Thus, this approach is likely to overestimate risks for hypothetical off-site receptors.
- Screening criteria based on RRSs, such as that used for molybdenum, represent the reasonable maximum exposure (RME), which are the highest exposures that are reasonably expected to occur at a site. The RME is defined as "the highest exposure that is reasonably expected to occur at a site but that is still within the range of possible exposures" (USEPA, 1989). USEPA (1989) states that the "intent of the RME is to estimate a conservative exposure case (i.e., well above the average case) that is still within the range of possible exposures." Potential receptors will likely have lower exposures than those presented in this risk evaluation (i.e., a majority of the site concentrations will be less than the maximum), which means that this risk evaluation likely overestimates potential exposure.

Exposure Uncertainties:

• The maximum detected concentration of molybdenum was compared to conservative risk-based screening criterion to identify if it was a COPI. Use of the maximum detected concentration is consistent with standard practice; however, use of the maximum detected concentration for exposure likely overestimates potential risk.

- The constituent included in the risk evaluation, molybdenum, may occur naturally in the site geologic setting. Although background concentrations were evaluated and used in the screening process, contributions to exposure and risk were assumed to be entirely CCR-related and natural background sources were not quantified. Thus, molybdenum (state SSL-related constituent) exposures were likely overestimated.
- Hypothetical off-site residential exposure was evaluated using on-site groundwater data from wells around the perimeter and downgradient of AP-3. This comparison makes the conservative assumption that on-site groundwater may potentially migrate to off-site drinking water wells through advective transport in groundwater, but without any attenuation within the aquifer media through factors such as dilution, dispersion, or adsorption. This assumption likely overestimates potential exposure and risk to hypothetical off-site receptors. Concentrations above screening criteria are not migrating off-site as all wells had molybdenum concentrations less than health-protective criteria.
- Concentrations of molybdenum in groundwater was assumed to be 100 percent bioavailable by the ingestion exposure route. This assumption tends to overestimate risk.
- An off-site well survey of potential groundwater wells within a three-mile radius of the site was conducted by NewFields in 2019 and consisted of reviewing publicly available federal, state, and county records as well as a windshield survey of the area (**Appendix A**). Geosyntec relied on the data collected by NewFields.
- The evaluation used on-site groundwater data to represent hypothetical off-site exposure, which is a conservative approach that likely results in overestimation of assumed exposure and assumed potential risk. Although off-site potable wells identified in the well survey were not included in the risk evaluation, the presence of these wells do not change the conclusions of the risk evaluation because the molybdenum (state SSL-related constituent) concentrations were below health-protective screening levels.

5 CONCLUSIONS

This risk evaluation for molybdenum at the site was conducted using methods consistent with Georgia EPD and USEPA guidance and included multiple conservative assumptions. As noted above, this risk evaluation addressed only molybdenum because it was the sole CCR constituent identified as an SSL-related constituent during compliance groundwater monitoring. Based on this evaluation, molybdenum is not expected to pose a risk to human health or the environment.

Accordingly, no further risk evaluation of groundwater is warranted. Compliance groundwater monitoring for AP-3 under the Federal and State CCR rules will continue. Georgia Power will proactively evaluate the data and update this evaluation, if necessary.

6 REFERENCES

EPD, 2009. Georgia Voluntary Remediation Act, OCGA 12-8-100, June 1, 2009.

- EPD, 2018a. *Coal Combustion Residuals*, Ga. Comp. R. & Regs, Rule 391-3-4-.10, effective March 28, 2018.
- EPD, 2018b. *Risk Reduction Standards*, Ga. Comp. R. & Regs, Rule 391-3-19-07, revised September 25, 2018.
- Floyd County, Georgia, 2019. Floyd County Planning Department. <u>https://romefloydgis.maps.arcgis.com/apps/webappviewer/index.html?id=621a165</u> <u>e37844bd7880eadf77d0f14c5.</u>
- Geosyntec, 2020a. Hydrogeologic Assessment Report (Revision 01) for Ash Pond 3 Plant Hammond Floyd County, Georiga. November 2020.
- Geosyntec, 2020b. 2019 Semiannual Groundwater Monitoring & Corrective Action Report – Revison 1 - Georgia Power Company – Plant Hammond Ash Pond 3. March 2020.
- Geosyntec, 2020c. 2020 Annual Groundwater Monitoring & Corrective Action Report Georgia Power Company – Plant Hammond Ash Pond 3. July 2020.
- Geosyntec, 2020d. Statistical Analysis Method Certification (Rev 01) Georgia Rule 391-3-4-.10(6) and 40 CFR §257.93(f) Plant Hammond Ash Pond 3 Georgia Power Company. January 2020.
- Newfields, 2020. Well Survey Plant Hammond Ash Pond 1, Ash Pond 2, Ash Pond 3, Ash Pond 4 Rome, GA. March 2020.
- USEPA, 1989. Risk Assessment Guidance for Superfund Volume 1 Human Health Evaluation Manual (Part A). EPA/540/1-89/002.
- USEPA, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. Office of Resource Conservation and Recovery – Program Implementation and Information Division. March.
- USEPA, 2018. "Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Amendments to the National

Minimum Criteria (Phase One, Part One)." Fed. Reg.83(146):36435-36456. (Revising 40 CFR 257, Subpart D). July 30, 2018.

- USEPA, 2020a. Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments. 40 C.F.R. § 257, Subpart D. Effective Date October 14, 2015 (as amended). Last amended August 28, 2020 with a final Effective Date of September 28, 2020.
- USEPA, 2020b. USEPA Regional Screening Levels and supporting online RSL Calculator and User's Guide. Revised May 2020. Available at: www.epa.gov/risk/regional-screening-levels-rsls-generic-tables.

TABLES

Table 1 SSL-Related Constituent Groundwater Screening Plant Hammond AP-3 Risk Evaluation Report^[1] Plant Hammond, Rome, GA

CCR Rule Designation	Constituent	CAS No.	Detection Frequency	Exceedance Frequency ^[2]	Maximum Concentration (mg/L)	Screening Level (mg/L)	Screening Level Source ^[3]	Site-Specific Background (mg/L)	COPI? (Y/N)	Rationale ^[4]
Appendix IV	Molybdenum	7439-98-7	11 / 11	0 / 11	0.04	0.1	Site-Specific	0.01	N	BSL

Notes:

[1] Evaluation includes 2016 to 2020 groundwater analytical data from downgradient wells HGWC-120.

[2] The exceedance frequency is based on the number of samples with detected concentrations that exceed the identified screening level.

[3] The screening values are the maximum value from the following sources:

- Type 1 RRSs listed in HSRA Appendix III, Table 1 (HSRA-regulated substances only).

- Type 2 RRSs are calculated by the EPA RSL calculator with exposure factors inputs from HSRA Appendix III.

- Site-Specific values calculated using the USEPA RSL calculator with default residential exposure factor listed in the RSL Users Guide.

- Site-specific background levels for Molybdenum were calculated as described in the document "Statistical Analysis Method Certification, 40 CFR §257.93(f), Plant Hammond - Ash

Pond 3 (AP-3) " (Georgia Power Company, 2020).

[4] Rationale for classification of constituent as a COPI or exclusion as a COPI:

ASL = Above respective screening level

BSL = Equal to or below respective screening level

Definitions:

- CAS = Chemical Abstract Service CCR = Coal Combustion Residuals
- COPI = Constituent of Potential Interest

EPA = United States Environmental Protection Agency

GA EPD= Georgia Environmental Protection Division

HSRA = [GA EPD] Hazardous Site Response Act

mg/L = milligram(s) per liter

RRS = [GA EPD] Risk Reduction Standard

RSL = [EPA] Regional Screening Level

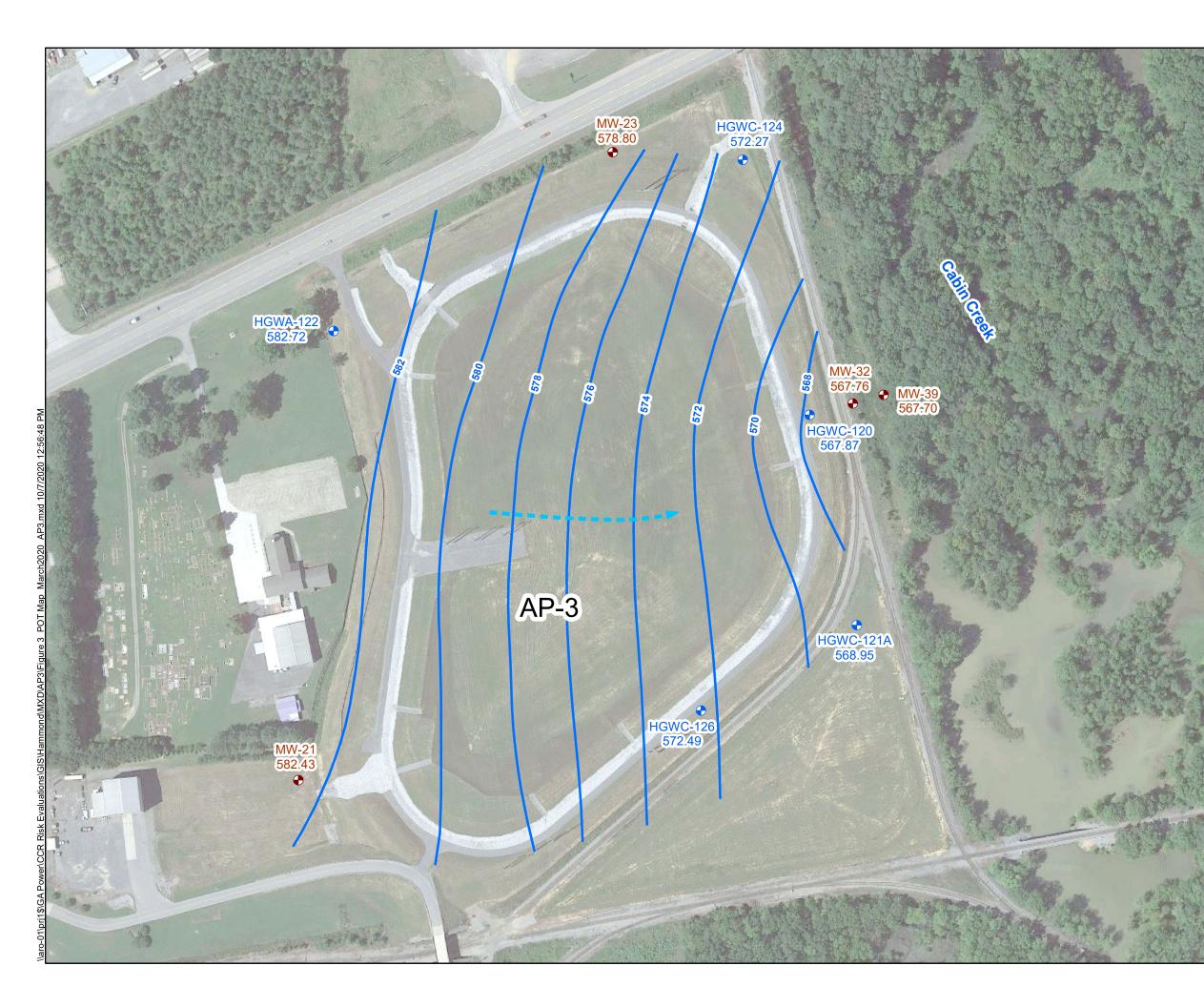
FIGURES







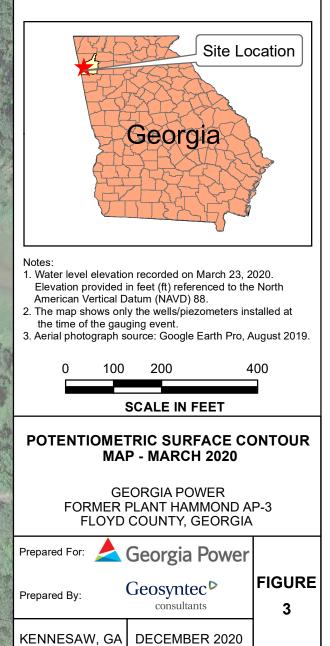


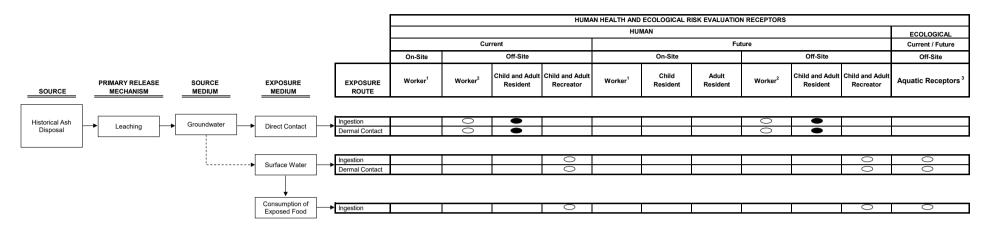




LEGEND

- Piezometer
- Compliance Monitoring Well
- --- Groundwater Elevation Iso-Contour
- Approximate Groundwater Flow Direction





Legend

----- A conservative assumption for this assessment was made that groundwater from the site flows to the downgradient surface water.

Indicates potentially complete pathway to receptors, which are evaluated quantitatively.

Indicates potentially complete pathway to receptors, which are evaluated qualitatively.

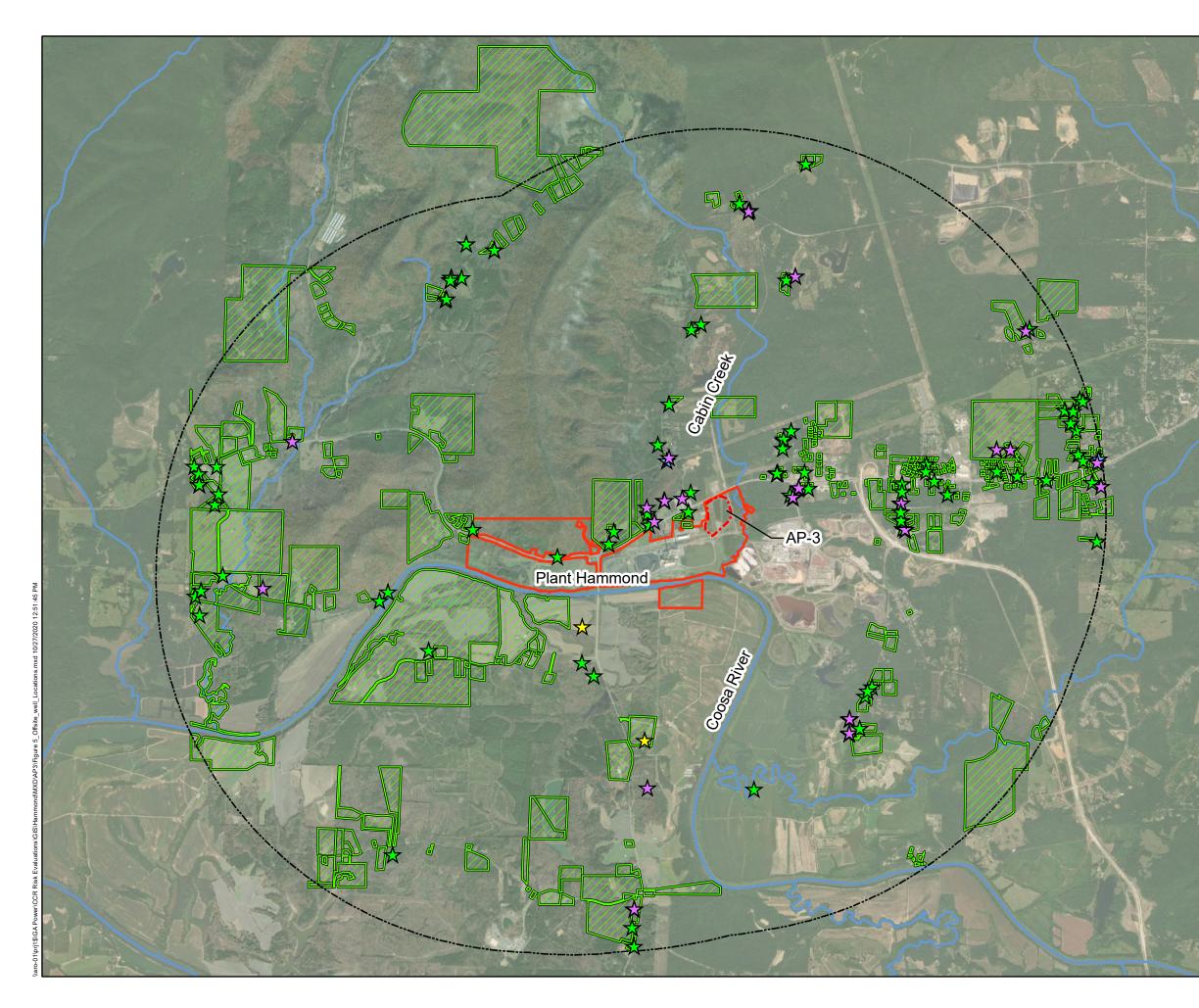
Footnotes

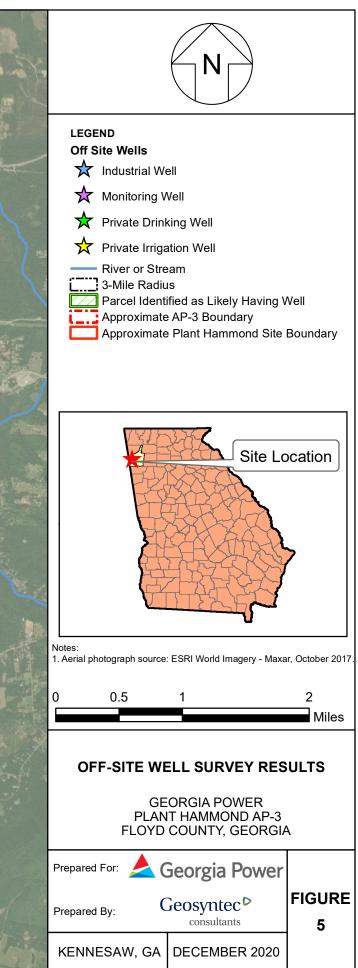
1. Industrial worker was considered incomplete because there are no wells on-site that are classified for use as potable wells. On-site construction workers would be expected to have little to no direct contact with on-site groundwater due to safety procedures outlined in their site-specific health and safety plans.

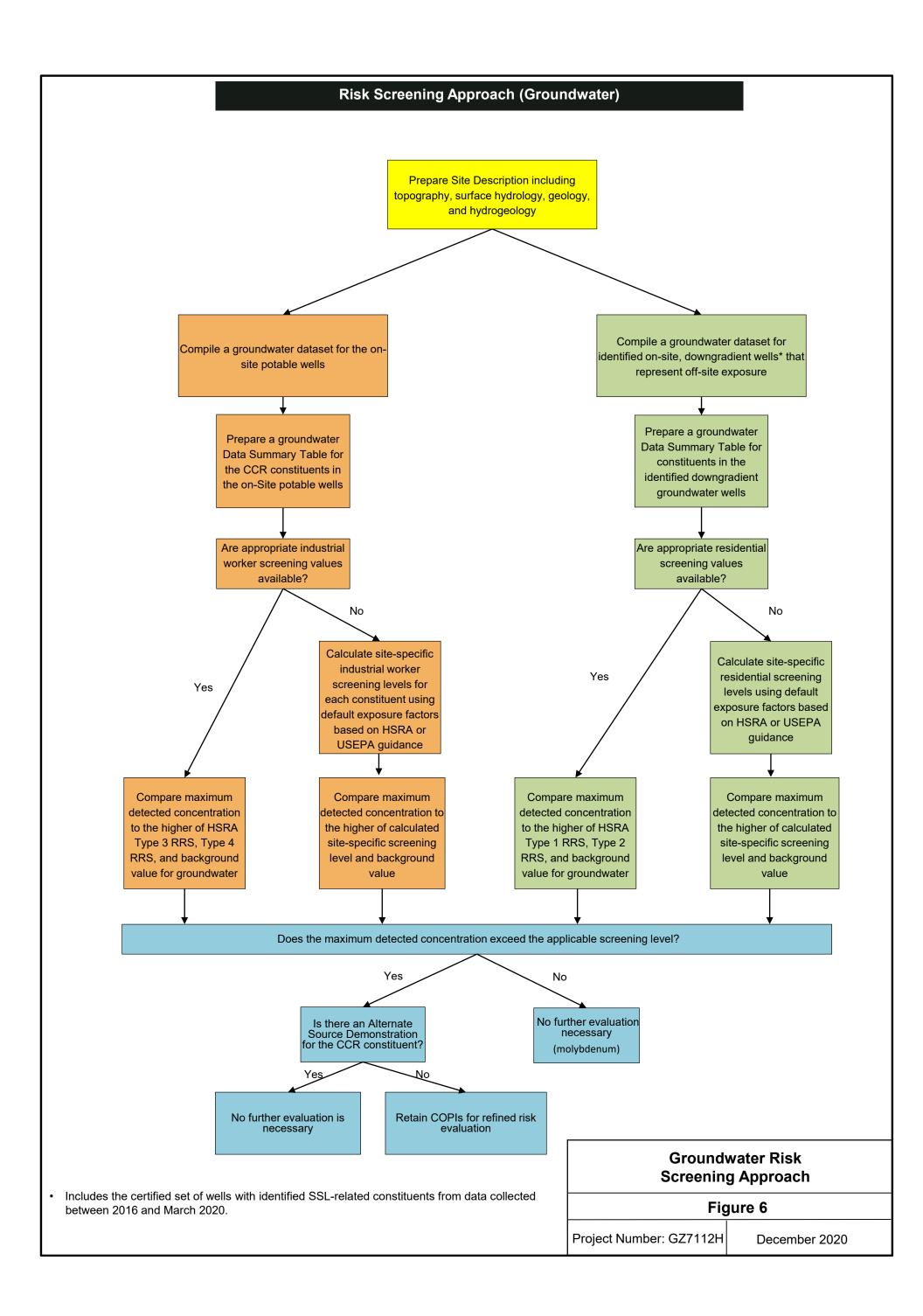
 Off-site industrial/construction worker addressed through the evaluation of hypothetical off-site residential receptors as health-protective screening levels for residential receptors would be more conservative than industrial and construction worker screening levels.

3. Generalized receptor for ecological health risk evaluation.

Figure 4 Conceptual Exposure Model						
Geosyn	PROJ NO. :GZ7112H					
Kennesaw, GA	December 2020	TASK / PHASE: 01/ 03				







APPENDIX A

Plant Hammond Well Survey (Off-Site)

NewFields

Well Survey

Plant Hammond

Ash Pond 1, Ash Pond 2, Ash Pond 3, Ash Pond 4

Rome, GA

Prepared for

Georgia Power Company

241 Ralph McGill Blvd., Atlanta, GA 30308

Prepared by

NewFields Companies, LLC

1349 W. Peachtree Street, Suite 2000

Atlanta, GA 30309

March 5, 2020

Introduction

Plant Hammond is located at 5963 Alabama Highway SW, Rome, GA 30165 and situated on an approximately 430-acre parcel along the Coosa River.

The Plant has four current and former ash ponds. Newfields conducted a well survey of potential drinking water wells within a three-mile radius of Ash Pond 1 (AP-1), Ash Pond 2 (AP-2), Ash Pond 3 (AP-3), and Ash Pond 4 (AP-4). This area, referred to in this report as the Investigated Area, is shown on Figure 1.

As part of the survey, NewFields reviewed information from a number of Federal, State, and County records and online sources, as well as a windshield survey of the Investigated Area. Information from each identified well was then compiled into a geographic information system (GIS) database.

Information Collection

This section summarizes the sources utilized to identify potential drinking water wells within the Investigated Area.

- 1. Federal Sources
 - a. United States Geological Survey (USGS). The USGS maintains an inventory database of wells sampled by a USGS-affiliated program for ground-water levels or water quality parameters at any time in the past.¹ Well information and coordinates were downloaded for the state of Georgia and compiled into the GIS database. All of the wells in this database in the Investigated Area were identified in the database simply as 'monitoring wells'; however, many of these appear to be co-located with drinking water wells. Some of these USGS monitoring wells may in fact be private drinking water wells utilized for monitoring purposes by USGS.
 - b. Safe Drinking Water Information System (SDWIS). This EPA database has listings of public water systems but does not have well location information. SDWIS information was used to help identify the suppliers of public water in the vicinity of each facility. The water supplier for the Investigated Area is the Floyd County Water Utility.

2. State Sources

Georgia Environmental Protection Division (EPD)

a. Drinking Water Branch. EPD Drinking Water Branch maintains records about municipal and industrial wells, whose presence or absence within a radius of a site can be ascertained by contacting the agency. NewFields contacted Vicki Trent of EPD on October 3rd, 2019 requesting information about wells in the Investigated Area. Ms. Trent confirmed that there were no wells in the Investigated Area.

¹ <u>http://waterdata.usgs.gov/ga/nwis/inventory?introduction</u>

- b. EPD Pesticide Sampling Project. From 2000 to 2004, EPD undertook a project to sample private drinking water wells for pesticides. EPD solicited volunteers state-wide to participate in the well sampling program. The final report includes the list of private water wells sampled, their coordinates, and depths when available.² Information about wells within the Investigated Area were compiled into the GIS database.
- c. **Hazardous Site Inventory (HSI) Files.** EPD maintains files for Hazardous Site Inventory files for site which are undergoing state-led corrective action. These files usually contain groundwater data and well surveys. The EPD's online, interactive HSI map was reviewed. The only nearby HSI site is the Berryhill Landfill, 1.3 miles to the northwest of the northern impoundment. This site was added to the GIS databases. Reports associated with this site were reviewed, and wells identified in site files were added to the GIS database.
- d. Hazardous Site Response Act (HSRA) Notifications. EPD maintains non-HSI HSRA notification reports (i.e., notifications submitted after releases of reportable substances). NewFields reviewed reports associated with sites in Floyd County within a 5-mile radius of Plant Hammond were scanned. Wells identified on these surveys were compiled into the GIS database. NewFields omitted the four monitoring wells shown to be located on Plant Hammond's property by past non-HSI well surveys, as we considered it unlikely Georgia Power would be utilizing their monitoring wells for irrigation or drinking purposes.

3. Floyd County Sources

- a. **Health Department Records.** Floyd County Health Department (DOH) maintains records of the permits for "on-site sewage management systems" (septic tanks). These permits indicate whether the permittee has private or public water supply, and often identify the exact location of the well on a map. NewFields communicated with Timothy Hendrix with the Department of Environmental Health, who stated that it was not feasible for the DOH to search the septic records themselves, and they would not allow NewFields direct access to the files. However, Mr. Hendrix said he did not believe there was any public water available to the west of Huffaker Road.
- b. Floyd County Water Department. NewFields communicated with Floyd County Utilities Administrator Stephen Hulsey who stated, "[w]e have nothing in the Coosa area west from Hwy 100 South." Hwy 100 South, also known as Foster Mill Road, is the road that runs between AP-2 and AP-4 and is the next major road to the west of Huffaker Rd. Mr. Hulsey stated he was not sure exactly how long the water system has been in place, but that he believed it was operating "since the 1970s."
- c. **Tax Assessor Records.** Floyd County GIS department provided parcel data for the county that was joined with full WINGap data from the tax assessor's office. The tax assessor's data included improvement values for parcels (indicating the presence of a structure) and the

² <u>https://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/PR-55.pdf</u>

year of construction. Parcels with structures built prior to 1970 were identified as potentially containing active or abandoned drinking water wells.

- 4. Windshield Surveys
 - a. A windshield survey of the Investigated Area was conducted on October 9th, 2019. During the survey a number of wells were visually identified, which were subsequently compiled into the GIS database. It is impossible to determine whether the wells seen are irrigation wells, drinking water wells, or are currently active.

Summary

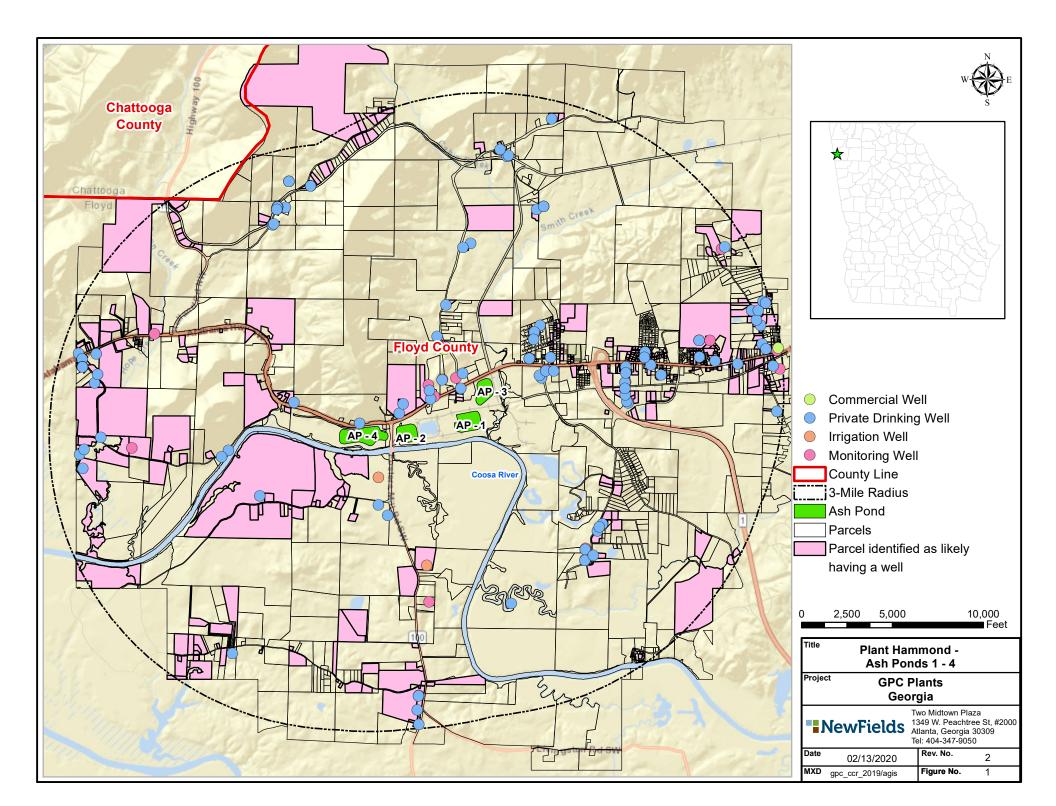
In addition to identifying specific wells from the above listed sources, NewFields used a combination of parcel data and information about the presence and age of public water infrastructure to identify parcels that most likely are using well water as their drinking water source or had drinking water wells at some time. Parcels may be (or have been) sharing wells, so a well may not exist for each identified parcel. These wells may or may not be active for drinking water and/or irrigation. Many wells were visible in the windshield surveys.

NewFields identified 707 actual and potential wells within the Investigated Area, the majority of which are likely private drinking water wells, but also some monitoring wells and commercial wells.³ There were no public drinking water wells within the Investigated Area.

Figure 1 shows points for identified wells in the Investigated Area. The shaded parcels are parcels that were identified from parcel data as likely to contain wells. When viewed as a PDF file, the figure is interactive, and wells identified using different sources can be turned on and off.

³ USGS monitoring wells located on Georgia Power property were considered not to be drinking water wells and omitted from the figures and tables in this report.





APPENDIX B Groundwater Data

Appendix B Groundwater Data Plant Hammond AP-3 Risk Evaluation Report Plant Hammond, Rome, GA

		Constituent	Molybdenum
Well ID	Sample Date	Units	mg/L
		Ash Pond	
HGWC-120	8/31/2016	Ash Pond 3	0.018
HGWC-120	10/26/2016	Ash Pond 3	0.019
HGWC-120	1/27/2017	Ash Pond 3	0.021
HGWC-120	5/25/2017	Ash Pond 3	0.023
HGWC-120	10/2/2017	Ash Pond 3	0.026
HGWC-120	11/15/2017	Ash Pond 3	0.028
HGWC-120	6/5/2018	Ash Pond 3	0.033
HGWC-120	10/2/2018	Ash Pond 3	0.036
HGWC-120	8/22/2019	Ash Pond 3	0.039
HGWC-120	10/22/2019	Ash Pond 3	0.040
HGWC-120	3/25/2020	Ash Pond 3	0.034

Notes:

Bold = the constituent was detected in the sample.

"--" = No analysis conducted.

mg/L milligrams(s) per liter

APPENDIX C

USEPA RSL Calculator Generated Residential Screening Levels

Appendix C USEPA RSL Calculator Generated Residential Screening Levels Plant Hammond AP-3 Risk Evaluation Report Plant Hammond, Rome, GA

Variable	Value
THQ (target hazard quotient) unitless	1
TR (target risk) unitless	0.00001
LT (lifetime) years	70
K (volatilization factor of Andelman) L/m3	0.5
Isc (apparent thickness of stratum corneum) cm	0.001
EDres (exposure duration - resident) years	26
EDres-c (exposure duration - child) years	6
EDres-a (exposure duration - adult) years	20
ED0-2 (mutagenic exposure duration first phase) years	2
ED2-6 (mutagenic exposure duration second phase) years	4 10
ED6-16 (mutagenic exposure duration third phase) years	10
ED16-26 (mutagenic exposure duration fourth phase) years EFres (exposure frequency) days/year	350
EFres-c (exposure frequency - child) days/year	350
EFres-a (exposure frequency - adult) days/year	350
EF0-2 (mutagenic exposure frequency first phase) days/year	350
EF2-6 (mutagenic exposure frequency second phase) days/year	350
EF6-16 (mutagenic exposure frequency third phase) days/year	350
EF16-26 (mutagenic exposure frequency fourth phase) days/year	350
ETevent-res-adj (age-adjusted exposure time) hours/event	0.67077
ETevent-res-madj (mutagenic age-adjusted exposure time) hours/event	0.67077
ETres (exposure time) hours/day	24
ETres-c (dermal exposure time - child) hours/event	0.54
ETres-a (dermal exposure time - adult) hours/event	0.71
ETres-c (inhalation exposure time - child) hours/day	24
ETres-a (inhalation exposure time - adult) hours/day	24
ET0-2 (mutagenic inhalation exposure time first phase) hours/day	24
ET2-6 (mutagenic inhalation exposure time second phase) hours/day	24
ET6-16 (mutagenic inhalation exposure time third phase) hours/day	24
ET16-26 (mutagenic inhalation exposure time fourth phase) hours/day	24
ETO-2 (mutagenic dermal exposure time first phase) hours/event	0.54
ET2-6 (mutagenic dermal exposure time second phase) hours/event	0.54
ET6-16 (mutagenic dermal exposure time third phase) hours/event	0.71
ET16-26 (mutagenic dermal exposure time fourth phase) hours/event	0.71
BWres-a (body weight - adult) kg	80 15
BWres-c (body weight - child) kg	15
BW0-2 (mutagenic body weight) kg BW2-6 (mutagenic body weight) kg	15
BW6-16 (mutagenic body weight) kg	80
BW16-26 (mutagenic body weight) kg	80
IFWres-adj (adjusted intake factor) L/kg	327.95
IFWres-adj (adjusted intake factor) L/kg	327.95
IFWMres-adj (mutagenic adjusted intake factor) L/kg	1019.9
IFWMres-adj (mutagenic adjusted intake factor) L/kg	1019.9
IRWres-c (water intake rate - child) L/day	0.78
IRWres-a (water intake rate - adult) L/day	2.5
IRW0-2 (mutagenic water intake rate) L/day	0.78
IRW2-6 (mutagenic water intake rate) L/day	0.78
IRW6-16 (mutagenic water intake rate) L/day	2.5
IRW16-26 (mutagenic water intake rate) L/day	2.5
EVres-a (events - adult) per day	1
EVres-c (events - child) per day	1
EV0-2 (mutagenic events) per day	1
EV2-6 (mutagenic events) per day	1
EV6-16 (mutagenic events) per day	1
EV16-26 (mutagenic events) per day	1
DFWres-adj (age-adjusted dermal factor) cm2-event/kg	2610650
DFWMres-adj (mutagenic age-adjusted dermal factor) cm2-event/kg	8191633
SAres-c (skin surface area - child) cm2	6365
SAres-a (skin surface area - adult) cm2 SA0-2 (mutagenic skin surface area) cm2	19652
SAU-2 (mutagenic skin surface area) cm2 SA2-6 (mutagenic skin surface area) cm2	6365 6365
SA6-16 (mutagenic skin surface area) cm2	19652
SA16-26 (mutagenic skin surface area) cm2	19652
Sizo zo (matagenie skii sunace area) enz	13032

Notes:

cm2 = centimeters squared cm2-event/kg = centimeters squared per event per kilogram kg = kilograms L/kg = liters per kilogram L = liters per day Appendix C USEPA RSL Calculator Generated Residential Plant Hammond AP-3 Risk Evaluation Report Plant Hammond, Rome, GA

Chemical	Molybdenum
CAS Number	7782-49-2
Mutagen?	No
Volatile?	No
Chemical Type	Inorganics
Sfo (mg/kg-day)-1	-
Sfo Ref	
IUR (ug/m3)-1	-
IUR Ref	
RfD (mg/kg-day)	0.005
RfD Ref	I
RfC (mg/m3)	0.02
RfC Ref	С
GIABS	1
Kp (cm/hr)	0.001
MW	79
B (unitless)	0.00342
t* (hr)	0.699
τevent (hr/event)	0.291
FA (unitless)	1
In EPD?	Yes
DAevent (ca)	-
DAevent (nc child)	0.0123
DAevent (nc adult)	0.0212
MCL (ug/L)	50
Ingestion SL TR=1E-05 (ug/L)	-
Dermal SL TR=1E-05 (ug/L)	-
Inhalation SL TR=1E-05 (ug/L)	-
Carcinogenic SL TR=1E-05 (ug/L)	-
Ingestion SL Child THQ=1 (ug/L)	100
Dermal SL Child THQ=1 (ug/L)	22800
Inhalation SL Child THQ=1 (ug/L)	-
Noncarcinogenic SL Child THI=1 (ug/L)	99.8
Ingestion SL Adult THQ=1 (ug/L)	167
Dermal SL Adult THQ=1 (ug/L)	29900
Inhalation SL Adult THQ=1 (ug/L)	-
Noncarcinogenic SL Adult THI=1 (ug/L)	166
Screening Level (ug/L)	9.98E+01 nc

Notes:

cm/hr = centimeters per hour hr = hour mg/kg-day = milligram per kilogram per day nc = noncarcinogenic

nc = noncarcinogenic

ug/L = micrograms per liter

ug/m3 = micrograms per meter cubed

APPENDIX B

Laboratory Analytical Reports



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

November 10, 2020

Joju Abraham Georgia Power-CCR 2480 Maner Road Atlanta, GA 30339

RE: Project: HAMMOND AP-3 SCAN/BKG 03 Pace Project No.: 92492418

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory between August 25, 2020 and August 31, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services Asheville
- Pace Analytical Services Charlotte
- Pace Analytical Services Peachtree Corners, GA

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

Sincerely,

type Japan

Tyler Forney for Kevin Herring kevin.herring@pacelabs.com 1(704)875-9092 HORIZON Database Administrator

Enclosures

cc: Christine Hug, Geosyntec Consultants, Inc. Kristen Jurinko Thomas Kessler, Geosyntec Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Ms. Lauren Petty, Southern Co. Services Nardos Tilahun, GeoSyntec Dawit Yifru, Geosyntec Consultants, Inc.





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

CERTIFICATIONS

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Pace Analytical Services Charlotte

9800 Kincey Ave. Ste 100, Huntersville, NC 28078 Louisiana/NELAP Certification # LA170028 North Carolina Drinking Water Certification #: 37706 North Carolina Field Services Certification #: 5342 North Carolina Wastewater Certification #: 12

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 North Carolina Drinking Water Certification #: 37712

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, Peachtree Corners, GA 30092 Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812 Georgia DW Microbiology Certification #: 812 South Carolina Certification #: 99006001 Florida/NELAP Certification #: E87627 Kentucky UST Certification #: 84 Virginia/VELAP Certification #: 460221

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

North Carolina Certification #: 381 South Carolina Certification #: 98011001 Virginia Certification #: 460204



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

SAMPLE SUMMARY

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92492418001	HGWA-122	Water	08/24/20 16:52	08/25/20 11:25
92492418002	HGWA-2	Water	08/25/20 10:38	08/26/20 12:00
92492418003	HGWA-3	Water	08/25/20 09:29	08/26/20 12:00
92492418004	HGWC-125	Water	08/25/20 14:51	08/26/20 12:00
92492418005	HGWC-126	Water	08/25/20 12:55	08/26/20 12:00
92492418006	FB-01	Water	08/25/20 16:00	08/26/20 12:00
92492418007	HGWC-121A	Water	08/26/20 15:17	08/27/20 08:56
92492418008	MW-32	Water	08/26/20 13:10	08/27/20 08:56
92492418009	MW-39	Water	08/26/20 10:23	08/27/20 08:56
92492418010	MW-41	Water	08/26/20 11:37	08/27/20 08:56
92492418011	HGWC-120	Water	08/26/20 16:50	08/27/20 08:56
92492418012	FD-01	Water	08/26/20 00:00	08/27/20 08:56
92492418013	HGWC-124	Water	08/27/20 11:17	08/28/20 11:08
92492418014	HGWA-1	Water	08/28/20 09:26	08/31/20 12:08



Analytes

SAMPLE ANALYTE COUNT

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

92492418010

92492418011

MW-41

HGWC-120

Lab ID Sample ID Method Analysts Reported 92492418001 **HGWA-122** EPA 6020B CW1, KH 12 VB EPA 7470A 1 EPA 300.0 Rev 2.1 1993 CDC 1 92492418002 HGWA-2 EPA 6020B CW1, KH 12 EPA 7470A VB 1 EPA 300.0 Rev 2.1 1993 BRJ 1 92492418003 CW1 HGWA-3 EPA 6020B 12 EPA 7470A VB 1 BRJ EPA 300.0 Rev 2.1 1993 1 92492418004 HGWC-125 EPA 6010D DRB 1 CW1 EPA 6020B 13 EPA 7470A VB 1 SM 2450C-2011 ALW 1 EPA 300.0 Rev 2.1 1993 BRJ 3 DRB 92492418005 HGWC-126 EPA 6010D 1 EPA 6020B CW1 13 EPA 7470A VB 1 SM 2450C-2011 ALW 1 EPA 300.0 Rev 2.1 1993 BRJ 3 EPA 6010D DRB 92492418006 FB-01 1 EPA 6020B CW1 13 VB EPA 7470A 1 SM 2450C-2011 ALW 1 BRJ EPA 300.0 Rev 2.1 1993 3 92492418007 HGWC-121A EPA 6020B CW1, KH 12 EPA 7470A VB 1 EPA 300.0 Rev 2.1 1993 CDC 1 92492418008 MW-32 EPA 6020B CW1 12 EPA 7470A VB 1 EPA 300.0 Rev 2.1 1993 CDC 1 92492418009 EPA 6020B CW1 12 MW-39 EPA 7470A VB 1

EPA 300.0 Rev 2.1 1993

EPA 6020B

EPA 7470A

EPA 300.0 Rev 2.1 1993

EPA 6020B

CDC

CW1

VB

CDC

CW1

1

12

1

1

12



SAMPLE ANALYTE COUNT

Project:HAMMOND AP-3 SCAN/BKG 03Pace Project No.:92492418

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 7470A		1
		EPA 300.0 Rev 2.1 1993	CDC	1
92492418012	FD-01	EPA 6020B	CW1	12
		EPA 7470A	VB	1
		EPA 300.0 Rev 2.1 1993	CDC	1
92492418013	HGWC-124	EPA 6020B	CW1	12
		EPA 7470A	VB	1
		EPA 300.0 Rev 2.1 1993	BRJ	1
92492418014	HGWA-1	EPA 6020B	CW1	12
		EPA 7470A	VB	1
		EPA 300.0 Rev 2.1 1993	CDC	1

PASI-A = Pace Analytical Services - Asheville

PASI-C = Pace Analytical Services - Charlotte

PASI-GA = Pace Analytical Services - Peachtree Corners, GA



SUMMARY OF DETECTION

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Applyzod	Qualifiers
			Units		Analyzed	Quaimers
92492418001	HGWA-122					
	рН	6.54	Std. Units		09/08/20 11:50	
EPA 6020B	Barium	0.041	mg/L	0.010	08/28/20 16:22	
EPA 6020B	Chromium	0.00093J	mg/L	0.010	08/28/20 16:22	
EPA 6020B	Lead	0.000077J	mg/L	0.0050	08/28/20 16:22	
EPA 6020B	Molybdenum	0.0031J	mg/L	0.010	08/28/20 16:22	
EPA 300.0 Rev 2.1 1993	Fluoride	0.075J	mg/L	0.10	08/26/20 20:34	
92492418002	HGWA-2					
	рН	5.17	Std. Units		09/08/20 11:50	
EPA 6020B	Barium	0.11	mg/L	0.010	08/28/20 16:27	
EPA 6020B	Beryllium	0.00014J	mg/L	0.0030	08/28/20 16:27	
EPA 6020B	Chromium	0.00067J	mg/L	0.010	08/28/20 16:27	
EPA 6020B	Cobalt	0.018	mg/L	0.0050	08/28/20 16:27	
EPA 6020B	Lead	0.000085J	mg/L	0.0050	08/28/20 16:27	
EPA 6020B	Lithium	0.0015J	mg/L	0.030	08/28/20 16:27	
92492418003	HGWA-3					
	рН	7.14	Std. Units		09/08/20 11:50	
EPA 6020B	Barium	0.11	mg/L	0.010	08/28/20 16:33	
EPA 6020B	Lithium	0.0027J	mg/L	0.030	08/28/20 16:33	
92492418004	HGWC-125					
	рН	6.36	Std. Units		09/08/20 11:50	
EPA 6010D	Calcium	186	mg/L	1.0	09/08/20 21:53	M1
EPA 6020B	Barium	0.045	mg/L	0.010	08/28/20 17:06	
EPA 6020B	Boron	1.4	mg/L	0.10	08/28/20 17:06	
EPA 6020B	Cobalt	0.0087	mg/L	0.0050	08/28/20 17:06	
EPA 6020B	Lithium	0.0037J	mg/L	0.030	08/28/20 17:06	
EPA 6020B	Molybdenum	0.00099J	mg/L	0.010	08/28/20 17:06	
SM 2450C-2011	Total Dissolved Solids	772	mg/L	10.0	08/31/20 18:02	
EPA 300.0 Rev 2.1 1993	Chloride	10.6	mg/L	1.0	08/27/20 17:11	
EPA 300.0 Rev 2.1 1993	Fluoride	0.16	mg/L	0.10	08/27/20 17:11	
EPA 300.0 Rev 2.1 1993	Sulfate	353	mg/L	1.0	08/27/20 17:11	
92492418005	HGWC-126					
	рН	6.78	Std. Units		09/08/20 11:50	
EPA 6010D	Calcium	130	mg/L	1.0	09/08/20 22:11	
EPA 6020B	Barium	0.23	mg/L	0.010	08/28/20 17:12	
EPA 6020B	Boron	0.016J	mg/L	0.10	08/28/20 17:12	
EPA 6020B	Chromium	0.00096J	mg/L	0.010	08/28/20 17:12	
EPA 6020B	Lead	0.000045J	mg/L	0.0050	08/28/20 17:12	
EPA 6020B	Lithium	0.0037J	mg/L	0.030	08/28/20 17:12	
SM 2450C-2011	Total Dissolved Solids	505	mg/L	10.0	08/31/20 18:02	
EPA 300.0 Rev 2.1 1993	Chloride	8.7	mg/L	1.0	08/27/20 17:26	
EPA 300.0 Rev 2.1 1993	Fluoride	0.52	mg/L	0.10	08/27/20 17:26	
EPA 300.0 Rev 2.1 1993	Sulfate	62.8	mg/L	1.0	08/27/20 17:26	
92492418006	FB-01					
EPA 6020B	Barium	0.0022J	mg/L	0.010	08/28/20 17:18	



SUMMARY OF DETECTION

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92492418007	HGWC-121A					
92492410007		6.73	Ctd Unite		00/08/20 11.50	
EPA 6020B	pH Barium	0.057	Std. Units mg/L	0.010	09/08/20 11:50 09/01/20 19:53	
EPA 6020B	Lithium	0.0071J	mg/L	0.030	09/01/20 19:53	
EPA 300.0 Rev 2.1 1993	Fluoride	0.00713	mg/L	0.030		
92492418008	MW-32	0.10	ilig/∟	0.10	00/20/20 01:02	
92492410000		6.75			09/08/20 11:50	
	pH Antimony	6.75 0.00035J	Std. Units	0.0020		
EPA 6020B EPA 6020B	Antimony Barium	0.000355	mg/L mg/L	0.0030 0.010	09/01/20 19:59 09/01/20 19:59	
EPA 6020B	Cobalt	0.0048J	mg/L	0.0050	09/01/20 19:59	
EPA 6020B	Lithium	0.00483	mg/L	0.0030	09/01/20 19:59	
EPA 6020B	Molybdenum	0.065	mg/L	0.030	09/01/20 19:59	
EPA 300.0 Rev 2.1 1993	Fluoride	0.005	mg/L	0.10	08/29/20 02:07	
		0.55	mg/∟	0.10	06/29/20 02.07	
92492418009	MW-39					
	pH	6.74	Std. Units		09/08/20 11:50	
EPA 6020B	Barium	0.059	mg/L	0.010	09/01/20 20:04	
EPA 6020B	Cobalt	0.0026J	mg/L	0.0050	09/01/20 20:04	
EPA 6020B	Lithium	0.031	mg/L	0.030	09/01/20 20:04	
EPA 6020B	Molybdenum	0.064	mg/L	0.010	09/01/20 20:04	
EPA 300.0 Rev 2.1 1993	Fluoride	0.32	mg/L	0.10	08/29/20 02:22	
92492418010	MW-41					
	рН	6.74	Std. Units		09/08/20 11:50	
EPA 6020B	Barium	0.066	mg/L	0.010	09/01/20 20:10	
EPA 6020B	Cobalt	0.00068J	mg/L	0.0050	09/01/20 20:10	
EPA 6020B	Lithium	0.027J	mg/L	0.030	09/01/20 20:10	
EPA 6020B	Molybdenum	0.039	mg/L	0.010	09/01/20 20:10	
EPA 300.0 Rev 2.1 1993	Fluoride	0.24	mg/L	0.10	08/29/20 02:37	
92492418011	HGWC-120					
	рН	6.96	Std. Units		09/08/20 11:50	
EPA 6020B	Barium	0.041	mg/L	0.010	09/01/20 20:27	
EPA 6020B	Cobalt	0.0023J	mg/L	0.0050	09/01/20 20:27	
EPA 6020B	Lithium	0.023J	mg/L	0.030	09/01/20 20:27	
EPA 6020B	Molybdenum	0.050	mg/L	0.010	09/01/20 20:27	
EPA 300.0 Rev 2.1 1993	Fluoride	0.48	mg/L	0.10	08/29/20 03:22	
92492418012	FD-01					
EPA 6020B	Barium	0.057	mg/L	0.010	09/01/20 20:33	
EPA 6020B	Cobalt	0.0046J	mg/L	0.0050	09/01/20 20:33	
EPA 6020B	Lithium	0.031	mg/L	0.030	09/01/20 20:33	
EPA 6020B	Molybdenum	0.067	mg/L	0.010	09/01/20 20:33	
EPA 300.0 Rev 2.1 1993	Fluoride	0.33	mg/L	0.10	08/29/20 03:37	
92492418013	HGWC-124					
	рН	7.15	Std. Units		09/08/20 11:50	
EPA 6020B	Barium	0.062	mg/L	0.010	09/01/20 20:44	
EPA 6020B	Lithium	0.00091J	mg/L	0.030	09/01/20 20:44	
EPA 6020B	Molybdenum	0.00091J	mg/L	0.010	09/01/20 20:44	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92492418014	HGWA-1					
	рН	7.02	Std. Units		09/08/20 11:50	
EPA 6020B	Barium	0.036	mg/L	0.010	09/02/20 17:11	
EPA 6020B	Lead	0.000070J	mg/L	0.0050	09/02/20 17:11	
EPA 6020B	Lithium	0.00087J	mg/L	0.030	09/02/20 17:11	
EPA 300.0 Rev 2.1 1993	Fluoride	0.080J	mg/L	0.10	09/03/20 19:50	



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Sample: HGWA-122	Lab ID:	92492418001	Collecte	ed: 08/24/20) 16:52	Received: 08/	25/20 11:25 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Analy	tical Services	- Charlotte)					
рН	6.54	Std. Units			1		09/08/20 11:50		
6020 MET ICPMS	Analytical	Method: EPA 6	020B Pre	paration Met	hod: Ef	PA 3005A			
	Pace Analy	tical Services	- Peachtre	e Corners, C	6A				
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 15:00	09/18/20 18:07	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/27/20 17:10	08/28/20 16:22	7440-38-2	
Barium	0.041	mg/L	0.010	0.00071	1	08/27/20 17:10	08/28/20 16:22	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	08/27/20 17:10	08/28/20 16:22	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	08/27/20 17:10	08/28/20 16:22	7440-43-9	
Chromium	0.00093J	mg/L	0.010	0.00055	1	08/27/20 17:10	08/28/20 16:22	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	08/27/20 17:10	08/28/20 16:22	7440-48-4	
Lead	0.000077J	mg/L	0.0050	0.000036	1	08/27/20 17:10	08/28/20 16:22	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	08/27/20 17:10	08/28/20 16:22	7439-93-2	
Molybdenum	0.0031J	mg/L	0.010	0.00069	1	08/27/20 17:10	08/28/20 16:22	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/27/20 17:10	08/28/20 16:22	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/27/20 17:10	08/28/20 16:22	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	470A Prej	paration Met	hod: EF	PA 7470A			
	Pace Analy	tical Services	- Peachtre	e Corners, G	βA				
Mercury	ND	mg/L	0.00050	0.000078	1	08/26/20 12:00	08/27/20 10:26	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2	2.1 1993					
•	Pace Analy	tical Services	- Asheville						
Fluoride	0.075J	mg/L	0.10	0.050	1		08/26/20 20:34	16984-48-8	



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Sample: HGWA-2 Collected: 08/25/20 10:38 Received: 08/26/20 12:00 Lab ID: 92492418002 Matrix: Water Report Units MDL DF Parameters Results Limit Prepared CAS No. Analyzed Qual **Field Data** Analytical Method: Pace Analytical Services - Charlotte pН Std. Units 09/08/20 11:50 5.17 1 Analytical Method: EPA 6020B Preparation Method: EPA 3005A 6020 MET ICPMS Pace Analytical Services - Peachtree Corners, GA Antimony ND mg/L 0.0030 0.00028 09/18/20 15:00 09/18/20 18:12 7440-36-0 M1,R1 1 ND mg/L 0.0050 0.00078 08/27/20 17:10 08/28/20 16:27 7440-38-2 Arsenic 1 0.010 Barium 0.11 mg/L 0.00071 1 08/27/20 17:10 08/28/20 16:27 7440-39-3 Beryllium 0.00014J mg/L 0.0030 0.000046 08/27/20 17:10 08/28/20 16:27 7440-41-7 1 Cadmium ND mg/L 0.0025 0.00012 1 08/27/20 17:10 08/28/20 16:27 7440-43-9 08/27/20 17:10 08/28/20 16:27 7440-47-3 Chromium 0.00067J mg/L 0.010 0.00055 1 0.018 0.0050 0.00038 08/27/20 17:10 08/28/20 16:27 7440-48-4 Cobalt mg/L 1 0.000085J 0.0050 0.000036 08/27/20 17:10 08/28/20 16:27 7439-92-1 Lead mg/L 1 Lithium 0.0015J mg/L 0.030 0.00081 1 08/27/20 17:10 08/28/20 16:27 7439-93-2 Molybdenum ND mg/L 0.010 0.00069 1 08/27/20 17:10 08/28/20 16:27 7439-98-7 Selenium ND mg/L 0.010 0.0016 1 08/27/20 17:10 08/28/20 16:27 7782-49-2 Thallium ND mg/L 0.0010 0.00014 1 08/27/20 17:10 08/28/20 16:27 7440-28-0 7470 Mercury Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA Mercury ND mg/L 0.00050 0.000078 1 08/31/20 11:00 09/01/20 10:06 7439-97-6 Analytical Method: EPA 300.0 Rev 2.1 1993 300.0 IC Anions 28 Days Pace Analytical Services - Asheville Fluoride ND mg/L 0.10 0.050 1 08/27/20 16:41 16984-48-8



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 924

92492418

Report	
Parameters Results Units Limit MDL DF F	Prepared Analyzed CAS No. Qual
Field Data Analytical Method:	
Pace Analytical Services - Charlotte	
pH 7.14 Std. Units 1	09/08/20 11:50
6020 MET ICPMS Analytical Method: EPA 6020B Preparation Method: EPA 30	05A
Pace Analytical Services - Peachtree Corners, GA	
Antimony ND mg/L 0.0030 0.00028 1 08/2	27/20 17:10 08/28/20 16:33 7440-36-0
Arsenic ND mg/L 0.0050 0.00078 1 08/2	27/20 17:10 08/28/20 16:33 7440-38-2
Barium 0.11 mg/L 0.010 0.00071 1 08/2	27/20 17:10 08/28/20 16:33 7440-39-3
Beryllium ND mg/L 0.0030 0.000046 1 08/2	27/20 17:10 08/28/20 16:33 7440-41-7
Cadmium ND mg/L 0.0025 0.00012 1 08/2	27/20 17:10 08/28/20 16:33 7440-43-9
Chromium ND mg/L 0.010 0.00055 1 08/2	27/20 17:10 08/28/20 16:33 7440-47-3
Cobalt ND mg/L 0.0050 0.00038 1 08/2	27/20 17:10 08/28/20 16:33 7440-48-4
Lead ND mg/L 0.0050 0.000036 1 08/2	27/20 17:10 08/28/20 16:33 7439-92-1
Lithium 0.0027J mg/L 0.030 0.00081 1 08/2	27/20 17:10 08/28/20 16:33 7439-93-2
Molybdenum ND mg/L 0.010 0.00069 1 08/2	27/20 17:10 08/28/20 16:33 7439-98-7
Selenium ND mg/L 0.010 0.0016 1 08/2	27/20 17:10 08/28/20 16:33 7782-49-2
Thallium ND mg/L 0.0010 0.00014 1 08/2	27/20 17:10 08/28/20 16:33 7440-28-0
7470 Mercury Analytical Method: EPA 7470A Preparation Method: EPA 74	70A
Pace Analytical Services - Peachtree Corners, GA	
Mercury ND mg/L 0.00050 0.000078 1 08/3	31/20 11:00 09/01/20 10:08 7439-97-6
300.0 IC Anions 28 Days Analytical Method: EPA 300.0 Rev 2.1 1993	
Pace Analytical Services - Asheville	
Fluoride ND mg/L 0.10 0.050 1	08/27/20 16:56 16984-48-8



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.:

92492418

Sample: HGWC-125	Lab ID:	92492418004	Collecte	ed: 08/25/20) 14:51	Received: 08/	/26/20 12:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Ana	lytical Services	- Charlotte	;					
рН	6.36	Std. Units			1		09/08/20 11:50		
6010D ATL ICP	Analytical	Method: EPA 6	010D Pre	paration Met	hod: El	PA 3010A			
	Pace Analytical Services - Peachtree Corners, GA								
Calcium	186	mg/L	1.0	0.070	1	09/08/20 13:08	09/08/20 21:53	7440-70-2	M1
6020 MET ICPMS	Analytical	Method: EPA 6	020B Pre	paration Met	hod: EF	PA 3005A			
	Pace Ana	lytical Services	- Peachtre	e Corners, G	βA				
Antimony	ND	mg/L	0.0030	0.00028	1	08/27/20 17:10	08/28/20 17:06	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/27/20 17:10			
Barium	0.045	mg/L	0.010	0.00071	1	08/27/20 17:10			
Beryllium	ND	mg/L	0.0030	0.000046	1	08/27/20 17:10			
Boron	1.4	mg/L	0.10	0.0052	1	08/27/20 17:10			
Cadmium	ND	mg/L	0.0025	0.00012	1	08/27/20 17:10			
Chromium	ND	mg/L	0.010	0.00055	1		08/28/20 17:06		
Cobalt	0.0087	mg/L	0.0050	0.00038	1		08/28/20 17:06		
Lead	ND	mg/L	0.0050	0.000036	1	08/27/20 17:10			
Lithium	0.0037J	mg/L	0.030	0.00081	1	08/27/20 17:10			
Molybdenum	0.00099J	mg/L	0.010	0.00069	1	08/27/20 17:10	08/28/20 17:06	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	08/27/20 17:10	08/28/20 17:06	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	08/27/20 17:10			
7470 Mercury	Analytical	Method: EPA 7	470A Pre	paration Met	hod: EF	PA 7470A			
	Pace Ana	lytical Services	- Peachtre	e Corners, G	BA				
Mercury	ND	mg/L	0.00050	0.000078	1	08/31/20 11:00	09/01/20 10:15	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 24	450C-2011						
	Pace Ana	lytical Services	- Peachtre	e Corners, G	A				
Total Dissolved Solids	772	mg/L	10.0	10.0	1		08/31/20 18:02		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2	2.1 1993					
	Pace Ana	lytical Services	- Asheville	•					
Chloride	10.6	mg/L	1.0	0.60	1		08/27/20 17:11	16887-00-6	
Fluoride	0.16	mg/L	0.10	0.050	1		08/27/20 17:11	16984-48-8	
Sulfate	353	mg/L	1.0	0.50	1		08/27/20 17:11		



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.:

92492418

Sample: HGWC-126		92492418005	CONFICE	ed: 08/25/20	12:55	Received: 08/	26/20 12:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Ana	lytical Services	- Charlotte	9					
рН	6.78	Std. Units			1		09/08/20 11:50		
6010D ATL ICP	Analytical	Method: EPA 6	010D Pre	paration Met	hod: EF	PA 3010A			
	Pace Ana	lytical Services	- Peachtre	e Corners, C	B A				
Calcium	130	mg/L	1.0	0.070	1	09/08/20 13:08	09/08/20 22:11	7440-70-2	
6020 MET ICPMS	Analytical	Method: EPA 6	020B Pre	paration Met	hod: EF	PA 3005A			
	Pace Ana	lytical Services	- Peachtre	e Corners, C	B A				
Antimony	ND	mg/L	0.0030	0.00028	1	08/27/20 17:10	08/28/20 17:12	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	08/27/20 17:10	08/28/20 17:12		
Barium	0.23	mg/L	0.010	0.00071	1		08/28/20 17:12		
Beryllium	ND	mg/L	0.0030	0.000046	1		08/28/20 17:12		
Boron	0.016J	mg/L	0.10	0.0052	1		08/28/20 17:12		
Cadmium	ND	mg/L	0.0025	0.00012	1		08/28/20 17:12		
Chromium	0.00096J	mg/L	0.010	0.00055	1		08/28/20 17:12		
Cobalt	ND	mg/L	0.0050	0.00038	1		08/28/20 17:12		
Lead	0.000045J	mg/L	0.0050	0.000036	1		08/28/20 17:12		
Lithium	0.0037J	mg/L	0.030	0.00081	1	08/27/20 17:10	08/28/20 17:12	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1		08/28/20 17:12		
Selenium	ND	mg/L	0.010	0.0016	1	08/27/20 17:10	08/28/20 17:12	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1		08/28/20 17:12		
7470 Mercury	Analytical	Method: EPA 7	470A Pre	paration Met	hod: EF	PA 7470A			
	Pace Ana	lytical Services	- Peachtre	e Corners, C	βA				
Mercury	ND	mg/L	0.00050	0.000078	1	08/31/20 11:00	09/01/20 10:18	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 24	150C-2011						
	Pace Ana	lytical Services	- Peachtre	e Corners, C	θA				
Total Dissolved Solids	505	mg/L	10.0	10.0	1		08/31/20 18:02		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2	2.1 1993					
	Pace Ana	lytical Services	- Asheville						
Chloride	8.7	mg/L	1.0	0.60	1		08/27/20 17:26	16887-00-6	
Fluoride	0.52	mg/L	0.10	0.050	1		08/27/20 17:26		
Sulfate	62.8	mg/L	1.0	0.50	1		08/27/20 17:26		



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418									
Sample: FB-01	Lab ID:	92492418006	Collecte	ed: 08/25/2	0 16:00	Received: 08/	/26/20 12:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP	-	Method: EPA 6 lytical Services				PA 3010A			
Calcium	ND	mg/L	1.0	0.070	1	09/08/20 13:08	09/08/20 22:15	7440-70-2	
6020 MET ICPMS	-	Method: EPA 6 lytical Services				PA 3005A			
Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Cobalt Lead Lithium Molybdenum Selenium Thallium	ND ND 0.0022J ND ND ND ND ND ND ND ND	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	0.0030 0.0050 0.010 0.0030 0.0025 0.010 0.0050 0.0050 0.030 0.010 0.010	0.00028 0.00078 0.00071 0.000046 0.0052 0.00012 0.00055 0.00038 0.000036 0.00081 0.00069 0.0016 0.00014	1 1 1 1 1 1 1 1 1 1 1 1 1	08/27/20 17:10 08/27/20 17:10	08/28/20 17:18 08/28/20 17:18 08/28/20 17:18 08/28/20 17:18 08/28/20 17:18 08/28/20 17:18 08/28/20 17:18 08/28/20 17:18 08/28/20 17:18 08/28/20 17:18	7440-38-2 7440-39-3 7440-41-7 7440-42-8 7440-43-9 7440-47-3 7440-48-4 7439-92-1 7439-93-2 7439-98-7 7782-49-2	
7470 Mercury		Method: EPA 7 lytical Services				PA 7470A			
Mercury	ND	mg/L	0.00050	0.000078	1	08/31/20 11:00	09/01/20 10:20	7439-97-6	
2540C Total Dissolved Solids	,	Method: SM 24 lytical Services		e Corners,	GA				
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		08/31/20 18:02		
300.0 IC Anions 28 Days	,	Method: EPA 3 lytical Services							
Chloride Fluoride	ND ND	mg/L mg/L	1.0 0.10	0.60 0.050	1 1		08/27/20 17:41 08/27/20 17:41		

1.0

0.50

1

ND

mg/L

REPORT OF LABORATORY ANALYSIS

Sulfate

08/27/20 17:41 14808-79-8



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Sample: HGWC-121A	Lab ID:	92492418007	Collecte	ed: 08/26/20) 15:17	Received: 08/	27/20 08:56 Ma	atrix: Water			
			Report								
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual		
Field Data	Analytical	Method:									
	Pace Anal	ytical Services	- Charlotte								
рН	6.73	Std. Units			1		09/08/20 11:50				
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prej	paration Met	hod: EF	PA 3005A					
	Pace Analytical Services - Peachtree Corners, GA										
Antimony	ND	mg/L	0.0030	0.00028	1	09/18/20 15:00	09/18/20 18:47	7440-36-0			
Arsenic	ND	mg/L	0.0050	0.00078	1	09/01/20 14:03	09/01/20 19:53	7440-38-2			
Barium	0.057	mg/L	0.010	0.00071	1	09/01/20 14:03	09/01/20 19:53	7440-39-3			
Beryllium	ND	mg/L	0.0030	0.000046	1	09/01/20 14:03	09/02/20 16:53	7440-41-7			
Cadmium	ND	mg/L	0.0025	0.00012	1	09/01/20 14:03	09/01/20 19:53	7440-43-9			
Chromium	ND	mg/L	0.010	0.00055	1	09/01/20 14:03	09/01/20 19:53	7440-47-3			
Cobalt	ND	mg/L	0.0050	0.00038	1	09/01/20 14:03	09/01/20 19:53	7440-48-4			
Lead	ND	mg/L	0.0050	0.000036	1	09/01/20 14:03	09/01/20 19:53	7439-92-1			
Lithium	0.0071J	mg/L	0.030	0.00081	1	09/01/20 14:03	09/01/20 19:53	7439-93-2			
Molybdenum	ND	mg/L	0.010	0.00069	1	09/01/20 14:03	09/01/20 19:53	7439-98-7			
Selenium	ND	mg/L	0.010	0.0016	1	09/01/20 14:03	09/01/20 19:53	7782-49-2			
Thallium	ND	mg/L	0.0010	0.00014	1	09/01/20 14:03	09/01/20 19:53	7440-28-0			
7470 Mercury	Analytical	Method: EPA 7	470A Prep	paration Met	hod: EF	PA 7470A					
-	Pace Anal	ytical Services	- Peachtre	e Corners, G	6A						
Mercury	ND	mg/L	0.00050	0.000078	1	08/31/20 11:00	09/01/20 10:22	7439-97-6			
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2	2.1 1993							
-	Pace Anal	ytical Services	- Asheville								
Fluoride	0.16	mg/L	0.10	0.050	1		08/29/20 01:52	16984-48-8			



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Sample: MW-32 Collected: 08/26/20 13:10 Received: 08/27/20 08:56 Lab ID: 92492418008 Matrix: Water Report Units MDL DF Parameters Results Limit Prepared CAS No. Analyzed Qual **Field Data** Analytical Method: Pace Analytical Services - Charlotte pН Std. Units 09/08/20 11:50 6.75 1 Analytical Method: EPA 6020B Preparation Method: EPA 3005A 6020 MET ICPMS Pace Analytical Services - Peachtree Corners, GA 0.00035J Antimony mg/L 0.0030 0.00028 09/01/20 14:03 09/01/20 19:59 7440-36-0 1 Arsenic mg/L 0.0050 0.00078 09/01/20 14:03 09/01/20 19:59 7440-38-2 ND 1 0.055 0.010 Barium mg/L 0.00071 1 09/01/20 14:03 09/01/20 19:59 7440-39-3 Beryllium ND mg/L 0.0030 0.000046 09/01/20 14:03 09/02/20 16:58 7440-41-7 1 Cadmium ND mg/L 0.0025 0.00012 1 09/01/20 14:03 09/01/20 19:59 7440-43-9 Chromium ND mg/L 0.010 0.00055 1 09/01/20 14:03 09/01/20 19:59 7440-47-3 0.0048J 0.0050 0.00038 09/01/20 14:03 09/01/20 19:59 7440-48-4 Cobalt mg/L 1 ND 0.0050 0.000036 09/01/20 14:03 09/01/20 19:59 7439-92-1 Lead mg/L 1 Lithium 0.031 mg/L 0.030 0.00081 1 09/01/20 14:03 09/01/20 19:59 7439-93-2 Molybdenum 0.065 mg/L 0.010 0.00069 1 09/01/20 14:03 09/01/20 19:59 7439-98-7 Selenium ND mg/L 0.010 0.0016 1 09/01/20 14:03 09/01/20 19:59 7782-49-2 Thallium ND mg/L 0.0010 0.00014 1 09/01/20 14:03 09/01/20 19:59 7440-28-0 7470 Mercury Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA Mercury ND mg/L 0.00050 0.000078 1 08/31/20 11:00 09/01/20 10:25 7439-97-6 Analytical Method: EPA 300.0 Rev 2.1 1993 300.0 IC Anions 28 Days Pace Analytical Services - Asheville Fluoride 0.33 mg/L 0.10 0.050 1 08/29/20 02:07 16984-48-8



ANALYTICAL RESULTS

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.:

92492418

Sample: MW-39	Lab ID:	92492418009	Collecte	ed: 08/26/20	0 10:23	Received: 08/	27/20 08:56 Ma	atrix: Water			
			Report								
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual		
Field Data	Analytical	Method:									
	Pace Anal	ytical Services	- Charlotte								
рН	6.74	Std. Units			1		09/08/20 11:50				
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prep	paration Met	hod: EF	PA 3005A					
	Pace Analytical Services - Peachtree Corners, GA										
Antimony	ND	mg/L	0.0030	0.00028	1	09/01/20 14:03	09/01/20 20:04	7440-36-0			
Arsenic	ND	mg/L	0.0050	0.00078	1	09/01/20 14:03	09/01/20 20:04	7440-38-2			
Barium	0.059	mg/L	0.010	0.00071	1	09/01/20 14:03	09/01/20 20:04	7440-39-3			
Beryllium	ND	mg/L	0.0030	0.000046	1	09/01/20 14:03	09/02/20 17:04	7440-41-7			
Cadmium	ND	mg/L	0.0025	0.00012	1	09/01/20 14:03	09/01/20 20:04	7440-43-9			
Chromium	ND	mg/L	0.010	0.00055	1	09/01/20 14:03	09/01/20 20:04	7440-47-3			
Cobalt	0.0026J	mg/L	0.0050	0.00038	1	09/01/20 14:03	09/01/20 20:04	7440-48-4			
Lead	ND	mg/L	0.0050	0.000036	1	09/01/20 14:03	09/01/20 20:04	7439-92-1			
Lithium	0.031	mg/L	0.030	0.00081	1	09/01/20 14:03	09/01/20 20:04	7439-93-2			
Molybdenum	0.064	mg/L	0.010	0.00069	1	09/01/20 14:03	09/01/20 20:04	7439-98-7			
Selenium	ND	mg/L	0.010	0.0016	1	09/01/20 14:03	09/01/20 20:04	7782-49-2			
Thallium	ND	mg/L	0.0010	0.00014	1	09/01/20 14:03	09/01/20 20:04	7440-28-0			
7470 Mercury	Analytical	Method: EPA 7	470A Prep	paration Met	hod: EF	PA 7470A					
	Pace Anal	ytical Services	- Peachtre	e Corners, G	S A						
Mercury	ND	mg/L	0.00050	0.000078	1	08/31/20 11:00	09/01/20 11:36	7439-97-6			
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2	.1 1993							
-	Pace Anal	ytical Services	- Asheville								
Fluoride	0.32	mg/L	0.10	0.050	1		08/29/20 02:22	16984-48-8			



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Sample: MW-41	Lab ID:	92492418010	Collecte	ed: 08/26/20	11:37	Received: 08/	/27/20 08:56 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Analy	tical Services	- Charlotte	•					
рН	6.74	Std. Units			1		09/08/20 11:50		
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prej	paration Met	hod: EF	PA 3005A			
	Pace Analy	tical Services	- Peachtre	e Corners, G	βA				
Antimony	ND	mg/L	0.0030	0.00028	1	09/01/20 14:03	09/01/20 20:10	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/01/20 14:03	09/01/20 20:10	7440-38-2	
Barium	0.066	mg/L	0.010	0.00071	1	09/01/20 14:03	09/01/20 20:10	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/01/20 14:03	09/02/20 17:10	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/01/20 14:03	09/01/20 20:10	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/01/20 14:03	09/01/20 20:10	7440-47-3	
Cobalt	0.00068J	mg/L	0.0050	0.00038	1	09/01/20 14:03	09/01/20 20:10	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/01/20 14:03	09/01/20 20:10	7439-92-1	
Lithium	0.027J	mg/L	0.030	0.00081	1	09/01/20 14:03	09/01/20 20:10	7439-93-2	
Molybdenum	0.039	mg/L	0.010	0.00069	1	09/01/20 14:03	09/01/20 20:10	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/01/20 14:03	09/01/20 20:10	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/01/20 14:03	09/01/20 20:10	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	470A Prep	paration Met	nod: EF	PA 7470A			
	Pace Analy	tical Services	- Peachtre	e Corners, G	iΑ				
Mercury	ND	mg/L	0.00050	0.000078	1	09/08/20 11:15	09/09/20 11:08	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2	2.1 1993					
-	Pace Analy	tical Services	- Asheville						
Fluoride	0.24	mg/L	0.10	0.050	1		08/29/20 02:37	16984-48-8	



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Sample: HGWC-120	Lab ID:	92492418011	Collecte	ed: 08/26/20	0 16:50	Received: 08/	27/20 08:56 Ma	atrix: Water			
			Report								
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual		
Field Data	Analytical	Method:									
	Pace Anal	ytical Services	- Charlotte	9							
рН	6.96	Std. Units			1		09/08/20 11:50				
6020 MET ICPMS	Analytical	Method: EPA 6	020B Pre	paration Met	hod: El	PA 3005A					
	Pace Analytical Services - Peachtree Corners, GA										
Antimony	ND	mg/L	0.0030	0.00028	1	09/01/20 14:03	09/01/20 20:27	7440-36-0			
Arsenic	ND	mg/L	0.0050	0.00078	1	09/01/20 14:03	09/01/20 20:27	7440-38-2			
Barium	0.041	mg/L	0.010	0.00071	1	09/01/20 14:03	09/01/20 20:27	7440-39-3			
Beryllium	ND	mg/L	0.0030	0.000046	1	09/01/20 14:03	09/02/20 17:15	7440-41-7			
Cadmium	ND	mg/L	0.0025	0.00012	1	09/01/20 14:03	09/01/20 20:27	7440-43-9			
Chromium	ND	mg/L	0.010	0.00055	1	09/01/20 14:03	09/01/20 20:27	7440-47-3			
Cobalt	0.0023J	mg/L	0.0050	0.00038	1	09/01/20 14:03	09/01/20 20:27	7440-48-4			
Lead	ND	mg/L	0.0050	0.000036	1	09/01/20 14:03	09/01/20 20:27	7439-92-1			
Lithium	0.023J	mg/L	0.030	0.00081	1	09/01/20 14:03	09/01/20 20:27	7439-93-2			
Molybdenum	0.050	mg/L	0.010	0.00069	1	09/01/20 14:03	09/01/20 20:27	7439-98-7			
Selenium	ND	mg/L	0.010	0.0016	1	09/01/20 14:03	09/01/20 20:27	7782-49-2			
Thallium	ND	mg/L	0.0010	0.00014	1	09/01/20 14:03	09/01/20 20:27	7440-28-0			
7470 Mercury	Analytical	Method: EPA 7	470A Prej	paration Met	hod: EF	PA 7470A					
	Pace Anal	ytical Services	- Peachtre	e Corners, G	βA						
Mercury	ND	mg/L	0.00050	0.000078	1	09/08/20 11:15	09/09/20 11:10	7439-97-6			
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0 Rev 2	2.1 1993							
-	Pace Anal	ytical Services	- Asheville	1							
Fluoride	0.48	mg/L	0.10	0.050	1		08/29/20 03:22	16984-48-8			



ANALYTICAL RESULTS

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Sample: FD-01	Lab ID:	92492418012	Collecte	ed: 08/26/20	00:00	Received: 08/	27/20 08:56 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Pre	paration Met	hod: EF	PA 3005A			
	Pace Anal	ytical Services	- Peachtre	e Corners, C	ЗA				
Antimony	ND	mg/L	0.0030	0.00028	1	09/01/20 14:03	09/01/20 20:33	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/01/20 14:03	09/01/20 20:33	7440-38-2	
Barium	0.057	mg/L	0.010	0.00071	1	09/01/20 14:03	09/01/20 20:33	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/01/20 14:03	09/02/20 17:21	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/01/20 14:03	09/01/20 20:33	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/01/20 14:03	09/01/20 20:33	7440-47-3	
Cobalt	0.0046J	mg/L	0.0050	0.00038	1	09/01/20 14:03	09/01/20 20:33	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/01/20 14:03	09/01/20 20:33	7439-92-1	
Lithium	0.031	mg/L	0.030	0.00081	1	09/01/20 14:03	09/01/20 20:33	7439-93-2	
Molybdenum	0.067	mg/L	0.010	0.00069	1	09/01/20 14:03	09/01/20 20:33	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/01/20 14:03	09/01/20 20:33	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/01/20 14:03	09/01/20 20:33	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	470A Pre	paration Met	hod: EF	PA 7470A			
	Pace Anal	ytical Services	- Peachtre	e Corners, C	ЭA				
Mercury	ND	mg/L	0.00050	0.000078	1	09/08/20 11:15	09/09/20 11:13	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0 Rev 2	2.1 1993					
-	Pace Anal	ytical Services	- Asheville						
Fluoride	0.33	mg/L	0.10	0.050	1		08/29/20 03:37	16984-48-8	



ANALYTICAL RESULTS

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Sample: HGWC-124	Lab ID:	92492418013	Collecte	ed: 08/27/20) 11:17	Received: 08/	28/20 11:08 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	- Charlotte	•					
рН	7.15	Std. Units			1		09/08/20 11:50		
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prej	paration Met	hod: EF	PA 3005A			
	Pace Anal	ytical Services	- Peachtre	e Corners, G	6A				
Antimony	ND	mg/L	0.0030	0.00028	1	09/01/20 14:03	09/01/20 20:44	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/01/20 14:03	09/01/20 20:44	7440-38-2	
Barium	0.062	mg/L	0.010	0.00071	1	09/01/20 14:03	09/01/20 20:44	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/01/20 14:03	09/02/20 17:33	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/01/20 14:03	09/01/20 20:44	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/01/20 14:03	09/01/20 20:44	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/01/20 14:03	09/01/20 20:44	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/01/20 14:03	09/01/20 20:44	7439-92-1	
Lithium	0.00091J	mg/L	0.030	0.00081	1	09/01/20 14:03	09/01/20 20:44	7439-93-2	
Molybdenum	0.00091J	mg/L	0.010	0.00069	1	09/01/20 14:03	09/01/20 20:44	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/01/20 14:03	09/01/20 20:44	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/01/20 14:03	09/01/20 20:44	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	470A Prep	paration Met	nod: EF	PA 7470A			
	Pace Anal	ytical Services	- Peachtre	e Corners, G	A				
Mercury	ND	mg/L	0.00050	0.000078	1	09/08/20 11:15	09/09/20 11:15	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2	2.1 1993					
	Pace Anal	ytical Services	- Asheville						
Fluoride	ND	mg/L	0.10	0.050	1		08/29/20 20:26	16984-48-8	



ANALYTICAL RESULTS

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Sample: HGWA-1	Lab ID:	92492418014	Collecte	ed: 08/28/20	09:26	Received: 08/	31/20 12:08 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	- Charlotte						
рН	7.02	Std. Units			1		09/08/20 11:50		
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prep	paration Met	hod: EF	PA 3005A			
	Pace Anal	ytical Services	- Peachtre	e Corners, G	A				
Antimony	ND	mg/L	0.0030	0.00028	1	09/01/20 14:06	09/02/20 17:11	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/01/20 14:06	09/02/20 17:11	7440-38-2	
Barium	0.036	mg/L	0.010	0.00071	1	09/01/20 14:06	09/02/20 17:11	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/01/20 14:06	09/02/20 17:11	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00012	1	09/01/20 14:06	09/02/20 17:11	7440-43-9	
Chromium	ND	mg/L	0.010	0.00055	1	09/01/20 14:06	09/02/20 17:11	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/01/20 14:06	09/02/20 17:11	7440-48-4	
Lead	0.000070J	mg/L	0.0050	0.000036	1	09/01/20 14:06	09/02/20 17:11	7439-92-1	
Lithium	0.00087J	mg/L	0.030	0.00081	1	09/01/20 14:06	09/02/20 17:11	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/01/20 14:06	09/02/20 17:11	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/01/20 14:06	09/02/20 17:11	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/01/20 14:06	09/02/20 17:11	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	470A Prep	paration Met	nod: EF	PA 7470A			
	Pace Anal	ytical Services	- Peachtre	e Corners, G	βA				
Mercury	ND	mg/L	0.00050	0.000078	1	09/08/20 11:15	09/09/20 11:18	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2	2.1 1993					
-	Pace Anal	ytical Services	- Asheville						
Fluoride	0.080J	mg/L	0.10	0.050	1		09/03/20 19:50	16984-48-8	



Project: HAI	MMOND AP-3 S	CAN/BKG 03										
Pace Project No.: 924	92418											
QC Batch: 56	4973		Analy	sis Metho	od:	EPA 6010D	1					
QC Batch Method: El	PA 3010A		Analy	sis Desc	ription:	6010D ATL						
			Labo	ratory:		Pace Analy	tical Servi	ces - Peach	tree Corne	ers, GA		
Associated Lab Samples	924924180	04, 9249241800	5, 9249241	8006								
METHOD BLANK: 299	4728			Matrix: V	Vater							
Associated Lab Samples	924924180	04, 9249241800	5, 9249241	8006								
			Blar	nk	Reporting							
Parameter		Units	Res	ult	Limit	MD	L	Analyzed	Q	ualifiers		
Calcium		mg/L		ND	1	.0	0.070	09/08/20 21	:36			
LABORATORY CONTRO	OL SAMPLE:	2994729										
			Spike	L	CS	LCS	% I	Rec				
Parameter		Units	Conc.	Re	esult	% Rec	Lin	nits	Qualifiers			
Calcium		mg/L		1	0.95J	9	5	80-120		_		
MATRIX SPIKE & MATR		_ICATE: 2994	720		299473	1						
	IX SFIRE DOFI	LICATE. 2994	MS	MSD	299473) [
		92492418004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	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: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.:	92492418
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QC Batch: 562831		Analysis Meth	lod: EF	PA 6020B		
QC Batch Method: EPA 3005	5A	Analysis Desc	cription: 60	20 MET		
		Laboratory:	Pa	ace Analytical Se	rvices - Peachtree (Corners, GA
Associated Lab Samples: 924	492418001, 92492418002	2, 92492418003, 92	2492418004, 92	2492418005, 924	92418006	
METHOD BLANK: 2984655		Matrix:	Water			
Associated Lab Samples: 924	492418001, 92492418002	2, 92492418003, 92	2492418004, 92	2492418005, 924	92418006	
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L		0.0030	0.00028	08/28/20 15:42	
Arsenic	mg/L	ND	0.0050	0.00078	08/28/20 15:42	
Barium	mg/L	ND	0.010	0.00071	08/28/20 15:42	
Beryllium	mg/L	ND	0.0030	0.000046	08/28/20 15:42	
Cadmium	mg/L	ND	0.0025	0.00012	08/28/20 15:42	
Chromium	mg/L	ND	0.010	0.00055	08/28/20 15:42	
Cobalt	mg/L	ND	0.0050	0.00038	08/28/20 15:42	
Lead	mg/L	ND	0.0050	0.000036	08/28/20 15:42	

ND

ND

ND

0.010

0.010

0.0010

0.00069 08/28/20 15:42

0.0016 08/28/20 15:42

0.00014 08/28/20 15:42

LABORATORY CONTROL SAMPLE: 2984656

mg/L

mg/L

mg/L

Molybdenum

Selenium

Thallium

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.095	95	80-120	
Arsenic	mg/L	0.1	0.094	94	80-120	
arium	mg/L	0.1	0.093	93	80-120	
eryllium	mg/L	0.1	0.096	96	80-120	
admium	mg/L	0.1	0.096	96	80-120	
hromium	mg/L	0.1	0.097	97	80-120	
obalt	mg/L	0.1	0.095	95	80-120	
ad	mg/L	0.1	0.089	89	80-120	
hium	mg/L	0.1	0.094	94	80-120	
blybdenum	mg/L	0.1	0.094	94	80-120	
elenium	mg/L	0.1	0.097	97	80-120	
allium	mg/L	0.1	0.089	89	80-120	

MATRIX SPIKE & MATRIX SI	PIKE DUPLI	ICATE: 2984	657		2984658							
Parameter	Units	92491917001 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	0.097	0.095	97	95	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.094	0.094	94	94	75-125	0	20	
Barium	mg/L	0.030	0.1	0.1	0.12	0.12	94	89	75-125	4	20	
Beryllium	mg/L	ND	0.1	0.1	0.098	0.096	98	96	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 2984	657		2984658							
			MS	MSD								
	9	2491917001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Cadmium	mg/L	ND	0.1	0.1	0.097	0.095	97	95	75-125	3	20	
Chromium	mg/L	0.00063J	0.1	0.1	0.098	0.095	98	94	75-125	4	20	
Cobalt	mg/L	0.0039J	0.1	0.1	0.10	0.098	96	94	75-125	3	20	
Lead	mg/L	ND	0.1	0.1	0.090	0.088	90	88	75-125	2	20	
Lithium	mg/L	ND	0.1	0.1	0.098	0.096	97	96	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.097	0.095	97	95	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.093	0.093	93	93	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.090	0.089	90	89	75-125	1	20	

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Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.:	92492418
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QC Batch:	5637	47		Analysis Meth	nod:	EPA 6020B		
QC Batch Method:		3005A		Analysis Des		6020 MET		
				Laboratory:	•		ervices - Peachtree	Corners GA
Associated Lab Sar	nples:	92492418007, 92	2492418008, 9	,			492418012, 924924	
METHOD BLANK:	29886	42		Matrix:	Water			
Associated Lab Sar	nples:	92492418007, 92	2492418008, 9	92492418009, 92	2492418010,	92492418011, 924	492418012, 924924	18013
				Blank	Reporting			
Paran	neter		Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony			mg/L	ND	0.003	0.00028	09/01/20 19:19	
Arsenic			mg/L	ND	0.005	0.00078	09/01/20 19:19	
Barium			mg/L	ND	0.01	0 0.00071	09/01/20 19:19	
Beryllium			mg/L	ND	0.003	0.000046	09/02/20 16:41	
Cadmium			mg/L	ND	0.002	0.00012	09/01/20 19:19	
Chromium			mg/L	ND	0.01	0 0.00055	09/01/20 19:19	
Cobalt			mg/L	ND	0.005	0.00038	09/01/20 19:19	
Lead			mg/L	ND	0.005	0.000036	09/01/20 19:19	
Lithium			mg/L	ND	0.03	0.00081	09/01/20 19:19	
Molybdenum			mg/L	ND	0.01	0 0.00069	09/01/20 19:19	
Selenium			mg/L	ND	0.01	0 0.0016	09/01/20 19:19	
Thallium			mg/L	ND	0.001	0 0.00014	09/01/20 19:19	

LABORATORY CONTROL SAMPLE: 2988643

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	101	80-120	
Arsenic	mg/L	0.1	0.099	99	80-120	
arium	mg/L	0.1	0.10	101	80-120	
eryllium	mg/L	0.1	0.092	92	80-120	
admium	mg/L	0.1	0.098	98	80-120	
hromium	mg/L	0.1	0.096	96	80-120	
obalt	mg/L	0.1	0.097	97	80-120	
ad	mg/L	0.1	0.098	98	80-120	
hium	mg/L	0.1	0.092	92	80-120	
blybdenum	mg/L	0.1	0.10	103	80-120	
elenium	mg/L	0.1	0.096	96	80-120	
nallium	mg/L	0.1	0.096	96	80-120	

MATRIX SPIKE & MATRIX S	PIKE DUPLI	CATE: 2988	644		2988645							
		92492563004	MS Spike	MSD 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	0.10	0.095	100	95	75-125	5	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.093	99	92	75-125	7	20	
Barium	mg/L	0.056	0.1	0.1	0.15	0.15	93	90	75-125	2	20	
Beryllium	mg/L	ND	0.1	0.1	0.091	0.089	91	89	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 2988	644		2988645							
			MS	MSD								
	9	2492563004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Cadmium	mg/L	ND	0.1	0.1	0.097	0.094	97	94	75-125	3	20	
Chromium	mg/L	0.00098J	0.1	0.1	0.098	0.10	97	100	75-125	3	20	
Cobalt	mg/L	0.00061J	0.1	0.1	0.097	0.098	97	97	75-125	1	20	
Lead	mg/L	0.00036J	0.1	0.1	0.094	0.095	94	95	75-125	1	20	
Lithium	mg/L	0.0028J	0.1	0.1	0.092	0.091	89	88	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.093	98	92	75-125	7	20	
Thallium	mg/L	ND	0.1	0.1	0.093	0.095	93	95	75-125	1	20	

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Project: HAMMOND AP-3 SCAN/BKG 03

Pace Proj	ect No.:	92492
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Pace Project No.: 92492418						
QC Batch: 563754		Analysis Meth	nod: E	PA 6020B		
QC Batch Method: EPA 3005A		Analysis Desc	cription: 6	020 MET		
		Laboratory:	Р	ace Analytical Se	rvices - Peachtree	Corners, GA
Associated Lab Samples: 9249241	8014					
METHOD BLANK: 2988660		Matrix:	Water			
Associated Lab Samples: 9249241	8014					
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	0.00031J	0.0030	0.00028	09/02/20 15:28	
Arsenic	mg/L	ND	0.0050	0.00078	09/02/20 15:28	
Barium	mg/L	ND	0.010	0.00071	09/02/20 15:28	
Beryllium	mg/L	ND	0.0030	0.000046	09/02/20 15:28	
Cadmium	mg/L	ND	0.0025	0.00012	09/02/20 15:28	
Chromium	mg/L	ND	0.010	0.00055	09/02/20 15:28	
Cobalt	mg/L	ND	0.0050	0.00038	09/02/20 15:28	
_ead	mg/L	ND	0.0050	0.000036	09/02/20 15:28	
Lithium	mg/L	ND	0.030	0.00081	09/02/20 15:28	
Molybdenum	mg/L	ND	0.010	0.00069	09/02/20 15:28	
Selenium	mg/L	ND	0.010	0.0016	09/02/20 15:28	
Fhallium	mg/L	ND	0.0010	0.00014	09/02/20 15:28	

LABORATORY CONTROL SAMPLE: 2988661

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
ntimony	mg/L	0.1	0.099	99	80-120	
senic	mg/L	0.1	0.099	99	80-120	
um	mg/L	0.1	0.098	98	80-120	
yllium	mg/L	0.1	0.095	95	80-120	
dmium	mg/L	0.1	0.096	96	80-120	
romium	mg/L	0.1	0.097	97	80-120	
alt	mg/L	0.1	0.096	96	80-120	
	mg/L	0.1	0.098	98	80-120	
ım	mg/L	0.1	0.097	97	80-120	
rbdenum	mg/L	0.1	0.10	100	80-120	
enium	mg/L	0.1	0.098	98	80-120	
llium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX S	PIKE DUPLI	CATE: 2988	662		2988663							
	ç	92493129002	MS Spike	MSD 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	0.097	0.099	97	98	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	2	20	
Barium	mg/L	0.021	0.1	0.1	0.12	0.12	95	98	75-125	3	20	
Beryllium	mg/L	ND	0.1	0.1	0.089	0.093	89	93	75-125	5	20	

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

REPORT OF LABORATORY ANALYSIS



Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

MATRIX SPIKE & MATRIX	SPIKE DUPLI	CATE: 2988	662		2988663							
			MS	MSD								
	g	2493129002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Cadmium	mg/L	ND	0.1	0.1	0.094	0.096	94	96	75-125	3	20	
Chromium	mg/L	0.00059J	0.1	0.1	0.099	0.10	99	100	75-125	1	20	
Cobalt	mg/L	0.0021J	0.1	0.1	0.097	0.099	94	97	75-125	2	20	
Lead	mg/L	0.000095J	0.1	0.1	0.096	0.097	96	97	75-125	1	20	
Lithium	mg/L	0.0047J	0.1	0.1	0.096	0.099	92	94	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	100	102	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.098	0.098	97	97	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.096	0.097	96	97	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:	HAMMOND AP-3	SCAN/BKG 03										
Pace Project No.:	92492418											
QC Batch:	567520		Anal	ysis Metho	d:	EPA 6020B						
QC Batch Method:	EPA 3005A		Anal	ysis Descri	ption:	6020 MET						
			Labo	oratory:		Pace Analy	tical Servio	ces - Peach	tree Corne	rs, GA		
Associated Lab San	nples: 92492418	001, 9249241800	02, 9249241	18007								
METHOD BLANK:	3007459			Matrix: W	/ater							
Associated Lab San	nples: 92492418	001, 9249241800	02, 9249241	18007								
			Bla	nk	Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	Q	ualifiers		
Antimony		mg/L		ND	0.003	.0 0.	00028 0	9/18/20 17	:55			
LABORATORY CON	NTROL SAMPLE:	3007460										
			Spike	LC	S	LCS	% F	Rec				
Paran	neter	Units	Conc.	Re	sult	% Rec	Lim	its	Qualifiers			
Antimony		mg/L	0	.1	0.095	9	5	80-120		_		
MATRIX SPIKE & M	IATRIX SPIKE DUP	LICATE: 3007		MSD	3007462	2						
		92492418002	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Мах	
Parameter	Units		Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	% Rec	RPD	RPD	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:	HAMMOND AP-3 3 92492418	SCAN/BKG 03										
Pace Project No.: QC Batch:	562436		Analy	sis Metho	d: I	EPA 7470A						
QC Batch Method:	EPA 7470A			sis Descri		7470 Mercu	Irv					
				ratory:	•			ices - Peach	ntree Corne	rs GA		
Associated Lab Sar	nples: 92492418	001	Labo	latory.	·	uoo / mary				10, 071		
METHOD BLANK:	2982834			Matrix: W	/ater							
Associated Lab Sar	nples: 92492418	001										
			Blar	nk	Reporting							
		Units	Res	ult	Limit	MD	L	Analyzed	d Qu	ualifiers		
Parar	neter	Office										
Parar Mercury	neter	mg/L		ND	0.0005	0 0.0	00078	08/27/20 10):10			
	NTROL SAMPLE:		Spike Conc.	ND LC Res	S	0 0.0 LCS % Rec	%	Rec	Qualifiers			
Mercury	NTROL SAMPLE:	mg/L 2982835		LC Res	S	LCS	% Lir	Rec				
Mercury LABORATORY CO Parar Mercury	NTROL SAMPLE:	mg/L 2982835 Units mg/L	Conc0.002	LC Res	CS sult	LCS % Rec 9	% Lir	Rec nits				
Mercury LABORATORY CO Parar Mercury	NTROL SAMPLE:	mg/L 2982835 Units mg/L	Conc0.002	LC Res	S sult	LCS % Rec 9	% Lir	Rec nits				
Mercury LABORATORY CO Parar Mercury	NTROL SAMPLE:	mg/L 2982835 Units mg/L	Conc. 0.002	LC 5	S sult	LCS % Rec 9	8 MS	Rec nits 80-120 MSD	Qualifiers	_	Max	
Mercury LABORATORY CO Parar Mercury	NTROL SAMPLE: neter MATRIX SPIKE DUP	mg/L 2982835 Units mg/L PLICATE: 2982 92491917001	Conc. 0.002	LC Res 5 MSD	2S sult 0.0025 2982837	LCS % Rec 9	% Lir 8	Rec nits 80-120	Qualifiers	RPD	Max RPD	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: Pace Project No.:	HAMMOND AP-3 92492418	SCAN/BKG 03										
QC Batch:	563370		Analy	/sis Metho	d:	EPA 7470A						
QC Batch Method:	EPA 7470A		Analy	/sis Descri	ption:	7470 Mercu	Irv					
	-			ratory:	•	Pace Analy	•	es - Peach	tree Corne	rs. GA		
Associated Lab San	nples: 92492418	002, 9249241800		,		,				,		
METHOD BLANK:	2987104			Matrix: W	ater							
Associated Lab San	nples: 92492418	002, 9249241800	3, 9249241	8004, 924	92418005,	924924180	06, 924924	18007, 92	492418008	3		
			Blar	nk	Reporting							
Param	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Mercury		mg/L	0.0	00011J	0.0005	50 0.0	00078 0	9/01/20 09:	18			
LABORATORY COM	ITROL SAMPLE:	2987105										
			Spike	LC	S	LCS	% R	ec				
Paran	neter	Units	Conc.	Res	sult	% Rec	Limi	ts	Qualifiers			
Mercury		mg/L	0.002	5	0.0024	9	7 8	80-120				
MATRIX SPIKE & M	ATRIX SPIKE DUF	LICATE: 2987	106		298710	7						
			MS	MSD								
		92492563001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Mercury	mg/L		0.0025	0.0025	0.0024	0.0024	93	94	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:	HAMMOND AP-3	SCAN/BKG 03										
Pace Project No.:	92492418											
QC Batch:	563371		Analy	sis Metho	d: E	EPA 7470A						
QC Batch Method:	EPA 7470A		Analy	sis Descri	ption: 7	7470 Mercu	ry					
			Labo	ratory:	F	Pace Analyt	ical Servio	ces - Peach	tree Corne	rs, GA		
Associated Lab Sar	nples: 92492418	009										
METHOD BLANK:	2987108			Matrix: W	ater							
Associated Lab Sar	nples: 92492418	009										
			Blar	nk	Reporting							
		Units	Res	ult	Limit	MDI	L	Analyzed	l Qu	ualifiers		
Parar	neter	Onits										
Parar Mercury		mg/L		ND	0.00050	0.0	00078 0	9/01/20 10	:32			
	NTROL SAMPLE:		Spike Conc.	ND LC Res	S	0 0.00	00078 0	Rec	.32 Qualifiers			
Mercury	NTROL SAMPLE:	mg/L 2987109	Spike	LC Res	S	LCS	% F Lim	Rec				
Mercury LABORATORY CO Parar	NTROL SAMPLE:	mg/L 2987109 Units mg/L	Spike Conc. 0.002	LC Res	S sult	LCS % Rec	% F Lim	Rec hits		_		
Mercury LABORATORY CO Parar Mercury	NTROL SAMPLE:	mg/L 2987109 Units mg/L	Spike Conc. 0.002	LC Res	S Sult	LCS % Rec	% F Lim	Rec hits				
Mercury LABORATORY CO Parar Mercury MATRIX SPIKE & M	NTROL SAMPLE: neter 1ATRIX SPIKE DUP	mg/L 2987109 Units mg/L LICATE: 2987 92492821001	Spike Conc. 0.002 110 MS Spike	LC Res 5 MSD Spike	Sult 0.0023 2987111 MS	LCS % Rec 9: MSD	% F Lim 3 MS	Rec hits 80-120 MSD	Qualifiers % Rec		Max	
Mercury LABORATORY CO Parar Mercury	NTROL SAMPLE: neter 1ATRIX SPIKE DUP	mg/L 2987109 Units mg/L LICATE: 2987 92492821001	Spike Conc. 0.002	LC Res 5 MSD	Ssult 0.0023 2987111	LCS % Rec 9:	% F 3	Rec hits 80-120	Qualifiers	RPD	Max RPD	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: Pace Project No.:	HAMMOND AP-3 92492418	SCAN/BKG 03										
QC Batch:	564593		Analy	ysis Metho	d:	EPA 7470A						
QC Batch Method:	EPA 7470A		•	ysis Descri		7470 Mercu	ırv					
				oratory:	•	Pace Analy		ces - Peach	tree Corne	rs. GA		
Associated Lab Sam	ples: 92492418	010, 9249241801								,		
METHOD BLANK:	2992563			Matrix: W	/ater							
Associated Lab Sam	ples: 92492418	010, 9249241801	1, 9249241	8012, 924	92418013,	924924180	14					
			Blai	nk	Reporting							
Param	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Mercury		mg/L		ND	0.0005	50 0.0	00078 (09/09/20 10	18			
LABORATORY CON	ITROL SAMPLE:	2992564										
			Spike	LC	-	LCS		Rec				
Param	neter	Units	Conc.	Re:	sult	% Rec	Lin	nits	Qualifiers	_		
Mercury		mg/L	0.002	25	0.0024	9	5	80-120				
MATRIX SPIKE & M	ATRIX SPIKE DUF	LICATE: 2992	565		299256	6						
			MS	MSD								
		92493137001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0023	95	5 94	75-125	2	20	

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



Project: Pace Project No.:	HAMMOND AP-3 92492418	SCAN/BKG 03						
QC Batch:	563552		Analysis Me	ethod:	SM 2450C-2	011		
QC Batch Method:	SM 2450C-2011		Analysis De	escription:	2540C Total	Dissolved Solids	;	
			Laboratory:		Pace Analytic	cal Services - Pe	achtree	e Corners, GA
Associated Lab San	nples: 92492418	8004, 92492418005	5, 92492418006					
METHOD BLANK:	2988051		Matrix	: Water				
Associated Lab San	nples: 92492418	3004, 92492418005	5, 92492418006					
			Blank	Reporting				
Paran	neter	Units	Result	Limit	MDL	Analy	zed	Qualifiers
Total Dissolved Solid	ds	mg/L	ND) 10	.0	10.0 08/31/20) 17:59	
LABORATORY CON	NTROL SAMPLE:	2988052						
			Spike	LCS	LCS	% Rec		
Paran	neter	Units	Conc.	Result	% Rec	Limits	Qua	alifiers
Total Dissolved Solid	ds	mg/L	400	397	99	84-108		
SAMPLE DUPLICA	TE: 2988053							
D		1.1.214	92492424001	Dup	000	Max		Qualifiant
Paran		Units	Result	Result	RPD	RPD		Qualifiers
Total Dissolved Solid	ds	mg/L	246	5 25	52	2	10	
SAMPLE DUPLICA	TE: 2988054							
_			92492418006	Dup		Max		
Paran		Units	Result	Result	RPD	RPD		Qualifiers
Total Dissolved Solid	ds	mg/L	ND) N	ID		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: Pace Project No.:	HAMMOND AP-3 3 92492418	SCAN/BKG 03										
QC Batch:	562433		Analy	ysis Method	d:	EPA 300.0 I	Rev 2.1 19	93				
QC Batch Method:	EPA 300.0 Rev 2	.1 1993	Analy	ysis Descrip	otion:	300.0 IC An	ions					
			Labo	ratory:		Pace Analy	tical Servic	es - Ashevil	le			
Associated Lab Sam	ples: 92492418	001										
METHOD BLANK:	2982806			Matrix: Wa	ater							
Associated Lab Sam	nples: 92492418	001										
			Blar	nk I	Reporting							
Param	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qu	alifiers		
Fluoride		mg/L		ND	0.1	0	0.050 08	8/26/20 18:	18			
LABORATORY CON	ITROL SAMPLE:	2982807										
_			Spike	LC		LCS	% R					
Param	neter	Units	Conc.	Res	sult	% Rec	Limi	ts (Qualifiers	_		
Fluoride		mg/L	2.	.5	2.5	9	9	90-110				
MATRIX SPIKE & M	ATRIX SPIKE DUP	LICATE: 2982			2982809)						
		92492436002	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units		Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	0.41	2.5	2.5	2.9	2.9	100	101	90-110	0	10	
MATRIX SPIKE & M	ATRIX SPIKE DUP	LICATE: 2982	810		2982811							
			MS	MSD								
_		92492228007	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	. .
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride			2.5	2.5	2.5	2.6	98	101	90-110		10	

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

REPORT OF LABORATORY ANALYSIS



Project: Pace Project No.:	HAMMON 92492418		CAN/BKG 03										
QC Batch:	562698			Anal	ysis Metho	d: E	EPA 300.0 F	Rev 2.1 19	993				
QC Batch Method:	EPA 300).0 Rev 2.	1 1993	Anal	ysis Descri	ption: 3	300.0 IC Ani	ions					
				Labo	oratory:	F	Pace Analyt	ical Servi	ces - Ashevi	lle			
Associated Lab Sa	mples: 92	24924180	02, 9249241800	03, 9249241	18004, 924	92418005,	9249241800	06					
METHOD BLANK:	2984151				Matrix: W	ater							
Associated Lab Sa	mples: 9	24924180	02, 9249241800	03, 9249241	18004, 924	92418005, 9	9249241800	06					
				Bla	nk	Reporting							
Para	meter		Units	Res	ult	Limit	MDI	L	Analyzed	Qu	alifiers	;	
Chloride			mg/L		ND	1.0	0	0.60 0	08/27/20 13:	21			
Fluoride			mg/L		ND	0.10			08/27/20 13:				
Sulfate			mg/L		ND	1.0	D	0.50 (08/27/20 13:	21			
LABORATORY CO		MPLE:	2984152	Spike		-	LCS		Rec				
Para	meter		Units	Conc.	Res	sult	% Rec	Lin	nits (Qualifiers	_		
Chloride			mg/L		50	50.5	101		90-110				
Fluoride			mg/L		.5	2.6	103		90-110				
Sulfate			mg/L	Ę	50	50.9	102	2	90-110				
MATRIX SPIKE & M	MATRIX SP	IKE DUPL	-ICATE: 2984	153		2984154							
				MS	MSD								
_			92492398001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride		mg/L	25.8	50	50	77.8	78.7	104		90-110	1	-	
Fluoride		mg/L	ND	2.5	2.5	2.1	2.1	82		90-110	2	-	M1
Sulfate		mg/L	61.1	50	50	106	105	90) 89	90-110	1	10	M1
MATRIX SPIKE & N	MATRIX SP	IKE DUPL	-ICATE: 2984	155		2984156							
				MS	MSD								
			92492228018	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride		mg/L	ND	50	50	52.4	53.3	105	5 106	90-110	2	10	
Fluoride		mg/L	ND	2.5	2.5	2.6	2.7	105	5 107	90-110	1	10	
		5		-	=.0	2.0	2.1						

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REPORT OF LABORATORY ANALYSIS



Project: Pace Project No.:	HAMMOND AP-3	SCAN/BKG 03										
QC Batch:	563042		Analy	ysis Metho	d:	EPA 300.0 I	Rev 2.1 199	93				
QC Batch Method:	EPA 300.0 Rev 2	2.1 1993	Analy	ysis Descri	ption:	300.0 IC An	nions					
			Labo	ratory:		Pace Analy	tical Service	es - Ashevi	lle			
Associated Lab San	nples: 92492418	007, 9249241800	8, 9249241	8009, 924	92418010,	924924180	11, 924924	18012				
METHOD BLANK:	2985604			Matrix: W	ater							
Associated Lab San	nples: 92492418	007, 9249241800	8, 9249241	8009, 924	92418010,	924924180	11, 924924	18012				
		,	Blar		Reporting		,					
Paran	neter	Units	Res		Limit	MD	L	Analyzed	Qu	ualifiers		
Fluoride		mg/L		ND	0.1	0	0.050 08	3/28/20 19:	55			
LABORATORY COM	NTROL SAMPLE:	2985605										
5			Spike	LC		LCS	% R					
Paran	neter	Units	Conc.	Res		% Rec	Limi		Qualifiers	_		
Fluoride		mg/L	2.	.5	2.7	10	7 9	90-110				
MATRIX SPIKE & M	ATRIX SPIKE DUP	PLICATE: 2985	606		2985607	7						
			MS	MSD								
		92492821006	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	0.062J	2.5	2.5	2.7	2.7	105	106	90-110	1	10	
MATRIX SPIKE & M		LICATE: 2985	608		2985609							
		2000	MS	MSD	200000							
		92492821016	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	0.14	2.5	2.5	2.8	2.8	106	106	90-110	0	10	

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

REPORT OF LABORATORY ANALYSIS



Project:	HAMMOND AP-3	SCAN/BKG 03										
Pace Project No.:	92492418											
QC Batch:	563290		Anal	ysis Method	l :t	EPA 300.0 I	Rev 2.1 19	93				
QC Batch Method:	EPA 300.0 Rev 2	2.1 1993	Anal	ysis Descrip	otion:	300.0 IC An	nions					
			Labo	oratory:	F	Pace Analy	tical Servic	es - Ashevil	le			
Associated Lab San	nples: 92492418	013										
METHOD BLANK:	2986801			Matrix: Wa	ater							
Associated Lab San	nples: 92492418	013										
			Bla	nk I	Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qu	ualifiers		
Fluoride		mg/L		ND	0.1	0	0.050 0	8/29/20 14:2	28			
LABORATORY CON	NTROL SAMPLE:	2986802										
5			Spike	LC		LCS	% R					
Paran	neter	Units	Conc.	Res		% Rec	Lim		Qualifiers	_		
Fluoride		mg/L	2	.5	2.6	10	5	90-110				
MATRIX SPIKE & M	IATRIX SPIKE DUF	PLICATE: 2986	803		2986804							
			MS	MSD								
		92493054001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	<u> </u>
Parameter	Units		Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	. 0.14	2.5	2.5	2.8	2.8	105	106	90-110	1	10	
MATRIX SPIKE & M	ATRIX SPIKE DUF	PLICATE: 2986	805		2986806	;						
			MS	MSD								
		92492705017	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units		Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	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: Pace Project No.:	HAMMOND AP-3 \$ 92492418	SCAN/BKG 03										
QC Batch:	564239		Anal	ysis Methoo	d:	EPA 300.0 I	Rev 2.1 199	93				
QC Batch Method:	EPA 300.0 Rev 2	.1 1993		ysis Descrij ratory:		300.0 IC An Pace Analy		os - Asbovil	ام			
Associated Lab Sam	ples: 92492418	014	Labo	atory.		T acc Analy		Co - Aonevii				
METHOD BLANK:	2990890			Matrix: W	ater							
Associated Lab Sam	ples: 92492418	014										
Param	neter	Units	Bla Res		Reporting Limit	MD	I	Analyzed	Q	ualifiers		
Fluoride		mg/L		ND	0.1			9/03/20 15:5				
LABORATORY CON	ITROL SAMPLE:	2990891	Spike	LC	c	LCS	% R	00				
Param	neter	Units	Conc.	Res		% Rec	Limi		Qualifiers			
Fluoride		mg/L	2	.5	2.7	11	0 9	90-110		_		
MATRIX SPIKE & M	ATRIX SPIKE DUP	LICATE: 2990	892		2990893	3						
		00400474000	MS	MSD Spiller	MO	MOD	MO	MCD	0/ Daa		Max	
Parameter	Units	92493471003 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	10.9	2.5	2.5	12.8	12.9	76	80	90-110	1	10	M6
MATRIX SPIKE & M	ATRIX SPIKE DUP	LICATE: 2990	894		2990895	5						
			MS	MSD								
		92493567003	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	. .
Parameter			Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	
Fluoride	mg/L	0.57	2.5	2.5	3.3	3.3	108	110	90-110	2	10	

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



QUALIFIERS

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

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.

TNTC - Too Numerous To Count

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- 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: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

242218002 HGWA-2 243218003 HGWA-3 243218005 HGWA-3 243218005 HGWC-125 243218005 HGWC-126 243218005 HGWC-126 243218005 HGWC-126 243218007 HGWC-121A 243218008 MW-33 243218007 HGWC-120 243218008 HGWC-126 EPA 3010A 564973 EPA 6010D 565003 243218005 HGWC-126 EPA 3010A 564973 EPA 6010D 565003 243218006 HGWC-126 EPA 3010A 564973 EPA 6010D 565003 243218006 HGWA-122 EPA 3005A 56750 EPA 6020B 562944 243218007 HGWA-2 EPA 3005A 56750 EPA 6020B 562944 243218007 HGWC-126 EPA 3005A 562831 EPA 6020B 562944 243218006 HGWC-126 EPA 3005A 562831 EPA 6020B 562944 243218007 HGWC-121A EPA 3005A 562747	Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
242218003 HGWC-125 HGWC-126 HGWC-126 HGWC-126 HGWC-128 HGWC-128 HGWC-120 HGWC-121 HGWC-121 HGWC-120 HGWC-123 HGWC-123 HGWC-123 HGWC-123 HGWC-124 HGWA-1 EPA 3010A 564973 FPA 6010D EPA 6010D 565003 S65003 242218004 HGWA-1 HGWC-125 HGWC-124 HGWA-1 EPA 3010A 564973 FPA 6010D EPA 6010D 565003 S65003 242218004 HGWA-122 EPA 3010A 564973 FPA 6010D EPA 6010D 565003 S65003 243218004 HGWA-122 EPA 3005A 562831 EPA 6020B 562941 243218004 HGWA-22 EPA 3005A 562831 EPA 6020B 562941 243218005 HGWA-2 EPA 3005A 562831 EPA 6020B 563311 243218005 HGWC-121A EPA 3005A 563747 EPA 6020B 563311 243218005 HGWC-121A EPA 3005A 563747	92492418001	HGWA-122		-		
242218004 482418007 HGWC-125 482418008 MW-33 HGWC-125 HGWC-126 MW-33 24231801 482418010 HGWC-120 242418014 HGWC-120 482418005 FB-01 EPA 3010A EPA 3010A 564973 564973 EPA 6010D EPA 6010D 565003 565003 565003 242418004 482418005 FB-01 HGWC-125 EPA 3010A 564973 564973 EPA 6010D 565003 565003 242418006 FB-01 HGWC-126 EPA 3010A 564973 564973 EPA 6010D 565003 565003 242418005 FB-01 HGWC-126 EPA 3005A 562831 EPA 6010D 565003 562944 242418006 FB-01 HGWA-122 EPA 3005A 562831 EPA 6020B 562944 242418007 HGWA-2 EPA 3005A 562831 EPA 6020B 562944 242418007 HGWA-2 EPA 3005A 562831 EPA 6020B 562944 242418007 HGWC-126 EPA 3005A 562831 EPA 6020B 562944 242418007 HGWC-126 EPA 3005A 562831 EPA 6020B 563311 242418007 HGWC-121A EPA 3005A 563747 EPA 6020B 5633131 242418007 <thgwc-121a< th=""> EPA 3005A <t< td=""><td>2492418002</td><td>HGWA-2</td><td></td><td></td><td></td><td></td></t<></thgwc-121a<>	2492418002	HGWA-2				
Haw-C-126 Haw-C-126 V242418007 HGWC-121A V432418007 HGWC-121A V432418007 MW-32 V432418008 MW-32 V432418009 MW-32 V432418010 MW-32 V432418010 MGWC-124 V432418004 HGWC-126 V432418004 HGWC-126 V432418006 FB-01 V532 EPA 3010A 564973 V432418006 HGWA-122 EPA 3010A 564973 V432418006 HGWA-122 EPA 3010A 564973 EPA 6010D 565003 V432418001 HGWA-122 EPA 3005A 567520 EPA 6020B 562941 V432418002 HGWA-2 EPA 3005A 567520 EPA 6020B 562941 V432418003 HGWA-2 EPA 3005A 562831 EPA 6020B 562941 V432418004 HGWC-126 EPA 3005A 562831 EPA 6020B 562941 V432418005 HGWC-121A EPA 3005A 56274 EPA 6020B 563311	2492418003	HGWA-3				
242218007 HGWC-121A 243218008 MW-32 843218001 MW-33 843218011 HGWC-120 843218013 HGWC-123 843218014 HGWC-125 843218014 HGWC-125 843218014 HGWC-125 843218014 HGWC-125 843218014 HGWC-125 843218014 HGWC-126 843218005 FB-01 843218006 FB-01 843218007 HGWA-122 843218004 HGWA-122 843218005 HGWA-122 843218006 FB-01 843218007 HGWA-2 843218008 HGWA-2 843218007 HGWA-2 843218007 HGWA-12 843218007 HGWC-125 843218007 HGWC-126 843218007 HGWC-127 843218007 HGWC-128 843218007 HGWC-124 843218007 HGWC-126 843218007 HGWC-126 843218007 HGWC-127 843218007 HGWC-128	2492418004	HGWC-125				
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	2492418008	MW-32	EPA 7470A	563370	EPA 7470A	563482
2492418010 MW-41 EPA 7470A 564593 EPA 7470A 564990	2492418009	MW-39	EPA 7470A	563371	EPA 7470A	563653
	492418010	MW-41	EPA 7470A	564593	EPA 7470A	564990



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND AP-3 SCAN/BKG 03

Pace Project No.: 92492418

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92492418011	HGWC-120	EPA 7470A	564593	EPA 7470A	564990
92492418012	FD-01	EPA 7470A	564593	EPA 7470A	564990
92492418013	HGWC-124	EPA 7470A	564593	EPA 7470A	564990
92492418014	HGWA-1	EPA 7470A	564593	EPA 7470A	564990
92492418004	HGWC-125	SM 2450C-2011	563552		
92492418005	HGWC-126	SM 2450C-2011	563552		
92492418006	FB-01	SM 2450C-2011	563552		
92492418001	HGWA-122	EPA 300.0 Rev 2.1 1993	562433		
92492418002	HGWA-2	EPA 300.0 Rev 2.1 1993	562698		
92492418003	HGWA-3	EPA 300.0 Rev 2.1 1993	562698		
92492418004	HGWC-125	EPA 300.0 Rev 2.1 1993	562698		
92492418005	HGWC-126	EPA 300.0 Rev 2.1 1993	562698		
92492418006	FB-01	EPA 300.0 Rev 2.1 1993	562698		
92492418007	HGWC-121A	EPA 300.0 Rev 2.1 1993	563042		
92492418008	MW-32	EPA 300.0 Rev 2.1 1993	563042		
92492418009	MW-39	EPA 300.0 Rev 2.1 1993	563042		
92492418010	MW-41	EPA 300.0 Rev 2.1 1993	563042		
92492418011	HGWC-120	EPA 300.0 Rev 2.1 1993	563042		
92492418012	FD-01	EPA 300.0 Rev 2.1 1993	563042		
92492418013	HGWC-124	EPA 300.0 Rev 2.1 1993	563290		
92492418014	HGWA-1	EPA 300.0 Rev 2.1 1993	564239		

Courier: Fed Ex UPS USPS Client Name Courier: Fed Ex UPS USPS Client Tracking #: Custody Seal on Cooler/Box Present: Ves Packing Material: Bubble Wrap Bubble Thermometer Used Bubble Wrap Bubble Thermometer Used Bubble Wrap Bubble Thermometer Used Bubble Wrap Bubble Cooler Temperature Bubble Wrap Bubble Thermometer Used Bubble Wrap Bubble Cooler Temperature Bubble Wrap Bubble Thermometer Used Bubble Wrap Bubble Cooler Temperature Bubble Wrap Bubble Cooler Temperature Bubble Bubble Bubble	ent Commercia	Pace Other	O#: 92492418	
Chain of Custody Filled Out:				4
Chain of Custody Relinquished:				4
Sampler Name & Signature on COC:				-
Samples Arrived within Hold Time:				4
Short Hold Time Analysis (<72hr):	Eres DNo DN/			4
Rush Turn Around Time Requested:		The second		4
Sufficient Volume:				4
Correct Containers Used:				-
-Pace Containers Used:	ZYes DNo DN/A			
Containers Intact:	TTES DNO DN/A		and the second	4
Filtered volume received for Dissolved tests			and the second	4
Sample Labels match COC:				-
-Includes date/time/ID/Analysis Matrix:	SA/	12.		
All containers needing preservation have been checked.	Dres []No []N/A	13		
All containers needing preservation are found to be in compliance with EPA recommendation.	14 10 DNA	2007 (100 (100 (100 (100 (100 (100 (100 (
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	Office Cont.	Initial when completed	Lot # of added preservative	
Samples checked for dechlorination:	DYes DNO BENIA	14.		
Headspace in VOA Vials (>6mm):		15.		
Trip Blank Present:		16.		
Trip Blank Custody Seals Present				
Pace Trip Blank Lot # (if purchased):		-		
Client Notification/ Resolution: Person Contacted: Comments/ Resolution:	Date/T		Fleld Data Required? Y / N	
				n - Sanara
Project Manager Review:			Date:	
Note: Whenever there is a discrepancy affecting North Car	olina compliance sam	les a copy of this form will	ha cont to the Medit O	

Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

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F-ALLC003rev.3, 11September2006

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*App. N Metals=Sb. As. Ba. Be. Cd. Cr. Co. Pb. Li Hg. Mo. Se.
rrease note dry wells, strike thorugh any wells not sampled, and note when the last sample for the event has been taken.
ADDITIONAL COMMENTS
12
11
10
66-AMM 6
88
7
6 HGWC 121
5 HGW/C,120
4 HGWA-122
3 HGWA-3
2 HGMA 2
1 -+6446.1
ITEM #
Sample IDs MUST BE UNIQUE 1150
DRIMUKG WATER
Required Clerk information MATRIX Codes
Requested Due Date/TAT: 10 Day
Email To: SCS Contacts
Required Client Information: Company CA Bound

Page 45 of 52

CHAIN-OF-CUSTODY /

Important Note: By signing this form you are accepting Pace's NET 30 day payment forms and agreeing to bit charges of 1.5% per month for any invoices not paid within 30 days.

		ſ	T	App. I		Please note w		12	=	5	•	8	7	6	U	·	4	w	2	-	T	ITEM #				Request	Phone.	Email To:	Τ	Address:	Company	Section
				"App. IV Metals=Sb, As. Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se. n		Please note dry wells, strike through any wells not sampled, and note when the last sample for the event has been taken.	ADDITIONAL COMMENTS		/	AW41	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		THOME 124	HGWC-121		LICINIC 130	HOWA-122	HGWA-3	HGWA-2	1-MMCH-		SAMPLE ID SINUSCIO SINUSCIO IN COLUCT IN COLUC		Section D Valid Matrix Codes Required Cherr Information MATRIX CODE		Requested Due Date/TAT: 10 Day	Fax	SCS Contacts		Atlanta, GA		Section A Required Client Information.
			-	infac	A	COD Dee	REI			1	1	TUT	WT	W			WI	WT	WT			교 의 높 옷 의 의 가 옷 옷 및 MATRIX CODE (see valid codes				Project Number:	Project Name	Purchase Order No.:		Copy To: Geos	Report To: SCS Contacts	Section B Required Project Information:
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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.

F-ALL-Q-020rev 07, 15-Feb-2007

"Important Note By signing the form you are accepting Pace's NET 30 day payment forms and agroeing to tale changes of 1.5% per month for any innoces not paid within 30 days.

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Face Analytical

Section A Required Client Information. mail To. **ddress** Company Please note dry wetts, strike thorugh any wells not sampled, and note when the last sample for the event has been taken. ITEM # App. IV Metals=Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, 12 = 5 ω N • -5 rested Due Date/TAT: Section D Face Analytical equired Clerit Information (A-Z, 0-97,-) Sample IDs MUST BE UNIQUE GA Power Atlanta, GA SCS Contacts "Important Note By signing this form you are SAMPLE ID ADDITIONAL COMMENTS 10 Day HGWC-120 Fax HGWC-124 HGWC 121 **HGWA-122** HGWA-3 HGMA-1 -66-AAM HOWA-2-MW-32 MW-41 Valid Matrix Codes MATRIX CODE Demonstrative WATER WW MATER WW MATER WW MATER WW MATER WW MARE WI AIR AR AIR AT AIRSUE TS accepting Pace's NE Copy To Report Td Required Project Information. Project Project h Purchas > R Alla Menterlineard 144 Imber GW6581 Order No. 30 day payment I 3 Geosyntec Contacts SCS Contacts V ŧ W. M WT WT ş **RELINQUISHED BY / AFFILIATION** MATRIX CODE (see vaid codes to left) d G 6 6 99 Plant Hammond AP-3 Scan/BKG 03 4 G 14 SAMPLE TYPE (G-GRAB C=COMP) 6 Kengeleren Fut. 427 terms. DATE a agreeing to take charges of 1.5% per month for any involces not paid within 30 days Poer SAMPLER NAME AND SIGNATURE COLLECTED TIME SIGNATURE OF SAMPLERY PRINT Name of SAMPLER: The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately. **CHAIN-OF-CUSTODY / Analytical Request Document** DATE --------guro 8/26/20 1272020 8/18/20 TIME DATE 3 SAMPLE TEMP AT COLLECTION Reference: Pace Project Manager: Pace Profile # Pace Quota Address. Company Name Attention: Invoice Information Section C 4:10 # OF CONTAINERS Co 2005 Now 4 4 11:05 TIME 1 Unpreserved 1-H₂SO₄ HNO3 Preservatives Southern Co. w Kevin Herring w ω Certo RISTO 5 HCI NaOH tion mumber Na2S2O3 Z ACCEPTED BY / AFFILIATION Methanol -ITT Other Y/ N **Analysis Test** k Fluoride × × × × z DATE Signed (MM/DD/YY): Reque ţ, Prof × × k × × × App IV Metals 6020/7470* z multioned / × × k × × × RAD 226/228 z ested Analysis Filtered REGULATORY AGENCY 0201/2020 Site Location 1/3 01210 UST NPDES STATE: DATE 22 g (YIN) 1105 TIME RCRA GROUND WATI Page: R Т F-ALL-Q-020rev.07, 15-Feb-2007 Temp in *C 14 14 zzz Residual Chlorine (Y/N) z Iŧ z z Þ DH THE pH = pH = - 11 PH = PH=7. la la ব Received on Pace Project NoJ Lab LD. Ice (Y/N) SAMPLE CONDITIONS 2402418 2 7 OTHER OCR Cuslody Sealed Coole DRINKING WATER (YIN) Samples Intac (Y/N) 2

Page 51 of 52

*Important Note. By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any involces not paid within 30 days.

			"App. N		Please note wh		12	=	10			-	6	5	4	4	ŀ	,	-	ITEM #]	Request	Phone:	Email To.		Address	Company	Section A Required C
			"App. N/ Metals≖Sb. As. Ba. Be. Cd. Cr, Co, Pb, Li, Hg. Mo, Se. ∏		Please note dry wells, strike thorugh any wells not sampled, and note when the last sample for the event has been taken.	ADDITIONAL COMMENTS			MW-41	MW 30	MM-32	HOWE-124	HGWC-121	HOWE-120	11GWA 122	HGWA-3		LICINIA 3	HGWA-1	SAMPLE ID WASTE WASTE WASTE WASTE WASTE WASTE SOLUCT SOLUCT SOLUCT SOLUCT (A.2, 0.97) (A.2, 0.97) Sample IDs MUST BE UNIQUE TISSUE	Section D Valid Matrix Codes Required Clent Information MATRIX COD		Requested Due Date/TAT: 10 Day		SCS Contacts		Atlanta, GA	GA Power	ē
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Pace Analytical



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

September 18, 2020

Joju Abraham Georgia Power-CCR 2480 Maner Road Atlanta, GA 30339

RE: Project: HAMMOND AP-3 SCAN/BKG 03 RADS Pace Project No.: 92492413

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory between August 25, 2020 and August 31, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network: • Pace Analytical Services - Greensburg

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

Sincerely,

Kein Hung

Kevin Herring kevin.herring@pacelabs.com 1(704)875-9092 HORIZON Database Administrator

Enclosures

cc: Christine Hug, Geosyntec Consultants, Inc. Kristen Jurinko Thomas Kessler, Geosyntec Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Ms. Lauren Petty, Southern Co. Services Nardos Tilahun, GeoSyntec Dawit Yifru, Geosyntec Consultants, Inc.





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

CERTIFICATIONS

Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Pace Analytical Services Pennsylvania

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: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 9

92492413	

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92492413001	HGWA-122	Water	08/24/20 16:52	08/25/20 11:25
92492413002	HGWA-2	Water	08/25/20 10:38	08/26/20 12:00
92492413003	HGWA-3	Water	08/25/20 09:29	08/26/20 12:00
92492413004	HGWC-125	Water	08/25/20 14:51	08/26/20 12:00
92492413005	HGWC-126	Water	08/25/20 12:55	08/26/20 12:00
92492413006	FB-01	Water	08/25/20 16:00	08/26/20 12:00
92492413007	HGWC-121A	Water	08/26/20 15:17	08/27/20 08:56
92492413008	MW-32	Water	08/26/20 13:10	08/27/20 08:56
92492413009	MW-39	Water	08/26/20 10:23	08/27/20 08:56
92492413010	MW-41	Water	08/26/20 11:37	08/27/20 08:56
92492413011	HGWC-120	Water	08/26/20 16:50	08/27/20 08:56
92492413012	FD-01	Water	08/26/20 00:00	08/27/20 08:56
92492413013	HGWC-124	Water	08/27/20 11:17	08/28/20 11:08
92492413014	HGWA-1	Water	08/28/20 09:26	08/31/20 12:08



SAMPLE ANALYTE COUNT

Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92492413001	HGWA-122	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413002	HGWA-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413003	HGWA-3	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413004	HGWC-125	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413005	HGWC-126	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2492413006	FB-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413007	HGWC-121A	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413008	MW-32	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413009	MW-39	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413010	MW-41	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413011	HGWC-120	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413012	FD-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413013	HGWC-124	EPA 9315	LAL	1	PASI-PA



SAMPLE ANALYTE COUNT

Project:HAMMOND AP-3 SCAN/BKG 03 RADSPace Project No.:92492413

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92492413014	HGWA-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92492413001	HGWA-122					
EPA 9315	Radium-226	-0.00628 ± 0.143	pCi/L		09/14/20 07:28	
		(0.392) C:79% T:NA				
EPA 9320	Radium-228	0.883 ± 0.601 (1.16) C:58%	pCi/L		09/16/20 11:38	
Total Radium Calculation	Total Radium	T:72% 0.883 ± 0.744 (1.55)	pCi/L		09/17/20 11:28	
92492413002	HGWA-2					
EPA 9315	Radium-226	0.247 ± 0.197 (0.321)	pCi/L		09/14/20 07:06	
EPA 9320	Radium-228	C:67% T:NA 0.531 ± 0.470 (0.952) C:59%	pCi/L		09/16/20 11:38	
Total Radium Calculation	Total Radium	T:82% 0.778 ± 0.667 (1.27)	pCi/L		09/17/20 11:28	
92492413003	HGWA-3					
EPA 9315	Radium-226	0.0110 ± 0.154 (0.407) C:81% T:NA	pCi/L		09/14/20 07:12	
EPA 9320	Radium-228	0.319 ± 0.502 (1.09) C:59% T:67%	pCi/L		09/16/20 11:38	
Total Radium Calculation	Total Radium	0.330 ± 0.656 (1.50)	pCi/L		09/17/20 11:28	
92492413004	HGWC-125					
EPA 9315	Radium-226	0.342 ± 0.208 (0.292) C:84% T:NA	pCi/L		09/14/20 07:12	
EPA 9320	Radium-228	1.31 ± 0.601 (1.02) C:58% T:82%	pCi/L		09/16/20 11:39	
Total Radium Calculation	Total Radium	1.65 ± 0.809 (1.31)	pCi/L		09/17/20 11:28	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92492413005	HGWC-126					
EPA 9315	Radium-226	0.584 ± 0.290 (0.456)	pCi/L		09/14/20 07:26	
		C:84% T:NA				
EPA 9320	Radium-228	1.24 ± 0.706 (1.30) C:56% T:67%	pCi/L		09/16/20 11:39	
Total Radium Calculation	Total Radium	1.82 ± 0.996 (1.76)	pCi/L		09/17/20 11:28	
92492413006	FB-01					
EPA 9315	Radium-226	0.142 ± 0.149 (0.287)	pCi/L		09/14/20 08:24	
EPA 9320	Radium-228	C:86% T:NA 0.359 ± 0.465 (0.990) C:61%	pCi/L		09/16/20 11:39	
Total Radium Calculation	Total Radium	T:80% 0.501 ± 0.614 (1.28)	pCi/L		09/17/20 11:28	
92492413007	HGWC-121A					
EPA 9315	Radium-226	0.153 ± 0.141 (0.251) C:89% T:NA	pCi/L		09/14/20 08:24	
EPA 9320	Radium-228	1.81 ± 0.712 (1.14) C:61%	pCi/L		09/16/20 11:39	
Total Radium Calculation	Total Radium	T:75% 1.96 ± 0.853 (1.39)	pCi/L		09/17/20 11:28	
92492413008	MW-32					
EPA 9315	Radium-226	0.281 ± 0.176 (0.244) C:89% T:NA	pCi/L		09/14/20 08:24	
EPA 9320	Radium-228	-0.0335 ± 0.466 (1.08) C:65% T:82%	pCi/L		09/16/20 11:39	
Total Radium Calculation	Total Radium	0.281 ± 0.642 (1.32)	pCi/L		09/17/20 11:28	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92492413009	MW-39					
EPA 9315	Radium-226	0.500 ± 0.240	pCi/L		09/14/20 08:24	
		(0.304) C:91% T:NA				
EPA 9320	Radium-228	0.883 ± 0.510 (0.913) C:59%	pCi/L		09/16/20 14:42	
Total Radium Calculation	Total Radium	T:79% 1.38 ± 0.750 (1.22)	pCi/L		09/17/20 14:16	
92492413010	MW-41					
EPA 9315	Radium-226	0.313 ± 0.197 (0.304)	pCi/L		09/14/20 08:24	
EPA 9320	Radium-228	C:89% T:NA 1.22 ±	pCi/L		09/16/20 14:42	
	Kaudin-220	0.594 (1.01) C:59% T:78%	point		03/10/20 14.42	
Total Radium Calculation	Total Radium	1.53 ± 0.791 (1.31)	pCi/L		09/17/20 14:16	
92492413011	HGWC-120					
EPA 9315	Radium-226	0.357 ± 0.217 (0.331)	pCi/L		09/14/20 08:24	
EPA 9320	Radium-228	C:83% T:NA -0.169 ± 0.477 (1.17) C:57%	pCi/L		09/16/20 14:42	
Total Radium Calculation	Total Radium	T:67% 0.357 ± 0.694 (1.50)	pCi/L		09/17/20 14:16	
92492413012	FD-01					
EPA 9315	Radium-226	0.102 ± 0.145 (0.312) C:89% T:NA	pCi/L		09/14/20 09:00	
EPA 9320	Radium-228	1.05 ± 0.508 (0.849) C:63% T:79%	pCi/L		09/16/20 14:42	
Total Radium Calculation	Total Radium	1.15 ± 0.653 (1.16)	pCi/L		09/17/20 14:16	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92492413013	HGWC-124					
EPA 9315	Radium-226	0.0465 ± 0.0876 (0.174) C:76% T:NA	pCi/L		09/10/20 19:37	
EPA 9320	Radium-228	0.447 ± 0.478 (0.997) C:66% T:77%	pCi/L		09/15/20 15:05	
Total Radium Calculation	Total Radium	0.494 ± 0.566 (1.17)	pCi/L		09/16/20 11:24	
92492413014	HGWA-1					
EPA 9315	Radium-226	-0.0409 ± 0.114 (0.247) C:91% T:NA	pCi/L		09/11/20 18:15	
EPA 9320	Radium-228	-0.622 ± 0.521 (1.31) C:60% T:80%	pCi/L		09/16/20 12:46	
Total Radium Calculation	Total Radium	0.000 ± 0.635 (1.56)	pCi/L		09/17/20 14:16	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Sample: HGWA-122 PWS:	Lab ID: 92492 Site ID:	413001 Collected: 08/24/20 16:52 Sample Type:	Received:	08/25/20 11:25	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Services - Greensburg				
Radium-226	EPA 9315	-0.00628 ± 0.143 (0.392) C:79% T:NA	pCi/L	09/14/20 07:28	8 13982-63-3	
	Pace Analytical S	Services - Greensburg				
Radium-228	EPA 9320	0.883 ± 0.601 (1.16) C:58% T:72%	pCi/L	09/16/20 11:38	8 15262-20-1	
	Pace Analytical S	Services - Greensburg				
Total Radium	Total Radium Calculation	0.883 ± 0.744 (1.55)	pCi/L	09/17/20 11:28	3 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

		0 00/	
1	00400440		

Sample: HGWA-2 PWS:	Lab ID: 92492 Site ID:	2413002 Collected: 08/25/20 10:38 Sample Type:	Received:	08/26/20 12:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.247 ± 0.197 (0.321) C:67% T:NA	pCi/L	09/14/20 07:06	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.531 ± 0.470 (0.952) C:59% T:82%	pCi/L	09/16/20 11:38	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.778 ± 0.667 (1.27)	pCi/L	09/17/20 11:28	7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

No ·	00400440	

Sample: HGWA-3 PWS:	Lab ID: 92492 Site ID:	2413003 Collected: 08/25/20 09:29 Sample Type:	Received:	08/26/20 12:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.0110 ± 0.154 (0.407) C:81% T:NA	pCi/L	09/14/20 07:12	2 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.319 ± 0.502 (1.09) C:59% T:67%	pCi/L	09/16/20 11:38	3 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.330 ± 0.656 (1.50)	pCi/L	09/17/20 11:28	3 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

No: 02402412

Sample: HGWC-125 PWS:	Lab ID: 92492 Site ID:	2413004 Collected: 08/25/20 14:51 Sample Type:	Received:	08/26/20 12:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.342 ± 0.208 (0.292) C:84% T:NA	pCi/L	09/14/20 07:12	2 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	1.31 ± 0.601 (1.02) C:58% T:82%	pCi/L	09/16/20 11:39	9 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.65 ± 0.809 (1.31)	pCi/L	09/17/20 11:28	3 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 924924

No.: 92492413

Sample: HGWC-126 PWS:	Lab ID: 924924 Site ID:	113005 Collected: 08/25/20 12:55 Sample Type:	Received:	08/26/20 12:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	ervices - Greensburg				
Radium-226	EPA 9315	0.584 ± 0.290 (0.456) C:84% T:NA	pCi/L	09/14/20 07:26	6 13982-63-3	
	Pace Analytical S	ervices - Greensburg				
Radium-228	EPA 9320	1.24 ± 0.706 (1.30) C:56% T:67%	pCi/L	09/16/20 11:39	9 15262-20-1	
	Pace Analytical S	ervices - Greensburg				
Total Radium	Total Radium Calculation	1.82 ± 0.996 (1.76)	pCi/L	09/17/20 11:28	3 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Sample: FB-01 PWS:	Lab ID: 9249 Site ID:	2413006 Collected: 08/25/20 16:00 Sample Type:	Received:	08/26/20 12:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.142 ± 0.149 (0.287) C:86% T:NA	pCi/L	09/14/20 08:24	4 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.359 ± 0.465 (0.990) C:61% T:80%	pCi/L	09/16/20 11:39	9 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.501 ± 0.614 (1.28)	pCi/L	09/17/20 11:28	3 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

	-					
Sample: HGWC-121A PWS:	Lab ID: 924924 Site ID:	13007 Collected: 08/26/20 15:17 Sample Type:	Received:	08/27/20 08:56	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Se	ervices - Greensburg				
Radium-226	EPA 9315	0.153 ± 0.141 (0.251) C:89% T:NA	pCi/L	09/14/20 08:24	13982-63-3	
	Pace Analytical Se	ervices - Greensburg				
Radium-228	EPA 9320	1.81 ± 0.712 (1.14) C:61% T:75%	pCi/L	09/16/20 11:39	15262-20-1	
	Pace Analytical Se	ervices - Greensburg				
Total Radium	Total Radium Calculation	1.96 ± 0.853 (1.39)	pCi/L	09/17/20 11:28	3 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Sample: MW-32 PWS:	Lab ID: 9249 Site ID:	2413008 Collected: 08/26/20 13:10 Sample Type:	Received:	08/27/20 08:56	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.281 ± 0.176 (0.244) C:89% T:NA	pCi/L	09/14/20 08:24	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	-0.0335 ± 0.466 (1.08) C:65% T:82%	pCi/L	09/16/20 11:39	9 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.281 ± 0.642 (1.32)	pCi/L	09/17/20 11:28	3 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

 00400440	

Sample: MW-39 PWS:	Lab ID: 9249 Site ID:	2413009 Collected: 08/26/20 10:23 Sample Type:	Received:	08/27/20 08:56	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.500 ± 0.240 (0.304) C:91% T:NA	pCi/L	09/14/20 08:24	4 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.883 ± 0.510 (0.913) C:59% T:79%	pCi/L	09/16/20 14:42	2 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.38 ± 0.750 (1.22)	pCi/L	09/17/20 14:16	6 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Sample: MW-41 PWS:	Lab ID: 9249 Site ID:	2413010 Collected: 08/26/20 11:37 Sample Type:	Received:	08/27/20 08:56	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.313 ± 0.197 (0.304) C:89% T:NA	pCi/L	09/14/20 08:24	4 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	1.22 ± 0.594 (1.01) C:59% T:78%	pCi/L	09/16/20 14:42	2 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.53 ± 0.791 (1.31)	pCi/L	09/17/20 14:10	6 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

* No : 02402412

Sample: HGWC-120 PWS:	Lab ID: 92492 Site ID:	413011 Collected: 08/26/20 16:50 Sample Type:	Received:	08/27/20 08:56	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Gervices - Greensburg				
Radium-226	EPA 9315	0.357 ± 0.217 (0.331) C:83% T:NA	pCi/L	09/14/20 08:24	4 13982-63-3	
	Pace Analytical S	Services - Greensburg				
Radium-228	EPA 9320	-0.169 ± 0.477 (1.17) C:57% T:67%	pCi/L	09/16/20 14:42	2 15262-20-1	
	Pace Analytical S	Services - Greensburg				
Total Radium	Total Radium Calculation	0.357 ± 0.694 (1.50)	pCi/L	09/17/20 14:10	6 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Sample: FD-01 PWS:	Lab ID: 9249 Site ID:	2413012 Collected: 08/26/20 00:00 Sample Type:	Received:	08/27/20 08:56	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.102 ± 0.145 (0.312) C:89% T:NA	pCi/L	09/14/20 09:00) 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	1.05 ± 0.508 (0.849) C:63% T:79%	pCi/L	09/16/20 14:42	2 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.15 ± 0.653 (1.16)	pCi/L	09/17/20 14:16	6 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Sample: HGWC-124 PWS:	Lab ID: 9249 Site ID:	2413013 Collected: 08/27/20 11:17 Sample Type:	Received:	08/28/20 11:08	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.0465 ± 0.0876 (0.174) C:76% T:NA	pCi/L	09/10/20 19:3	7 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.447 ± 0.478 (0.997) C:66% T:77%	pCi/L	09/15/20 15:0	5 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.494 ± 0.566 (1.17)	pCi/L	09/16/20 11:24	4 7440-14-4	



Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

	-					
Sample: HGWA-1 PWS:	Lab ID: 9249 Site ID:	2413014 Collected: 08/28/20 09:2 Sample Type:	6 Received:	08/31/20 12:08	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	-0.0409 ± 0.114 (0.247) C:91% T:NA	pCi/L	09/11/20 18:15	5 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	-0.622 ± 0.521 (1.31) C:60% T:80%	pCi/L	09/16/20 12:40	6 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.000 ± 0.635 (1.56)	pCi/L	09/17/20 14:10	6 7440-14-4	



Project:	HAMMOND AP	-3 SCAN/BKG 03 RADS			
Pace Project No.:	92492413				
QC Batch:	412356	Analysis Method:	EPA 9315		
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radi	um	
		Laboratory:	Pace Analytical	Services - Greensbu	rg
Associated Lab Sa	mples: 924924 924924	13001, 92492413002, 92492413003, 92492413 13008	3004, 92492413005, 9	92492413006, 92492	413007,
METHOD BLANK:	1994515	Matrix: Water			
Associated Lab Sa	mples: 924924 924924	13001, 92492413002, 92492413003, 92492413 13008	8004, 92492413005, 9	92492413006, 92492	2413007,
Para	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226		0.0596 ± 0.133 (0.265) C:74% T:NA	pCi/L	09/11/20 18:17	

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.



Project:	HAMMOND AP-3 S	CAN/BKG 03 RAD	S				
Pace Project No.:	92492413						
QC Batch:	412347		Analysis Method:	EPA 9320			
QC Batch Method:	EPA 9320		Analysis Description:	9320 Radium 22	28		
			Laboratory:	Pace Analytical	Services - Greensbu	rg	
Associated Lab Sa	mples: 924924130	09, 92492413010,	92492413011, 9249241301	2			
METHOD BLANK:	1994502		Matrix: Water				
Associated Lab Sa	mples: 924924130	09, 92492413010,	92492413011, 9249241301	2			
Para	meter	Act ± Uno	c (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		0.314 ± 0.487 (1.0	5) C:61% T:69%	pCi/L	09/16/20 14:42		

Results presented on 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:	HAMMOND AP-3 SCAN/BKG 03 R	RADS				
Pace Project No.:	92492413					
QC Batch:	412358	Analysis Method:	EPA 9315			
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radi	um		
		Laboratory:	Pace Analytical	Services - Greensbui	g	
Associated Lab Sa	mples: 92492413009, 924924130	10, 92492413011, 9249241301	2			
METHOD BLANK:	1994517	Matrix: Water				
Associated Lab Sa	mples: 92492413009, 924924130	10, 92492413011, 9249241301	2			
Para	meter Act ±	Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226	0.0557 ± 0.119	(0.278) C:90% T:NA	pCi/L	09/14/20 08:58	_	

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



Project:	HAMMOND AP-3	SCAN/BKG 03 RADS					
Pace Project No.:	92492413						
QC Batch:	412653	Analy	sis Method:	EPA 9320			
QC Batch Method:	EPA 9320	Analy	sis Description:	9320 Radium 2	28		
		Labor	atory:	Pace Analytical	Services - Greensbur	g	
Associated Lab Sat	mples: 9249241	3014					
METHOD BLANK:	1995813		Matrix: Water				
Associated Lab Sa	mples: 9249241	3014					
Para	meter	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		-0.0793 ± 0.359 (0.855) C:7	′1% T:76%	pCi/L	09/16/20 11:15		

Results presented on 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:	HAMMOND AP-3	SCAN/BKG 03 RADS					
Pace Project No.:	92492413						
QC Batch:	412851	A	nalysis Method:	EPA 9315			
QC Batch Method:	EPA 9315	A	nalysis Description:	9315 Total Radi	um		
		L	aboratory:	Pace Analytical	Services - Greensbu	rg	
Associated Lab Sa	mples: 9249241	3014					
METHOD BLANK:	1996985		Matrix: Water				
Associated Lab Sa	mples: 9249241	3014					
Para	meter	Act ± Unc (ME	C) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.205 ± 0.164 (0.296) 0	:93% T:NA	pCi/L	09/11/20 17:15		

Results presented on 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:	HAMMOND AP-3	SCAN/BKG 03 RADS				
Pace Project No.:	92492413					
QC Batch:	412345	Analysis Method:	EPA 9320			
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 2	28		
		Laboratory:	Pace Analytical	Services - Greensbu	rg	
Associated Lab Sat	mples: 9249241	3013				
METHOD BLANK:	1994499	Matrix: Water				
Associated Lab Sa	mples: 9249241	3013				
Para	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		0.357 ± 0.355 (0.727) C:71% T:84%	pCi/L	09/15/20 15:02		

Results presented on 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:	HAMMOND AP-3	SCAN/BKG 03 RADS				
Pace Project No.:	92492413					
QC Batch:	412352	Analysis Method:	EPA 9315			
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Rad	lium		
		Laboratory:	Pace Analytica	l Services - Greensbu	rg	
Associated Lab Sat	mples: 9249241	3013				
METHOD BLANK:	1994514	Matrix: Water				
Associated Lab Sa	mples: 9249241	3013				
Para	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.206 ± 0.102 (0.149) C:95% T:NA	pCi/L	09/10/20 19:37		

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



Project:	HAMM	IOND AP-3 SCAN/BKG	03 RADS			
Pace Project No .:	92492	413				
QC Batch:	4123	46	Analysis Method:	EPA 9320		
QC Batch Method:	EPA	9320	Analysis Description:	9320 Radium 22	28	
			Laboratory:	,	Services - Greensbu	0
Associated Lab Sa	mples:	92492413001, 92492 92492413008	413002, 92492413003, 92492413	8004, 92492413005, 9	92492413006, 92492	2413007,
METHOD BLANK:	19945	01	Matrix: Water			
Associated Lab Sa	mples:	92492413001, 92492 92492413008	413002, 92492413003, 92492413	8004, 92492413005, 9	92492413006, 92492	2413007,
Para	meter		Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228		0.749 ± 0.5	397 (0.699) C:71% T:81%	pCi/L	09/16/20 11:37	

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



QUALIFIERS

Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

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.

TNTC - Too Numerous To Count

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND AP-3 SCAN/BKG 03 RADS

Pace Project No.: 92492413

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92492413001		EPA 9315	412356		
92492413002	HGWA-2	EPA 9315	412356		
92492413003	HGWA-3	EPA 9315	412356		
92492413004	HGWC-125	EPA 9315	412356		
92492413005	HGWC-126	EPA 9315	412356		
92492413006	FB-01	EPA 9315	412356		
92492413007	HGWC-121A	EPA 9315	412356		
92492413008	MW-32	EPA 9315	412356		
92492413009	MW-39	EPA 9315	412358		
92492413010	MW-41	EPA 9315	412358		
92492413011	HGWC-120	EPA 9315	412358		
92492413012	FD-01	EPA 9315	412358		
92492413013	HGWC-124	EPA 9315	412352		
92492413014	HGWA-1	EPA 9315	412851		
92492413001	HGWA-122	EPA 9320	412346		
92492413002	HGWA-2	EPA 9320	412346		
92492413003	HGWA-3	EPA 9320	412346		
92492413004	HGWC-125	EPA 9320	412346		
92492413005	HGWC-126	EPA 9320	412346		
92492413006	FB-01	EPA 9320	412346		
92492413007	HGWC-121A	EPA 9320	412346		
92492413008	MW-32	EPA 9320	412346		
92492413009	MW-39	EPA 9320	412347		
92492413010	MW-41	EPA 9320	412347		
92492413011	HGWC-120	EPA 9320	412347		
92492413012	FD-01	EPA 9320	412347		
92492413013	HGWC-124	EPA 9320	412345		
92492413014	HGWA-1	EPA 9320	412653		
92492413001	HGWA-122	Total Radium Calculation	414382		
92492413002	HGWA-2	Total Radium Calculation	414382		
92492413003	HGWA-3	Total Radium Calculation	414382		
92492413004	HGWC-125	Total Radium Calculation	414382		
92492413005	HGWC-126	Total Radium Calculation	414382		
92492413006	FB-01	Total Radium Calculation	414382		
92492413007	HGWC-121A	Total Radium Calculation	414382		
92492413008	MW-32	Total Radium Calculation	414382		
92492413009	MW-39	Total Radium Calculation	414421		
92492413010	MW-41	Total Radium Calculation	414421		
92492413011	HGWC-120	Total Radium Calculation	414421		
92492413012	FD-01	Total Radium Calculation	414421		
92492413013	HGWC-124	Total Radium Calculation	414119		
92492413014	HGWA-1	Total Radium Calculation	414421		

Pace Analytical Client Name		reev	WO#:92492413
Courier: Fed Ex UPS USPS Clie Tracking #:	nt Commercial	Pace Other	92492413
Custody Seal on Cooler/Box Present: Ayes	no Seal	s intact: Tyes	Proj. Name:
Packing Material: Bubble Wrap Bubble	Bags None		
Thermometer Used 214	Type of Ice: We	\	Samples on ice, cooling process has begun
Cooler Temperature	Biological Tissue	e is Frozen: Yes No Comments:	Date and Initials of person examining contents
Chain of Custody Present:	TYES DNO DN/	-T	
Chain of Custody Filled Out:		and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	
Chain of Custody Relinguished:	Pres DNo DN/A		
Sampler Name & Signature on COC:	BYes DNO DN/A		
Samples Arrived within Hold Time:	-BYES DNO DN/A		
Short Hold Time Analysis (<72hr):	DYes DNO DN/A		
Rush Turn Around Time Requested:			
Sufficient Volume:		8.	
Correct Containers Used:		9.	
-Pace Containers Used:	AYes DNO DN/A		
Containers Intact:	TYES DNO DN/A	10.	
Filtered volume received for Dissolved tests		11.	
Sample Labels match COC:		12.	
-Includes date/time/ID/Analysis Matrix:	SA/		
All containers needing preservation have been checked.	Dres DNO DNA	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	Q765 []NO []N/A		L
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	Gree Corte	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	DYes DNo DNA	14.	
Headspace in VOA Vials (>6mm):		15.	
Trip Blank Present:		16.	
Trip Blank Custody Seals Present			
Pace Trip Blank Lot # (if purchased):			
Client Notification/ Resolution:			Field Data Required? Y / N
Person Contacted: Comments/ Resolution:	Date/	lime:	
Project Manager Review:			Date:

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

Face 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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Important Note. By support the form you are accepting Pace's NET 30 day payment terms and agreeing to tate charges of 1.5% per month for any involves not part when 30 days.

F-ALL-Q-020rev.07, 15-Feb-2007

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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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Section B Required Project Information: Report To: SCS Contacts

Section C Invoice Information: Attention: Southern Co.

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Company Name

Copy To: Geosyntec Contacts

Pace Analytical

Address:

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Face Analytical

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

S	Quality C	ontrol Sample	Quality Control Sample Performance Assessment
Face Analytical	∵ Test	Ra-226	<u>Analyst Must Manually Enter All Fields F</u>
	Analyst		Sample Matrix Spike Control Assessment
	Worklist Matrix:	55960 55960 DVV	200
			°
thod Blank Assessment	MD Samala ID 1004515	1004515	MS/MSD Decay Corrected Solike Concern

<u>Anaivst Must Manualiy Enter All Fields Highlighted in Yellow.</u>	Sample Matrix Spike Control Assessment MS/MSD 1 MS/MSD 2 Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D.	Spike I.D.: MS/MSD Decay Corrected Spike Concentration (pC/i/mL): Spike Volume Used in MSD (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pC/iL, g, F):		Sample Result Counting Uncertainty (pClL, g, F): Sample Matrix Spike Result Matrix Spike Result Counting Uncertainty (pClL, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pClL, g, F):	MS Numerical Performance Indicator: MSD Numerical Performance Indicator: MS Percent Recovery: MSD Percent Recovery: MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator:	MSS MAILS VERCOVERY: MSD Upper % Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:	Matrix Spike/Matrix Spike Duplicate Sample Assessment	If Sample I.D. If Sample MS I.D. Sample MS I.D. Sample MS I.D. Sample MSD I.D. Sample MSD I.D. Natrix Spike Result Counting Uncertainty (pCiff., g. F): F): Matrix Spike Duplicate Result: Matrix Spike Result Counting Uncertainty (pCiff., g. F): Natrix Spike Duplicate Result: Duplicate Result: No Duplicate Result: MS/ MSD Duplicate RPD: MS/ MSD Duplicate RPD: MS/ MSD Duplicate Status vs Numerical Indicator: 0.01 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 100 min; vs. 10
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Ra-226	LAL 9/11/2020 55960 DW	1994515 0.050 0.133 0.265 0.265 0.88 N/A Pass	LCSD (Y or N)? LCS55960	9/14/2020 19-033 24.044 0.10 0.505	4.759 0.057 5.322 0.689 1.60	nn.04 % N/A Pass 125% 75%		92493016012 92493016012DUP 4.731 0.625 5.414 5.414 0.692 See Below ## -1.435 13.17% N/A
Face Analytical Test	Analyst: Date: Worklist: Matrix:	Method Blank Assessment MB Sample ID MB concentration: MB Counting Uncertainy: MB NDC: MB Numerical Performance Indicator: MB Status vs Numerical Indicator: MB Status vs. MDC:	Laboratory Control Sample Assessment	Count Date: Spike I.D.: Decay Corrected Spike Concentration (pc/i/mL): Volume Used (mL): Aliount Volume Used	Target Conc. (pCi/l, g, F): Uncertainty (Catculated): Result (pCi/l, g, F): LCS/LCSD Counting Uncertainty (pCi/l, g, F): Niumerical Performance Indicator:	Status vs Numerical indicator: Status vs Recovery Upper % Recovery Limits: Lower % Recovery Limits:	Duplicate Sample Assessment	Sample I.D.: Duplicate Sample I.D.: Sample Result (pC/M., g, F): Sample Duplicate Result (pC/M., g, F): Sample Duplicate Result (pC/M., g, F): Sample Duplicate Result (pC/M., g, F): Are sample and/or duplicate results below RL? Duplicate Result Counting Uncertainty (pC/M., g, F): Are sample and/or duplicate results below RL? Duplicate RPD: Duplicate RPD: Duplicate Status vs Numerical Indicator:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

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Eace Analytical

Quality Control Sample Performance Assessment

	MS/MSD 2								4								
Yellow.	MS/MSD 1																
Analyst Must Manually Enter All Fields Highlighted in Yellow.	Sample Matrix Spike Control Assessment Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D.	Spike I.D.: MS/MSD Decay Corrected Spike Concentration (pc(imL): Spike Volume Used in MS (mL): Spike Volume Used in MS (mL): MS Adiquot (L, g, F): MS Target Conc.(pc(i,L, g, F): MSD Target Conc. (pc(i,L, g, F): MSD Target Conc. (pc(i,L, g, F): MSD Target Conc. (pc(i,L, g, F):	MSD Spike Uncertainty (calculated):	Sample Result	Sample result counting onestiamy (pourt, g, r). Sample Matrix Spike Result:	Matrix Spike Result Counting Uncertainty (pCNL, g, +); Sample Matrix Spike Duplicate Result;	Matrix Spike Duplicate Result Counting Uncertainty (pCi/l, g, F): MS Numerical Performance Indicator:	MSD Numerical Performance Indicator: MS Percent Recovery	MSD Percent Recovery:	MSD Status vs Numerical Indicator: MSD Status vs Numerical Indicator:	MS Status vs Recovery:	MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower & Recovery Limits:		Matrix Spike/Matrix Spike Duplicate Sample Assessment	Sample I.D. Sample MS I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result Matrix Spike Result Counting Uncertainty (pC/M, <u>o</u> , F): Matrix Snike Dumicate Result	(Based on the Percent Recoveries) MS/ MS/ Duplicator (Based on the Percent Recoveries) MS/ MS/ Duplicate RPD: MS/ MSO, Dunlicate Shalts vs Numerical Indicator	MS/ MSD Duplicate Status vs RPD.
			z	LCSD55960											Enter Duplicate sample IDs if other than LCS/LCSD in the space below.	92493016013 92493016013DUP	
Ra-226	9/11/2020 55960 DW	1994515 0.060 0.133 0.133 0.265 0.88 NVA Pass	LCSD (Y or N)?	LCS55960	9/14/2UZU 19-033	24.044 0.10	0.505 4.759	0.057	0.689	1.60 11 A4%	N/A	Pass 125% 75%	0.01		92493016013 92493016013DUP 6.412 0.759 5.852 0.718 See Balow ##	1.050 9.13% N/A	Pass 25%
Pace Analytical Test	Analyst Date: Worklist Matrix:	Method Blank Assessment MB Sample ID MB Councentration: M/B Counting Uncertainty: MB Numerical Performance Indicator: MB Status vs Numerical Indicator: MB Status vs. MDC:	aboratory Control Sample Assessment		Count Date: Spike I.D.:	Decay Corrected Spike Concentration (pCi/mL): Volume Used (mL):	Aliquot Volume (L, g, F): Tarraet Conc. (pCl/L, g, F):	Uncertainty (Calculated):	LCS/LCSD Counting Uncertainty (pCi/L, g, F):	Numerical Performance Indicator:	Status vs Numerical Indicator:	Status vs Recovery: Upper % Recovery Limits:	LOWER TO RECOVER LIMITS.	Duplicate Sample Assessment	Sample I.D.: Duplicate Sample I.D. S Sample Result Counting Uncertainty (pCi/t. g. F): Sample Duplicate Result (pCi/t. g. F): Sample Duplicate Result (pCi/t. g. F): Sample Duplicate Result Counting Uncertainty (pCi/t. g. F):	Duplicate Numerical Performance Indicator Duplicate RPD: Dunicate Status ve Numerical Indicator	Unpilcate Status vs Nutristical Industry (NPD: Duplicate Status vs RPD: % RPD / Imiti-

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

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Pace Analytical

Quality Control Sample Performance Assessment

Ra-226	LAL 9/11/2020	56031 DW	
Test	Analyst: Date:	Worklist: Matrix:	

MS/MSD 2

MS/MSD 1

Sample I.D. Sample MS I.D. Sample MSD I.D.

Spike I.D.:

MS/MSD Decay Corrected Spike Concentration (pCl/mL);

Spike Volume Used in MS (mL).

Sample Collection Date:

Sample Matrix Spike Control Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

	1996985	0.205	0.162	0.296	2.48	N/A	Pass
Method Blank Assessment	MB Sample ID	MB concentration:	M/B Counting Uncertainty:	MB MDC:	MB Numerical Performance Indicator:	MB Status vs Numerical Indicator:	MB Status vs. MDC:

Pas	MB Status vs. MDC:
Ň	MB Status vs Numerical Indicator:
2.4	MB Numerical Performance Indicator:
0.25	MB MDC:
0.1	M/B Counting Uncertainty:
0.20	MB concentration:

SD CY or N	cory Control Sample Assessment
Pass	MB Status vs. MDC:
N/A	MB Status vs Numerical Indicator:
2.48	MB Numerical Performance Indicator:
0.296	MB MDC:
0.162	M/B Counting Uncertainty:
207-D	MIS CONCENTRATION:

	24.045	Decay Corrected Spike Concentration (pCi/mL);
	19-033	Spike I.D.:
0,	9/11/2020	Count Date:
Ľ	LCS56031	
	LCSD (Y or N)?	Laboratory Control Sample Assessment
_		
	Pass	MB Status vs. MDC:
	N/A	MB Status vs Numerical Indicator:
	2.48	MB Numerical Performance indicator:

MSD Aliquot (L. g. F): MSD Target Conc. (pCi/L, g. F): MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):

Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc.(pCi/L, g, F):

131 LCSD56031	20 9/11/2020 Sample Result Counting Uncertainty (pCi/L, g, F):	3 19-033 Sample Matrix Spike Result:	5 24.045 Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	0.10 Sample Matrix Spike Duplicate Result:	0.500 Matrix Spike Duplicate Result Counting Uncertainty (pCi/L., g, F).	MS Numerical Performance Indicator.	0.058 MSD Numerical Performance Indicator:	4.231 A. 231 A.	0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346 0.346	-3.22	% B8.02% B8.02% MSD Status vs Numerical Indicator.	N/A MS Status vs Recovery:	Pass Pass MSD Status vs Recovery:	b 125% MS/MSD Upper % Recovery Limits:	75% MS/MSD Lower % Recovery Limits:
LCS56031	9/11/2020	19-033	24.045	0.10	0.505	4.759	0.057	4.314	0.361	-2.39	90.65%	N/A	Pass	125%	75%
	Count Date:	Spike I.D.:	Decay Corrected Spike Concentration (pCi/mL);	Volume Used (mL);	Aliquot Volume (L, g, F);	Target Conc. (pCi/L, g, F):	Uncertainty (Calculated):	Result (pC/M, g, F);	LCS/LCSD Counting Uncertainty (pCi/L, g, F);	Numerical Performance Indicator:	Percent Recovery:	Status vs Numerical Indicator:	Status vs Recovery:	Upper % Recovery Limits:	Lower % Recovery Limits:

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MSD Status vs Numerical Indicator: MS Status vs Recovery: MSS Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:	Matrix Spike/Matrix Spike Duplicate Sample Assessment	Sample I.D.	Sample MS I.D.	Sample MSD I.D.	Sample Matrix Spike Result:	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L. g, F):	Duplicate Numerical Performance Indicator.	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD:	% RPD Limit:
88.02% N/A Pass 125% 75%		Enter Duplicate	sample IDs if	other than	LCS/LCSD in	the space below.							
90.65% N/A Pass 125% 75%		LCS56031	LCSD56031	4.314	0.361	4.231	0.346	Ŋ	0.325	2.94%	N/A	Pass	25%
Percent Recovery: Status vs Numerical Indicator: Status vs Recovery: Upper % Recovery Limits: Lower % Recovery Limits:	Duplicate Sample Assessment	Sample I.D.:	Duplicate Sample I.D.	Sample Result (pCi/L, g, F);	Sample Result Counting Uncertainty (pCI/L, g, F);	Sample Duplicate Result (pCi/L, g, F):	Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	Are sample and/or duplicate results below RL?	Duplicate Numerical Performance Indicator,	(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	Duplicate Status vs Numerical Indicator:	Duplicate Status vs RPD:	% RPD Limit

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

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Quality Control Sample Performance Assessment

Ra-226	LAL 9/11/2020 55961 DW
Test	Analyst Date: Worklist Matrix:

MS/MSD 2

MS/MSD 1

Sample I.D. Sample MS I.D. Sample MSD I.D.

Spike I.D.

MS/MSD Decay Corrected Spike Concentration (pCi/mL)

Spike Volume Used in MS (mL) Spike Volume Used in MSD (mL) MSD Target Conc. (pCi/l, 9, F); MS Spike Uncertainty (calculated); MSD Spike Uncertainty (calculated);

MSD Aliquot (L, g, F):

MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F):

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Sample Matrix Spike Control Assessment Sample Collection Date:

Method Blank Assessment	
MB Sample ID	1994517
MB concentration:	0.056
M/B Counting Uncertainty:	0.118
MB MDC:	0.278
MB Numerical Performance Indicator:	0.92
MB Status vs Numericai Indicator.	N/A
MB Status vs. MDC:	Pass
Laboratory Control Sample Assessment	LCSD (Y or N)?

	900 97 97 90 1		MS Spike Uncertainty (calculated):
Laboratory Control Sample Assessment	LCSD (Y or N)?	Z	MSD Spike Uncertainty (calculated);
	LCS55961	LCSD55961	Sample Result:
Count Date:	9/14/2020		Sample Result Counting Uncertainty (pCi/L, g, F);
Spike I.D.:	19-033		Sample Matrix Spike Result:
Decay Corrected Spike Concentration (pCi/mL):	24.044		Matrix Spike Result Counting Uncertainty (pCi/L, g, F).
Volume Used (mL):	0.10		Sample Matrix Spike Duplicate Result:
Aliquot Volume (L. g, F):	0.522		Matrix Spike Duplicate Result Counting Uncertainty (pCift, g, F):
Target Conc. (pCi/L, g, F):	4.609		MS Numerical Performance Indicator:
Uncertainty (Calculated):	0.055		MSD Numerical Performance Indicator:
Result (pCi/L, g, F);	4.395		MS Percent Recovery:
LCS/LCSD Counting Uncertainty (pCi/L, g, F);	0.589		MSD Percent Recovery:
Numerical Performance Indicator	-0.71		MS Status vs Numerical Indicator:
Percent Recovery:	95.35%		MSD Status vs Numerical Indicator:
Status vs Numerical Indicator.	N/A		MS Status vs Recovery:
Status vs Recovery:	Pass		MSD Status vs Recovery:
Upper % Recovery Limits:	125%		MS/MSD Upper % Recovery Limits:
Lower % Recovery Limits;	75%		MS/MSD Lower % Recovery Limits:

MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MS Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:	Matrix Spike/Matrix Spike Duplicate Sample Assessment		e IDs if Sample MS I.D.	other than Sample MSD I.D.	-CS/LCSD in Sample Matrix Spike Result:	he space below. Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	213011 Duplicate Numerical Performance Indicator.	2492413011DUP (Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator.	MS/ MSD Duplicate Status vs RPD:	
		Enter D	sample IDs if	other	LCS/L	the spac			92492413011	32492413			
-0.71 95.35% N/A Pass 125% 75%		Sample I.D.: 92492413011	92492413011DUP	0.357	0.211	0.265	0.184	See Below #	0.647	29.70%	N/A		
Numerical Performance Indicator: Percent Recovery: Status vs Numerical Indicator: Status vs Recovery: Upper % Recovery Limits: Lower % Recovery Limits:	Duplicate Sample Assessment	Sample I.D.:	Duplicate Sample I.D. 92492413011DUP	Sample Result (pCi/L, g, F):	Sample Result Counting Uncertainty (pCi/l, g, F):	Sample Duplicate Result (pCi/l., g, F):	Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	Are sample and/or duplicate results below RL?	Duplicate Numerical Performance Indicator:	Duplicate RPD:	Duplicate Status vs Numerical Indicator.	Duplicate Status vs RPD:	

% RPD Limi

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Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

N/A Fail*** 25%

Duplicate Status vs Numerical Indicator. Duplicate Status vs RPD: % RPD Limit:

Comments:

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Face Analytical

Quality Control Sample Performance Assessment

<u>Analyst Must Manually Enter All Fields Highlighted in Yellow.</u>	Sample Matrix Spike Control Assessment MS/MSD 1 MS/MSD 2 Sample Collection Date: Sample LD.	Sample MS I.D. Sample MSD I.D.	Spike I.U.: MS/MSD Decay Corrected Spike Concentration (pCi/mL):	Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL):	MS Target Conc. (pC/At, g, F): MS Target Conc. (pC/At, g, F):	MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F):	MS Spike Uncertainty (calculated):	N MSU Spike Uncertainty (calculateo):	Sample Result Counting Uncertain	Matrix Spike Result Counting Uncertainty (pCi/l, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator:	MSD Numerical Performance Indicator.	MS Percent Recovery: MSD Percent Recovery:	MS Status vs Numerical Indicator:	MSD Status vs Numerical Indicator:	MS Status vs Recovery: MSD Status vs Decement	MS/MSD Upper & Recovery Limits:	MS/MSD Lower % Recovery Limits:	Matrix Spike/Matrix Spike Duplicate Sample Assessment			other man 1 Sample Matrix Snike Rosu I.D. I CSA CSD in 1	A Matrix Spike Result Count	Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Countine Lincertainty (nC)(1 o E):	92492413010 Based on the Derived Surviviae Ministrate Displayer Benformance Interaction	-1	MS/ MSD Duplicate Status vs RPD: % PDD1 Invit-
Ra-226	LAL 9/11/2020 55961	M	1994517	0.056 0.118 0.276	0.92	N/A Pass		LUSD (T OF N)?		24.044	0.10	0.522 4.609	0.055	4.395 0.589	-0.71	95.35%	Dass	125%	75%			dnac	0.313 0000		0.181 See Below ##			Fail ure 25%
Pace Analytical mm.preceduc.com Test	Analyst Date: Worklist	Matrix:	mernod blank Assessment MB Sample ID	MB concentration: M/B Counting Uncertainty:	MB Numerical Performance Indicator;	MB Status vs Numerical Indicator: MB Status vs. MDC:			Count Date:	Decay Corrected Spike Concentration (pCi/mL):	Volume Used (mL);	Aliquot Volume (L, g, F): Tarroet Conc. (pCi/L, o, F):	Uncertainty (Calculated):	Result (pCVL, g, F): I CS/I CSD Counting Uncertainty (pCVL g F):	Numerical Performance Indicator:	Percent Recovery:	Status vs Numencal indicator: Status vs Becovery	Upper % Recovery Limits:	Lower % Recovery Limits:	Duplicate Sample Assessment	Sample I.D.:		Sample Result (purit, g. F): Sample Result Counting Uncertainty (nDi/L or F):	Sample Duplicate Result (pCi/L, g, F):	Sample Duplicate Result Counting Uncertainty (pCi/L, g, F): Are sample and/or dunlicate results below R1 2	Duplicate Numerical Performance Indicator.	Duplicate Status vs Numericai Indicator:	Duplicate Status vs RPD:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

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Pace Analytical

Quality Control Sample Performance Assessment

Comments: The method blank result is below the reporting limit for this analysis and is acceptable.

apped due to unacceptable precision: م) اج الم ***Betah must be

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Face Analytical

Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow. Test. Ra-226	ര്	1994514 1994514 0.206 0.206 0.198 0.199 0.149 0.149 0.149 0.149 MS Target C MS Target C MS Target C MS Target C	LCSD (Y or N)? N MSD Spike Uncertainty (calculated): LCSD (Y or N)? N MSD Spike Uncertainty (calculated): LCS55959 LCSD55559 Sample Result	9/11/2020 Sample Result Counting Uncertair 19-033 Matrix Spike Result Counting Uncertair 19-033 Matrix Spike Result Counting Uncertair 24.045 Matrix Spike Result Counting Uncertair 0.10 0.507 0.507 Matrix Spike Duplicate Result Counting Uncertair 4.740 MS Numerical Perform 0.057 Matrix Spike Duplicate Result Counting Uncertair 0.057 Matrix Spike Duplicate Result Counting Uncertair 0.507 MS Numerical Perform 0.51 MS Numerical Perform 0.523% MS Numerical Status vs Num 0.223% MS Status vs Num 0.722 MSD Status vs Num 0.722 MSD Status vs Num 0.722 MSD Status vs Num 0.722 MSD Status vs Num 0.722 MSD Status vs Num 0.573% MSS Status vs Num 125% MS/MSD Lower % F	Matrix Spike/Matrix Spike Duplicate Sample Assessment	Sample I.D.: 92492559007 Enter Duplicate Sample I.D. Duplicate Sample I.D. 92492559007DUP sample IDs if Sample MS I.D. Sample Result (pCi/L, g, F): 0.269 other than Sample MS I.D. ng Uncertainty (pCi/L, g, F): 0.269 other than Sample MS I.D. uplicate Result (pCi/L, g, F): 0.234 LCS/LCSD in Matrix Splike Result uplicate Result (pCi/L, g, F): 0.201 LCS/LCSD in Matrix Splike Result uplicate Result (pCi/L, g, F): 0.201 Matrix Splike Result Sample MSI I.D. uplicate Result (pCi/L, g, F): 0.201 Duplicate Result Sample Matrix Splike Duplicate Result: duplicate Result 0.201 0.291 Duplicate Result: Duplicate Result: Duplicate RPD: 13.77% 22492559007 Duplicate NPD: Duplicate RPD:
Pace Analytical		Method Blank Assessment MB Concentration: M/B Concentration: M/B Counting Uncertainty: MB Numerical Performance Indicator: MB Status vs. Numerical Indicator: MB Status vs. MDC:	Laboratory Control Sample Assessment	Count Date: Spike I.D.: Decay Corrected Spike Concentration (p.C/m); Nolume Used (mL): Aliquot Volume (L, g, L): Target Conc. (pC/i,L, g, F): Uncertainty (Calculated): Resolt (pC/i,L, g, F): LCS/LCSD Counting Uncertainty (pC/i,L, g, F): Numerical Performance Indicator: Status vs Numerical Indicator: Status vs Recovery: Upper % Recovery: Linits: Lower % Recovery Linits:	Duplicate Sample Assessment	Sample I.D.: Duplicate Sample I.D.: Sample Result (pCi/L, g, F): Sample Result (pCi/L, g, F): Sample Duplicate Result (pCi/L, g, F): Sample Duplicate Result Counting Uncertainty (pCi/L, g, F): Are sample and/or duplicate results below RL? Duplicate Numerical Performance Indicator.

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC. Duplicate Status vs Numerical Indicator: Duplicate Status vs RPD: % RPD Limit:

Comments: "The method blank result is below the reporting limit for this analysis and is acceptable.

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Quality Control Sample Performance Assessment

MS/MSD 2

MS/MSD 1

Pace Analytical			Analvst Must Manually Enter All Fields Highlighted in Yellow.	Yellow.
Www.pacetabs.com Test:	Ra-228			
Analyst	VAL		Sample Matrix Spike Control Assessment	MS/MSD
Date:	9/10/2020		Sample Collection Date:	
Worklist	55955		Sample 1.D.	
Matrix:	ΜŢ		Sample MS I.D.	
			Sample MSD I.D.	
Method Blank Assessment			Spike I.D.:	
MB Sample ID	1994501		MS/MSD Decay Corrected Spike Concentration (pCi/mL):	
MB concentration:	0.749		Spike Volume Used in MS (mL):	
M/B 2 Sigma CSU:	0.397		Spike Volume Used in MSD (mL):	
MB MDC:	0.699		MS Aliquot (L, g, F):	
MB Numerical Performance Indicator:	3.70		MS Target Conc.(pCi/L, g, F):	
MB Status vs Numerical Indicator:	Fail*		MSD Aliquot (L, g, F):	
MB Status vs. MDC:	See Comment*		MSD Target Conc. (pCM, g, F):	
			MS Spike Uncertainty (calculated):	
Laboratory Control Sample Assessment	LCSD (Y or N)?	Y	MSD Spike Uncertainty (calculated):	
	12022001	200 CODE	4	

MB Status vs. MDC: See Comment*	See Comment		MSD Target Conc. (pCI/L, g, F):
			MS Spike Uncertainty (calculated):
Laboratory Control Sample Assessment	LCSD (Y or N)?	Y	MSD Spike Uncertainty (calculated):
	LCS55955	LCSD55955	Sample Result
Count Date:	9/16/2020	9/16/2020	Sample Result 2 Sigma CSU (pCi/l, g, F):
Spike I.D.:	20-030	20-030	Sample Matrix Spike Result:
Decay Corrected Spike Concentration (pCI/mL);	38.383	38.383	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):
Volume Used (mL):	0.10	0.10	Sample Matrix Spike Duplicate Result:
Aliquot Volume (L, g, F):	0.811	0.800	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):
Target Conc. (pCi/L, g, F):	4.730	4.796	MS Numerical Performance Indicator:
Uncertainty (Calculated):	0.232	0.235	MSD Numerical Performance Indicator:
Result (pCi/L, g, F):	5.530	6.376	MS Percent Recovery:
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.311	1.417	MSD Percent Recovery:
Numerical Performance Indicator:	1.18	2.16	MS Status vs Numerical Indicator.
Percent Recovery:	116.90%	132.93%	MSD Status vs Numerical Indicator:
Status vs Numerical Indicator.	N/A	N/A	MS Status vs Recovery:
Status vs Recovery:	Pass	Pass	MSD Status vs Recovery:
Upper % Recovery Limits:	135%	135%	MS/MSD Upper % Recovery Limits:
Lower % Recovery Limits:	60%	60%	MS/MSD Lower % Recovery Limits:
Duniliate Samula Accordant			Madeia: Cation/Madeia: Cation Data Caracity Caracity

Lower & Recovery Limits:	60%	60%	MS/MSD Lower % Recovery Limits:
Duplicate Sample Assessment			Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D.:	LCS55955	Enter Duplicate	Sample I.D.
Duplicate Sample I.D.	LCSD55955	sample IDs if	Sample MS I.D.
Sample Result (pCI/L, g, F):	5.530	other than	Sample MSD I.D.
Sample Result 2 Sigma CSU (pCi/L, g, F):	1.311	LCS/LCSD in	Sample Matrix Spike Result:
Sample Duplicate Result (pCi/L, g, F):	6.376	the space below.	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.417		Sample Matrix Spike Duplicate Result:
Are sample and/or duplicate results below RL?	NO		Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):
Duplicate Numerical Performance Indicator:	-0.860		Duplicate Numerical Performance Indicator:
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	12.84%		(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:
Duplicate Status vs Numerical Indicator:	Pass		MS/ MSD Duplicate Status vs Numerical Indicator:
Duplicate Status vs RPD:	Pass		MS/ MSD Duplicate Status vs RPD:
% RPD Limit	36%		% RPD Limit
## Evaluation of dublicate precision is not applicable if either the sample or duplicate results are below the MDC	nte or dunlicate	results are helow th	, MDC

below the MUC. is not Evalu ŧ

Comments: "The method blank result is below the reporting limit for this analysis and is acceptable.

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Ra-228 NELAC DW2 Printed: 9/17/2020 10:58 AM

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Quality Control Sample Performance Assessment

	Z USWISM			
Yellow.	MS/MSD 1			
Analyst Must Manually Enter All Fields Highlighted in Yellow.	Sample Matrix Spike Control Assessment Sample Collection Date: Sample I.D. Sample MS I.D.	Spike LD.: MS/MSD Decay Corrected Spike Concentration (pC(imL): Spike Volume Used in MSD (mL): Spike Volume Used in MSD (mL): MSD Target Conc. (pC(iL, g, F): MSD Target Conc. (pC(iL, g, F): MSD Target Conc. (pC(iL, g, F): MSD Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated): Sample Result 2 Sigma CSU (pC(iL, g, F): Matrix Spike Result 2 Sigma CSU (pC(iL, g, F): Sample Matrix Spike Result	Matrix Spike Dupticate Nesult 2 Sigma CSU (pCM, 1, P): MSD Numerical Performance Indicator: MSD Numerical Performance Indicator: MSD Percent Recovery: MSD Status vs Numerical Indicator MSD Status vs Numerical Indicator MSD Status vs Recovery: MSMSD Lower % Recovery Limits: MSMSD Lower % Recovery Limits:	Matrix Spike/Matrix Spike Duplicate Sample Assessment Sample ID Sample MS LD Sample MS LD Sample MS LD Sample Matrix Spike Result Matrix Spike Result 2 Sigma CSU (pC)U, g, F]: Sample Matrix Spike Duplicate Result Matrix Spike Duplicate Result 2 Sigma CSU (pC)U, g, F]: Duplicate Result 2 Sigma CSU (pC)U, g, F]: Duplicate Result 2 Sigma CSU (pC)CA: g, F]: Matrix Spike Duplicate Result 2 Sigma CSU (pC)CA: g, F]: Duplicate Result 2 Sigma CSU (pC)CA: g, F]: Matrix Spike Duplicate Result 2 Sigma CSU (pC)CA: g, F]: Duplicate Result 2 Sigma CSU (pC)CA: g, F]: MS/ MSD Duplicate Status vs Numerical Indicator MS/ MSD Duplicate Status vs Numerical Indicator MS/ MSD Duplicate Status vs Numerical Indicator
		Y LCSD56010 9/16/2020 38.384 0.10	0.804 0.234 5.008 1.173 0.38 104.92% N/A N/A Pass 105% 60%	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Ra-228	9/14/2020 56010 WT	1995813 -0.079 -0.079 -0.43 -0.43 -0.43 Pass Pass Pass Pass Pass 216/2020 -0.10 -0.10 -0.10	0.810 4.737 5.219 1.198 1.198 1.10.18% NuA NuA 135% 135% 135%	LCS56010 LCS56010 5.219 1.198 1.173 1.173 1.173 NO 0.247 4.89% Pass Pass 76%
Test	Ataryst. Date: Worklist. Matrix:		Anguor Vorme (L, g, F): Target Conc. (pCi/L, g, F): Unneerlainty (Calculated): Result (pCi/L, g, F): LCS/LCSD 2 Sigma CSU (pCi/L, g, F): Numerical Performance Indicator: Status vs Numerical Indicator: Status vs Numerical Indicator: Upper % Recovery: Lower % Recovery Limits:	Duplicate Sample Assessment Sample I.D.: Sample I.D.: Duplicate Sample I.D.: Sample Result 2 Sigma CSU (pci/l, g, F): Sample Duplicate Result (pci/l, g, F): Sample Duplicate Result 2 Sigma CSU (pci/l, g, F): Sample Duplicate Result 2 Sigma CSU (pci/l, g, F): Are sample and/of duplicate Result (pci/l, g, F): Puplicate Result 2 Sigma CSU (pci/l, g, F): Are sample and/of duplicate Result 2 Sigma CSU (pci/l, g, F): Puplicate Result 2 Sigma CSU (pci/l, g, F): Are sample and/of duplicate Result 2 Sigma CSU (pci/l, g, F): Puplicate Result 2 Sigma CSU (pci/l, g, F): Are sample and/of duplicate Result 2 Sigma CSU (pci/l, g, F): Puplicate Result 2 Sigma CSU (pci/l, g, F): Are sample and/of duplicate Result 2 Sigma CSU (pci/l, g, F): Puplicate Result 2 Sigma CSU (pci/l, g, F): Are sample and/of duplicate Result 2 Sigma CSU (pci/l, g, F): Puplicate Result 2 Sigma CSU (pci/l, g, F):

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Ra-228 NELAC DW2 Printed: 9/17/2020 11:17 AM

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Quality Control Sample Performance Assessment

	MS/MSD 2																																	
<u>Yellow.</u>	MS/MSD 1																																	
<u>Analyst Must Manually Enter All Fields Highlighted in Yellow.</u>	Sample Matrix Spike Control Assessment Sample Collection Date:	Sample I.D. Sample MS I.D.	Sample MSD I.D.	Anter Concerted Spike Concentration (pCi/mL): MS/MSD Decay Corrected Spike Concentration (pCi/mL):	Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL):	MS Aliquot (L, g, F):	MS Target Conc.(pCi/l., g, F):	MSD Target Conc. (p. F): MSD Target Conc. (p.Civl., g. F):	MS Spike Uncertainty (calculated):	MSD Spike Uncertainty (calculated):	Sample Result:	Sample Result 2 Sigma CSU (pCi/L, g, F): Semula Martix Solite Decision	Matrix Spike Result 2 Sigma CSU (pCVL, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result 2 Sigma CSU (pCl/t, g, F):	MS Numerical Performance Indicator:	MSD Numerical Performance indicator	MSD Derrent Recovery: MSD Derrent Recovery:	MS Status vs Numerical Indicator:	MSD Status vs Numerical Indicator:	MS Status vs Recovery:	MSD Status vs Recovery:	MS/MSD Upper % Recovery Limits: MS/MSD Lawer % Recovery Limits:	Matrix Spike/Matrix Spike Duplicate Sample Assessment	Sample I.D.	Sample MS I.D.	Sample MSD I.D.	Sample Matrix Spike Result	Matrix Spike Result 2 Sigma USU (puin., g, r); Samole Matrix Snike Dimiicate Result:	Matrix Spike Duplicate Result 2 Sigma CSU (pCl/t, g, F):	Duplicate Numerical Performance Indicator:	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSU Duplicate Status vs Numencal Indicator: MS/ MSD Dunitrate Status vs PDD-	RPD Limit:
			_							۲	LCSD55956	9/16/2020	38.382	0.10	0.814	4.715	0.231	0.348	0.94	113.43%	N/A	Pass	135% 60%		Enter Duplicate	sample IDs if	other than	LCS/LCSD In	the space below.					
Ra-228	VAL 9/10/2020	55956 WT		1994502	0.314 0.487	1.054	1.26	Pass Pass		LCSD (Y or N)?	LCS55956	9/16/2020 20.030	38.382	0.10	0.813	4.719	0.231	5.U80 1 251	0.57	107.78%	N/A	Pass	135% 60%		LCS55956	LCSD55956	5.086	1.251	5.348 1 203	N	-0.285	5.11%	Pass	36%
Face Analytical Test	Analyst Date:	Worklist	Mathod Blank Accocmant	ME Sample ID	MB concentration: M/B 2 Storma CSU:	MB MDC:	MB Numerical Performance Indicator.	MB Status vs Numerical Indicator: MB Status vs. MDC:		Laboratory Control Sample Assessment		Count Date:	Decay Corrected Spike Concentration (pCl/mL):	Volume Used (mL):	Aliquot Votume (L, g, F):	Target Conc. (pCl/L, g, F):	Uncertainty (Calculated):	Result (puirt, g, F); I CSA CSD 2 Sinna CSH (ACiil A E);	Numerical Performance Indicator:	Percent Recovery:	Status vs Numerical Indicator:	Status vs Recovery:	Upper % Recovery Limits: Lower % Recovery Limits:	Duplicate Sample Assessment	Sample I.D.:	Duplicate Sample I.D.	Sample Result (pCl/L, g, F):	Sample Result 2 Sigma CSU (pCVL, g, F):	Sample Dunicate Result 2 Simma CSU (nCVL) 0, F);	Are sample and/or duplicate results below RL?	Duplicate Numerical Performance Indicator	(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	Uuplicate Status vs Numerical Indicator: Dundicate Status vs PDD:	% RPD Limit

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Ra-228 NELAC DW2 Printed: 9/17/2020 8:17 AM

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Pace Analytical

Quality Control Sample Performance Assessment

<u>Analyst Must Manually Enter All Fields Highlighted in Yellow.</u>	Ra-228 Ra-228 MS/MSD 1 VAL Sample Matrix Spike Control Assessment MS/MSD 1 9/9/2020 Sample Collection Date: 55954 55954 Sample I.D. WT	994499 Spike LD: 994499 MS/MSD Decay Corrected Spike Concentration (pC/mL): 0.355 Spike Volume Used in MSD (mL): 0.727 Spike Volume Used in MSD (mL): 0.727 MS Target Conc.(pCil., g, F): MSD Target Conc. (pCIL, g, F): Pass MSD Target Conc. (pCIL, g, F):	MS Spike Uncertainty (calculated): CCSD (Y or Nr)? Y MSD Spike Uncertainty calculated):	LCSD65954	20-030	38.394 38.394 Matrix Spike Result 2 Sigma CSU (pCML, g, F);		0.227 N	4.838	1.200 1.149 MSD Percent Recovery: 0.46 0.34 MS Status vs Numerical Indicator:	% 104,44% MSD Statu	N/A		60% 60% MSMSD Lower % Recovery Limits:	Matrix Spike/Matrix Spike Duplicate Sample Assessment	<u>.</u>	5.042 other than the sample to the sample MSD ID	LCS/LCSD in Sample Mi	the space below.	1.149 Sample Matrix Spike Duplicate Result: NO		1.57% [Rased on the Percent Recoveries) MS/ MSD Duplicate RPD:	Dase MSC/MSD Dunitosta Status ve Numerical Indicator	
Pace Analytical	Test Analyst Date: Worklist Matrix:	Method Blank Assessment MB Sample ID MB concentration: MB 2 Sigme CSU: MB Numerical Performance indicator: MB Status vs Numerical Indicator: MB Status vs Numerical Indicator:	I 1=	<u> </u>	Count Date: Spike I.D.:	Decay Corrected Spike Concentration (pCi/mL):	Aliquot Volume (t. g. f.): Tarrat Corc / Or (i. g. f.):	Uncertainty (Calculated):	Result (pCi/L, g, F):	LUS/LUSU 2 Sigma USU (PUVL, g, F); Numerical Performance Indicator:	Percent Recovery.	Status vs Numerical Indicator:	Status vs Recovery: Upper % Recovery Limits:	Lower % Recovery Limits:	Duplicate Sample Assessment		Sample Result (nCi/i n F)-	Sample Result 2 Sigma CSU (pCi/L, g, F);	Sample Duplicate Result (pCi/L, g, F):	Sample Duplicate Result 2 Sigma CSU (pC/I/, g, F): Are sample and/or dunificate results below 81 2	Duplicate Numerical Performance Indicator;	(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	Dunlicate Status ve Numerical Indicator	הטוונכולמו הוומולמו המוומולים ונומולמוי

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Ra-228 NELAC DW2 Printed: 9/16/2020 8:15 AM

S. K.S.

6 of 10



October 19, 2020

Joju Abraham Georgia Power-CCR 2480 Maner Road Atlanta, GA 30339

RE: Project: HAMMOND AP-3 SEMIANNUAL Pace Project No.: 92495904

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory between September 16, 2020 and September 29, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services Asheville
- Pace Analytical Services Charlotte
- Pace Analytical Services Peachtree Corners, GA

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

Sincerely,

Kein Sharry

Kevin Herring kevin.herring@pacelabs.com 1(704)875-9092 HORIZON Database Administrator

Enclosures

cc: Christine Hug, Geosyntec Consultants, Inc. Kristen Jurinko Thomas Kessler, Geosyntec Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Ms. Lauren Petty, Southern Co. Services Nardos Tilahun, GeoSyntec Dawit Yifru, Geosyntec Consultants, Inc.





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

CERTIFICATIONS

Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Pace Analytical Services Charlotte

9800 Kincey Ave. Ste 100, Huntersville, NC 28078 Louisiana/NELAP Certification # LA170028 North Carolina Drinking Water Certification #: 37706 North Carolina Field Services Certification #: 5342 North Carolina Wastewater Certification #: 12

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030 North Carolina Drinking Water Certification #: 37712

Pace Analytical Services Peachtree Corners

110 Technology Pkwy, Peachtree Corners, GA 30092 Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812 Georgia DW Microbiology Certification #: 812 South Carolina Certification #: 99006001 Florida/NELAP Certification #: E87627 Kentucky UST Certification #: 84 Virginia/VELAP Certification #: 460221

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

North Carolina Certification #: 381 South Carolina Certification #: 98011001 Virginia Certification #: 460204



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

SAMPLE SUMMARY

Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92495904001	HGWA-1	Water	09/15/20 14:01	09/16/20 11:14
92495904002	HGWA-2	Water	09/15/20 10:58	09/16/20 11:14
92495904003	HGWA-3	Water	09/15/20 11:45	09/16/20 11:14
92495904004	HGWA-122	Water	09/15/20 15:41	09/16/20 11:14
92495904005	HGWA-43D	Water	09/16/20 11:58	09/17/20 09:45
92495904006	HGWA-44D	Water	09/16/20 15:18	09/17/20 09:45
92495904007	HGWC-126	Water	09/18/20 15:39	09/21/20 09:25
92495904008	FB-03	Water	09/18/20 16:50	09/21/20 09:25
92495904009	HGWC-120	Water	09/21/20 13:48	09/22/20 09:25
92495904010	FD-03	Water	09/21/20 00:00	09/22/20 09:25
92495904011	HGWC-125	Water	09/21/20 12:07	09/22/20 09:25
92495904012	HGWA-45D	Water	09/25/20 13:50	09/28/20 09:40
92495904013	MW-46D	Water	09/25/20 11:10	09/28/20 09:40
92495904014	HGWC-121A	Water	09/28/20 16:04	09/29/20 08:55
92495904015	HGWC-124	Water	09/28/20 18:00	09/29/20 08:55
92495904016	MW-32	Water	09/28/20 15:44	09/29/20 08:55
92495904017	MW-39	Water	09/28/20 17:27	09/29/20 08:55
92495904018	MW-41	Water	09/28/20 19:05	09/29/20 08:55



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab ID	Sample ID	Method	Analysts	Analytes Reported	
92495904001	HGWA-1	EPA 6010D	DRB	6	
		EPA 6020B	CW1	9	
		SM 2450C-2011	ALW	1	
		SM 2320B-2011	ECH	3	
		SM 4500-S2D-2011	NAL	1	
		EPA 300.0 Rev 2.1 1993	CDC	3	
92495904002	HGWA-2	EPA 6010D	DRB	6	
		EPA 6020B	CW1	9	
		SM 2450C-2011	ALW	1	
		SM 2320B-2011	ECH	3	
		SM 4500-S2D-2011	NAL	1	
		EPA 300.0 Rev 2.1 1993	CDC	3	
92495904003	HGWA-3	EPA 6010D	DRB	6	
		EPA 6020B	CW1	9	
		SM 2450C-2011	ALW	1	
		SM 2320B-2011	ECH	3	
		SM 4500-S2D-2011	NAL	1	
		EPA 300.0 Rev 2.1 1993	CDC	3	
92495904004	HGWA-122	EPA 6010D	DRB	6	
		EPA 6020B	CW1	9	
		SM 2450C-2011	AW1	1	
		SM 2320B-2011	ECH	3	
		SM 4500-S2D-2011	NAL	1	
		EPA 300.0 Rev 2.1 1993	CDC	3	
92495904005	HGWA-43D	EPA 6010D	DRB	6	
		EPA 6020B	CW1	13	
		EPA 7470A	VB	1	
		SM 2450C-2011	ALW	1	
		SM 2320B-2011	ECH	3	
		SM 4500-S2D-2011	NAL	1	
		EPA 300.0 Rev 2.1 1993	BRJ	1	
92495904006	HGWA-44D	EPA 6010D	DRB	6	
		EPA 6020B	CW1	13	
		EPA 7470A	VB	1	
		SM 2450C-2011	ALW	1	
		SM 2320B-2011	ECH	3	
		SM 4500-S2D-2011	NAL	1	



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

EPA 6020B KH 9 SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3 SM 4500-S2D-2011 NAL 1 EPA 300.0 Rev 2.1 1993 CDC 3 EPA 6010D DRB 6 EPA 6020B KH 9 SM 2450C-2011 AW1 1 EPA 6010D DRB 6 EPA 6010D REPA 6010 RE SM 4500-S2D-2011 NAL 1 SM 2450C-2011 AW1 1 SM 2400-S010 DRB 6 EPA 6010D DRB 6 EPA 6010D DRB 6	Lab ID	Sample ID	Method	Analysts	Analytes Reported
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EPA 300.0 Rev 2.1 1993 CDC 3 2495904011 HGWC-125 EPA 6010D DRB 6 EPA 6020B CW1 9 SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3 SM 4500-S2D-2011 NAL 1 EPA 300.0 Rev 2.1 1993 CDC 3 2495904012 HGWA-45D EPA 6010D DRB 6 EPA 6010D DRB 6 6 EPA 6020B KH 13 6 EPA 6020B KH 13 6 EPA 6020B KH 13 6 EPA 7470A VB 1 1 SM 2450C-2011 AW1 1 1 SM 2450C-2011 AW1 1 1 SM 2450C-2011 AW1 1 1 SM 2320B-2011 ECH 3			SM 2320B-2011	ECH	3
P495904011 HGWC-125 EPA 6010D DRB 6 EPA 6020B CW1 9 SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3 SM 4500-S2D-2011 NAL 1 EPA 300.0 Rev 2.1 1993 CDC 3 P495904012 HGWA-45D EPA 6010D DRB 6 EPA 6020B KH 13 1 1 EPA 6020B KH 13 1 1 EPA 6020B KH 13 1 1 EPA 7470A VB 1 1 1 SM 2450C-2011 AW1 1 1 1 SM 2450C-2011 AW1 1 1 1 1			SM 4500-S2D-2011	NAL	1
EPA 6020B CW1 9 SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3 SM 4500-S2D-2011 NAL 1 EPA 300.0 Rev 2.1 1993 CDC 3 2495904012 HGWA-45D EPA 6010D DRB 6 EPA 7470A VB 1 3 SM 2450C-2011 AW1 1 3 SM 2450C-2011 AW1 1 3 SM 2450C-2011 AW1 1 3 SM 2320B-2011 ECH 3 3			EPA 300.0 Rev 2.1 1993	CDC	3
SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3 SM 4500-S2D-2011 NAL 1 EPA 300.0 Rev 2.1 1993 CDC 3 2495904012 HGWA-45D EPA 6010D DRB 6 EPA 6020B KH 13 1 SM 2450C-2011 AW1 1 1 SM 2450C-2011 AW1 1 1 SM 2450C-2011 AW1 1 1 SM 2320B-2011 ECH 3	2495904011	HGWC-125	EPA 6010D	DRB	6
SM 2320B-2011 ECH 3 SM 4500-S2D-2011 NAL 1 EPA 300.0 Rev 2.1 1993 CDC 3 2495904012 HGWA-45D EPA 6010D DRB 6 EPA 6020B KH 13 EPA 7470A VB 1 SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3			EPA 6020B	CW1	9
SM 4500-S2D-2011 NAL 1 EPA 300.0 Rev 2.1 1993 CDC 3 2495904012 HGWA-45D EPA 6010D DRB 6 EPA 6020B KH 13 13 EPA 7470A VB 1 SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3			SM 2450C-2011	AW1	1
EPA 300.0 Rev 2.1 1993 CDC 3 2495904012 HGWA-45D EPA 6010D DRB 6 EPA 6020B KH 13 EPA 7470A VB 1 SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3			SM 2320B-2011	ECH	3
PA95904012 HGWA-45D EPA 6010D DRB 6 EPA 6020B KH 13 EPA 7470A VB 1 SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3			SM 4500-S2D-2011	NAL	1
EPA 6020B KH 13 EPA 7470A VB 1 SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3			EPA 300.0 Rev 2.1 1993	CDC	3
EPA 7470A VB 1 SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3	2495904012	HGWA-45D	EPA 6010D	DRB	6
SM 2450C-2011 AW1 1 SM 2320B-2011 ECH 3			EPA 6020B	KH	13
SM 2320B-2011 ECH 3			EPA 7470A	VB	1
			SM 2450C-2011	AW1	1
SM 4500-S2D-2011 NAL 1			SM 2320B-2011	ECH	3
			SM 4500-S2D-2011	NAL	1



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495904013	MW-46D	EPA 6010D	DRB	6
		EPA 6020B	КН	9
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	3
		SM 4500-S2D-2011	NAL	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495904014	HGWC-121A	EPA 6010D	DRB	6
		EPA 6020B	CW1	9
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	3
		SM 4500-S2D-2011	NAL	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495904015	HGWC-124	EPA 6010D	DRB	6
		EPA 6020B	CW1	9
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	3
		SM 4500-S2D-2011	NAL	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495904016	MW-32	EPA 6010D	DRB	6
		EPA 6020B	CW1	9
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	3
		SM 4500-S2D-2011	NAL	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495904017	MW-39	EPA 6010D	DRB	6
		EPA 6020B	CW1	9
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	3
		SM 4500-S2D-2011	NAL	1
		EPA 300.0 Rev 2.1 1993	BRJ	3
92495904018	MW-41	EPA 6010D	DRB	6
		EPA 6020B	CW1	9
		SM 2450C-2011	AW1	1
		SM 2320B-2011	ECH	3
		SM 25205-2011 SM 4500-S2D-2011	NAL	1
		EPA 300.0 Rev 2.1 1993	BRJ	3



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab ID	Sample ID	Method	Analysts	Analytes Reported
PASI-A = Pace A	Analytical Services - Asheville			

PASI-C = Pace Analytical Services - Charlotte

PASI-GA = Pace Analytical Services - Peachtree Corners, GA



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab Sample ID	Client Sample ID	Deput	l la ita	Depart Limit	Analyzad	Qualifiara
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495904001	HGWA-1					
	рН	7.15	Std. Units		09/29/20 14:01	
EPA 6010D	Calcium	103	mg/L	1.0	09/23/20 17:49	
EPA 6010D	Iron	0.087	mg/L	0.040	09/23/20 17:49	
EPA 6010D	Magnesium	4.3	mg/L	0.050	09/23/20 17:49	
EPA 6010D	Manganese	0.18	mg/L	0.040	09/23/20 17:49	
EPA 6010D	Potassium	0.34	mg/L	0.20	09/23/20 17:49	В
EPA 6010D	Sodium	21.1	mg/L	1.0	09/23/20 17:49	
EPA 6020B	Barium	0.035	mg/L	0.010	09/23/20 17:15	
EPA 6020B	Boron	0.017J	mg/L	0.10	09/23/20 17:15	
EPA 6020B	Lithium	0.00087J	mg/L	0.030	09/23/20 17:15	
SM 2450C-2011	Total Dissolved Solids	265	mg/L	10.0	09/17/20 15:18	
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	307	mg/L	5.0	09/24/20 19:36	
SM 2320B-2011	Alkalinity, Total as CaCO3	307	mg/L	5.0	09/24/20 19:36	
EPA 300.0 Rev 2.1 1993	Chloride	13.4	mg/L	1.0	09/18/20 21:31	
EPA 300.0 Rev 2.1 1993	Fluoride	0.082J	mg/L	0.10	09/18/20 21:31	
EPA 300.0 Rev 2.1 1993	Sulfate	47.3	mg/L	1.0	09/18/20 21:31	
92495904002	HGWA-2					
	На	5.22	Std. Units		09/29/20 14:01	
EPA 6010D	Calcium	21.1	mg/L	1.0	09/23/20 17:53	
EPA 6010D	Iron	0.78	mg/L	0.040	09/23/20 17:53	
EPA 6010D	Magnesium	2.5	mg/L	0.050	09/23/20 17:53	
EPA 6010D	Manganese	0.61	mg/L	0.040	09/23/20 17:53	
EPA 6010D	Potassium	0.89	mg/L	0.20	09/23/20 17:53	В
EPA 6010D	Sodium	7.4	mg/L	1.0	09/23/20 17:53	2
EPA 6020B	Barium	0.12	mg/L	0.010	09/23/20 17:21	
EPA 6020B	Beryllium	0.00013J	mg/L	0.0030	09/23/20 17:21	
EPA 6020B	Boron	0.044J	mg/L	0.10	09/23/20 17:21	
EPA 6020B	Cobalt	0.021	mg/L	0.0050	09/23/20 17:21	
EPA 6020B	Lead	0.000080J	mg/L	0.0050	09/23/20 17:21	
EPA 6020B	Lithium	0.0015J	mg/L	0.030	09/23/20 17:21	
SM 2450C-2011	Total Dissolved Solids	124	mg/L	10.0	09/17/20 15:18	
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	26.1	mg/L	5.0	09/24/20 13:36	
SM 2320B-2011	Alkalinity, Total as CaCO3	26.1	mg/L	5.0	09/24/20 13:36	
EPA 300.0 Rev 2.1 1993	Chloride	5.0	mg/L	1.0	09/18/20 21:46	
EPA 300.0 Rev 2.1 1993	Sulfate	51.5	mg/L	1.0	09/18/20 21:40	
92495904003	HGWA-3		5			
	pH	7.29	Std. Units		09/29/20 14:01	
EPA 6010D	Calcium	73.1	mg/L	1 0	09/23/20 17:57	
EPA 6010D	Iron	0.26	mg/L	0.040		
EPA 6010D	Magnesium	4.6	mg/L	0.040	09/23/20 17:57	
EPA 6010D	Magnesium	0.22	mg/L	0.040	09/23/20 17:57	
EPA 6010D	Potassium	0.22	mg/L	0.20	09/23/20 17:57	В
EPA 6010D	Sodium	4.9	-	1.0	09/23/20 17:57	U
EPA 6020B	Barium	4.9 0.12	mg/L	0.010		
EPA 6020B	Boron	0.12 0.0071J	mg/L			
EPA 6020B		0.00071J 0.000042J	mg/L	0.10 0.0050		
EFA 0020D	Lead	0.000042J	mg/L	0.0050	09/23/20 17:27	



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab Sample ID Client Sample ID Method Qualifiers Parameters Result Units Report Limit Analyzed 92495904003 HGWA-3 EPA 6020B Lithium 0.0026J mg/L 0.030 09/23/20 17:27 SM 2450C-2011 **Total Dissolved Solids** 258 mg/L 10.0 09/17/20 15:19 SM 2320B-2011 Alkalinity, Bicarbonate (CaCO3) 187 09/24/20 13:43 mg/L 5.0 SM 2320B-2011 Alkalinity, Total as CaCO3 187 mg/L 5.0 09/24/20 13:43 EPA 300.0 Rev 2.1 1993 Chloride 6.0 mg/L 1.0 09/18/20 22:01 Sulfate EPA 300.0 Rev 2.1 1993 44.7 mg/L 1.0 09/18/20 22:01 92495904004 **HGWA-122** pН 6.68 Std. Units 09/29/20 14:01 EPA 6010D Calcium 75.8 1.0 09/25/20 18:33 M1 mg/L EPA 6010D 0.031J 0.040 09/25/20 18:33 Iron mg/L EPA 6010D 0.050 09/25/20 18:33 Magnesium 5.6 mg/L EPA 6010D 0.0055J 0.040 09/25/20 18:33 Manganese mg/L EPA 6010D Potassium 0.90 mg/L 0.20 09/25/20 18:33 EPA 6010D Sodium 7.1 mg/L 1.0 09/25/20 18:33 EPA 6020B Antimony 0.0010J mg/L 0.0030 09/23/20 19:07 EPA 6020B Barium 0.039 0.010 09/23/20 19:07 mg/L EPA 6020B Boron 0.22 mg/L 0.10 09/23/20 19:07 0.00067J EPA 6020B Chromium mg/L 0.010 09/23/20 19:07 EPA 6020B Lead 0.000043J mg/L 0.0050 09/23/20 19:07 0.0045J 0.010 09/23/20 19:07 EPA 6020B Molybdenum mg/L **Total Dissolved Solids** 267 mg/L 10.0 09/17/20 15:19 SM 2450C-2011 SM 2320B-2011 Alkalinity, Bicarbonate (CaCO3) 202 mg/L 5.0 09/24/20 14:52 SM 2320B-2011 Alkalinity, Total as CaCO3 202 mg/L 5.0 09/24/20 14:52 Chloride EPA 300.0 Rev 2.1 1993 3.6 mg/L 1.0 09/18/20 23:45 EPA 300.0 Rev 2.1 1993 Fluoride 0.096J mg/L 0.10 09/18/20 23:45 EPA 300.0 Rev 2.1 1993 Sulfate 41.4 mg/L 1.0 09/18/20 23:45 92495904005 HGWA-43D pН 7.52 Std. Units 09/29/20 14:01 EPA 6010D Calcium 56.0 mg/L 1.0 09/23/20 18:49 EPA 6010D Iron 0.020J mg/L 0.040 09/23/20 18:49 EPA 6010D 09/23/20 18:49 Magnesium 18.3 mg/L 0.050 EPA 6010D Manganese 0.010J mg/L 0.040 09/23/20 18:49 EPA 6010D Potassium 0.97 0.20 09/23/20 18:49 В mg/L EPA 6010D Sodium 14.0 1.0 09/23/20 18:49 mg/L 0.00051J EPA 6020B Antimony mg/L 0.0030 09/23/20 18:54 EPA 6020B Barium 0.26 mg/L 0.010 09/23/20 18:54 Boron 0.061J 09/23/20 18:54 EPA 6020B mg/L 0.10 EPA 6020B Lead 0.000050J mg/L 0.0050 09/23/20 18:54 EPA 6020B Lithium 0.0018J mg/L 0.030 09/23/20 18:54 EPA 6020B Molybdenum 0.0044J mg/L 0.010 09/23/20 18:54 **Total Dissolved Solids** 272 10.0 09/17/20 15:18 SM 2450C-2011 mg/L 251 SM 2320B-2011 Alkalinity, Bicarbonate (CaCO3) mg/L 5.0 09/28/20 15:11 SM 2320B-2011 Alkalinity, Total as CaCO3 251 mg/L 5.0 09/28/20 15:11 EPA 300.0 Rev 2.1 1993 Fluoride 0.058J mg/L 0.10 09/19/20 21:21 92495904006 HGWA-44D 7.83 Std. Units 09/29/20 14:01 pН



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495904006	HGWA-44D					
EPA 6010D	Calcium	30.0	mg/L	1.0	09/23/20 18:53	
EPA 6010D	Iron	0.42	mg/L	0.040	09/23/20 18:53	
EPA 6010D	Magnesium	15.1	mg/L	0.050	09/23/20 18:53	
EPA 6010D	Manganese	0.020J	mg/L	0.040	09/23/20 18:53	
EPA 6010D	Potassium	3.2	mg/L	0.20	09/23/20 18:53	
EPA 6010D	Sodium	50.3	mg/L	1.0	09/23/20 18:53	
EPA 6020B	Antimony	0.00049J	mg/L	0.0030	09/23/20 19:00	
EPA 6020B	Barium	0.24	mg/L	0.010	09/23/20 19:00	
EPA 6020B	Boron	0.23	mg/L	0.10	09/23/20 19:00	
EPA 6020B	Chromium	0.0012J	mg/L	0.010	09/23/20 19:00	
EPA 6020B	Lead	0.00021J	mg/L	0.0050	09/23/20 19:00	
EPA 6020B	Lithium	0.014J	mg/L	0.030	09/23/20 19:00	
EPA 6020B	Molybdenum	0.0019J	mg/L	0.010	09/23/20 19:00	
SM 2450C-2011	Total Dissolved Solids	270	mg/L	10.0	09/17/20 15:18	
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	294	mg/L	5.0	09/28/20 15:19	
SM 2320B-2011	Alkalinity, Total as CaCO3	294	mg/L	5.0	09/28/20 15:19	
SM 4500-S2D-2011	Sulfide	0.11	mg/L	0.10	09/22/20 14:17	
EPA 300.0 Rev 2.1 1993	Chloride	4.1	mg/L	1.0	09/19/20 21:36	
EPA 300.0 Rev 2.1 1993	Fluoride	0.22	mg/L	0.10	09/19/20 21:36	
EPA 300.0 Rev 2.1 1993	Sulfate	43.0	mg/L	1.0	09/19/20 21:36	
92495904007	HGWC-126					
	рН	6.97	Std. Units		09/29/20 14:01	
EPA 6010D	Calcium	119	mg/L	1.0	09/25/20 20:19	
EPA 6010D	Iron	1.4	mg/L	0.040	09/25/20 20:19	
EPA 6010D	Magnesium	22.0	mg/L	0.050	09/25/20 20:19	
EPA 6010D	Manganese	0.15	mg/L	0.040	09/25/20 20:19	
EPA 6010D	Potassium	0.91	mg/L	0.20	09/25/20 20:19	
EPA 6010D	Sodium	28.5	mg/L	1.0	09/25/20 20:19	
EPA 6020B	Barium	0.21	mg/L	0.010	09/25/20 19:45	
EPA 6020B	Boron	0.041J	mg/L	0.10	09/25/20 19:45	
EPA 6020B	Lithium	0.0035J	mg/L	0.030	09/25/20 19:45	
SM 2450C-2011	Total Dissolved Solids	452	mg/L	20.0	09/23/20 13:16	
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	451	mg/L	5.0	09/30/20 20:45	
SM 2320B-2011	Alkalinity, Total as CaCO3	451	mg/L	5.0	09/30/20 20:45	
SM 4500-S2D-2011	Sulfide	0.068J	mg/L	0.10	09/22/20 14:48	
EPA 300.0 Rev 2.1 1993	Chloride	8.4	mg/L	1.0	09/24/20 10:20	
EPA 300.0 Rev 2.1 1993	Fluoride	0.43	mg/L	0.10	09/24/20 10:20	
EPA 300.0 Rev 2.1 1993	Sulfate	62.7	mg/L	1.0	09/24/20 10:20	
92495904008	FB-03					
EPA 6010D	Potassium	0.062J	mg/L	0.20	09/25/20 20:23	
EPA 6020B	Boron	0.011J	mg/L	0.10		
92495904009	HGWC-120					
	рН	6.98	Std. Units		09/29/20 14:01	
EPA 6010D	Calcium	152	mg/L	1.0		
EPA 6010D	Iron	0.39	mg/L	0.040	09/25/20 21:50	
EPA 6010D	Magnesium	19.9	mg/L		09/25/20 21:50	

REPORT OF LABORATORY ANALYSIS

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Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495904009	HGWC-120					
EPA 6010D	Manganese	1.3	mg/L	0.040	09/25/20 21:50	
EPA 6010D	Potassium	7.4	mg/L	0.20	09/25/20 21:50	
EPA 6010D	Sodium	9.9	mg/L	1.0	09/25/20 21:50	
EPA 6020B	Barium	0.046	mg/L	0.010	09/30/20 18:57	
EPA 6020B	Boron	0.93	mg/L	0.10	09/30/20 18:57	
EPA 6020B	Chromium	0.00065J	mg/L	0.010	09/30/20 18:57	
EPA 6020B	Cobalt	0.0041J	mg/L	0.0050	09/30/20 18:57	
EPA 6020B	Lithium	0.023J	mg/L	0.030	09/30/20 18:57	
EPA 6020B	Molybdenum	0.043	mg/L	0.010	09/30/20 18:57	
SM 2450C-2011	Total Dissolved Solids	272	mg/L	10.0	09/24/20 10:28	
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	599	mg/L	5.0	09/30/20 18:44	
SM 2320B-2011	Alkalinity, Total as CaCO3	599	mg/L	5.0	09/30/20 18:44	
EPA 300.0 Rev 2.1 1993	Chloride	2.4	mg/L	1.0	09/24/20 19:43	
EPA 300.0 Rev 2.1 1993	Fluoride	0.33	mg/L	0.10	09/24/20 19:43	
EPA 300.0 Rev 2.1 1993	Sulfate	225	mg/L	3.0	09/25/20 13:37	
92495904010	FD-03					
EPA 6010D	Calcium	156	mg/L	1.0	09/25/20 21:55	
EPA 6010D	Iron	0.40	mg/L	0.040	09/25/20 21:55	
EPA 6010D	Magnesium	20.4	mg/L	0.050	09/25/20 21:55	
EPA 6010D	Manganese	1.4	mg/L	0.040	09/25/20 21:55	
EPA 6010D	Potassium	7.6	mg/L	0.20	09/25/20 21:55	
EPA 6010D	Sodium	10.2	mg/L	1.0	09/25/20 21:55	
EPA 6020B	Barium	0.047	mg/L	0.010	09/30/20 19:03	
EPA 6020B	Boron	0.92	mg/L	0.10	09/30/20 19:03	
EPA 6020B	Cobalt	0.0041J	mg/L	0.0050	09/30/20 19:03	
EPA 6020B	Lithium	0.023J	mg/L	0.030	09/30/20 19:03	
EPA 6020B	Molybdenum	0.044	mg/L	0.010	09/30/20 19:03	
SM 2450C-2011	Total Dissolved Solids	270	mg/L	10.0	09/24/20 10:28	
SM 2320B-2011	Alkalinity, Bicarbonate (CaCO3)	311	mg/L	5.0	10/01/20 16:22	
SM 2320B-2011	Alkalinity, Total as CaCO3	311	mg/L	5.0	10/01/20 16:22	
EPA 300.0 Rev 2.1 1993	Chloride	2.4	mg/L	1.0	09/24/20 19:58	
EPA 300.0 Rev 2.1 1993	Fluoride	0.36	mg/L	0.10	09/24/20 19:58	
EPA 300.0 Rev 2.1 1993	Sulfate	226	mg/L	3.0	09/25/20 13:51	
92495904011	HGWC-125					
	pН	6.22	Std. Units		09/29/20 14:01	
EPA 6010D	Calcium	155	mg/L	1.0	09/25/20 21:59	
EPA 6010D	Iron	0.13	mg/L	0.040	09/25/20 21:59	
EPA 6010D	Magnesium	24.3	mg/L	0.050	09/25/20 21:59	
EPA 6010D	Manganese	2.3	mg/L	0.040	09/25/20 21:59	
EPA 6010D	Potassium	3.8	mg/L	0.20	09/25/20 21:59	
EPA 6010D	Sodium	22.0	mg/L	1.0	09/25/20 21:59	
EPA 6020B	Barium	0.042	mg/L	0.010	09/30/20 19:09	
EPA 6020B	Boron	1.4	mg/L	0.10	09/30/20 19:09	
EPA 6020B	Cobalt	0.012	mg/L	0.0050		
EPA 6020B	Lithium	0.0038J	mg/L	0.030	09/30/20 19:09	
SM 2450C-2011	Total Dissolved Solids	956	mg/L	20.0	09/24/20 10:28	



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab Sample ID	Client Sample ID	Decell		Deneral Line's		
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495904011	HGWC-125					
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	205	mg/L	5.0	09/30/20 19:13	
SM 2320B-2011	Alkalinity, Total as CaCO3	205	mg/L	5.0	09/30/20 19:13	
EPA 300.0 Rev 2.1 1993	Chloride	12.1	mg/L	1.0	09/24/20 20:12	
EPA 300.0 Rev 2.1 1993	Fluoride	0.11	mg/L	0.10	09/24/20 20:12	
EPA 300.0 Rev 2.1 1993	Sulfate	352	mg/L	5.0	09/25/20 14:05	
92495904012	HGWA-45D					
	Performed by	CUSTOME R			09/29/20 14:01	
	рН	7.57	Std. Units		09/29/20 14:01	
EPA 6010D	Calcium	56.8	mg/L	1.0	10/05/20 19:27	
EPA 6010D	Iron	0.48	mg/L	0.040	10/05/20 19:27	
EPA 6010D	Magnesium	19.4	mg/L	0.050	10/05/20 19:27	
EPA 6010D	Manganese	0.053	mg/L	0.040	10/05/20 19:27	
EPA 6010D	Potassium	2.1	mg/L	0.20	10/05/20 19:27	
EPA 6010D	Sodium	19.0	mg/L	1.0	10/05/20 19:27	
EPA 6020B	Barium	0.49	mg/L	0.010	10/06/20 19:05	
EPA 6020B	Boron	0.16	mg/L	0.10	10/06/20 19:05	
EPA 6020B	Lithium	0.0049J	mg/L	0.030	10/06/20 19:05	
EPA 6020B	Molybdenum	0.0014J	mg/L	0.010	10/06/20 19:05	
SM 2450C-2011	Total Dissolved Solids	263	mg/L	10.0	10/01/20 15:25	
SM 2320B-2011	Alkalinity, Bicarbonate (CaCO3)	272	mg/L	5.0	10/08/20 22:15	
SM 2320B-2011	Alkalinity, Total as CaCO3	272	mg/L	5.0	10/08/20 22:15	
SM 4500-S2D-2011	Sulfide	0.68	mg/L	0.10	09/29/20 13:52	
EPA 300.0 Rev 2.1 1993	Chloride	3.6	mg/L	1.0	10/01/20 09:40	
EPA 300.0 Rev 2.1 1993	Fluoride	0.21	mg/L	0.10	10/01/20 09:40	
EPA 300.0 Rev 2.1 1993	Sulfate	6.8	mg/L	1.0	10/01/20 09:40	
92495904013	MW-46D					
	Performed by	CUSTOME R			09/29/20 14:01	
	рН	7.56	Std. Units		09/29/20 14:01	
EPA 6010D	, Calcium	78.3	mg/L	1.0	10/05/20 19:32	
EPA 6010D	Iron	0.42	mg/L	0.040	10/05/20 19:32	
EPA 6010D	Magnesium	16.5	mg/L	0.050	10/05/20 19:32	
EPA 6010D	Manganese	0.31	mg/L	0.040	10/05/20 19:32	
EPA 6010D	Potassium	3.8	mg/L	0.20	10/05/20 19:32	
EPA 6010D	Sodium	53.6	mg/L	1.0	10/05/20 19:32	
EPA 6020B	Barium	0.040	mg/L	0.010	10/06/20 19:11	
EPA 6020B	Boron	0.51	mg/L	0.10	10/06/20 19:11	
EPA 6020B	Chromium	0.00075J	mg/L	0.010	10/06/20 19:11	
EPA 6020B	Cobalt	0.00041J	mg/L	0.0050	10/06/20 19:11	
EPA 6020B	Lead	0.000048J	mg/L	0.0050	10/06/20 19:11	
EPA 6020B	Lithium	0.000403 0.015J	mg/L	0.030	10/06/20 19:11	
EPA 6020B	Molybdenum	0.0133	mg/L	0.030	10/06/20 19:11	
SM 2450C-2011	Total Dissolved Solids	449	mg/L	10.0	10/01/20 15:25	
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	238	mg/L	5.0	10/08/20 22:23	
SM 2320B-2011	Alkalinity, Total as CaCO3	238	mg/L	5.0	10/08/20 22:23	
	-		-			
SM 4500-S2D-2011	Sulfide	0.30	mg/L	0.10	09/29/20 13:53	



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495904013	MW-46D					
EPA 300.0 Rev 2.1 1993 EPA 300.0 Rev 2.1 1993 EPA 300.0 Rev 2.1 1993	Chloride Fluoride Sulfate	3.7 0.68 149	mg/L mg/L mg/L	1.0 0.10 3.0	10/01/20 09:55 10/01/20 09:55 10/01/20 18:07	
92495904014	HGWC-121A					
52455564614	Performed by	CUSTOME			09/29/20 14:01	
	рН	R 6.93	Std. Units		09/29/20 14:01	
EPA 6010D	Calcium	167	mg/L	1.0	10/05/20 20:03	
EPA 6010D	Iron	0.044	mg/L	0.040	10/05/20 20:03	
EPA 6010D	Magnesium	23.6	mg/L	0.050	10/05/20 20:03	
EPA 6010D	Manganese	0.68	mg/L	0.040	10/05/20 20:03	
EPA 6010D	Potassium	1.2	mg/L	0.20	10/05/20 20:03	
EPA 6010D	Sodium	35.3	mg/L	1.0	10/05/20 20:03	
EPA 6020B	Barium	0.056	mg/L	0.010	10/05/20 19:54	
EPA 6020B	Boron	2.3	mg/L	0.50	10/07/20 11:12	
EPA 6020B	Lithium	0.0076J	mg/L	0.030	10/05/20 19:54	
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	376	mg/L	5.0	10/09/20 11:39	
SM 2320B-2011	Alkalinity, Total as CaCO3	376	mg/L	5.0	10/09/20 11:39	
EPA 300.0 Rev 2.1 1993	Chloride	23.2	mg/L	1.0	10/01/20 10:10	
EPA 300.0 Rev 2.1 1993	Fluoride	0.15	mg/L	0.10	10/01/20 10:10	
EPA 300.0 Rev 2.1 1993	Sulfate	182	mg/L	4.0	10/01/20 18:22	
92495904015	HGWC-124					
	Performed by	CUSTOME			09/29/20 14:01	
	рН	R 7.27	Std. Units		09/29/20 14:01	
EPA 6010D	Calcium	107	mg/L	1.0	10/05/20 20:07	
EPA 6010D	Iron	0.48	mg/L	0.040	10/05/20 20:07	
EPA 6010D	Magnesium	9.6	mg/L	0.050	10/05/20 20:07	
EPA 6010D	Magnese	0.24	mg/L	0.040	10/05/20 20:07	
EPA 6010D	Potassium	0.94	mg/L	0.20	10/05/20 20:07	
EPA 6010D	Sodium	5.6	mg/L	1.0	10/05/20 20:07	
EPA 6020B	Barium	0.071	mg/L	0.010	10/05/20 20:00	
EPA 6020B	Boron	0.43	mg/L	0.10	10/07/20 11:17	
EPA 6020B	Lead	0.000075J	mg/L	0.0050	10/05/20 20:00	
EPA 6020B	Lithium	0.0011J	mg/L	0.030	10/05/20 20:00	
EPA 6020B	Molybdenum	0.00090J	mg/L	0.010	10/05/20 20:00	
SM 2450C-2011	Total Dissolved Solids	176	mg/L		10/01/20 15:27	
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	240	mg/L	5.0	10/09/20 11:51	
SM 2320B-2011	Alkalinity, Total as CaCO3	240	mg/L		10/09/20 11:51	
EPA 300.0 Rev 2.1 1993	Chloride	2.5	mg/L	1.0	10/01/20 10:25	
EPA 300.0 Rev 2.1 1993	Sulfate	86.2	mg/L	1.0	10/01/20 10:25	
92495904016	MW-32		J	-		
	Performed by	CUSTOME R			09/29/20 14:01	
			0.1.1.1.1			
	рН	6.90	Std. Units		09/29/20 14:01	



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab Sample ID Client Sample ID Method Parameters Qualifiers Result Units Report Limit Analyzed 92495904016 MW-32 EPA 6010D Iron 0.021J mg/L 0.040 10/05/20 20:11 EPA 6010D Magnesium 20.8 mg/L 0.050 10/05/20 20:11 EPA 6010D Manganese 0.040 10/05/20 20:11 1.6 mg/L EPA 6010D Potassium 7.7 mg/L 0.20 10/05/20 20:11 EPA 6010D Sodium 8.0 mg/L 1.0 10/05/20 20:11 Barium 0.053 10/05/20 20:06 EPA 6020B mg/L 0.010 EPA 6020B Boron 1.3 mg/L 0.50 10/07/20 11:23 EPA 6020B 0.00058J 0.010 Chromium mg/L 10/05/20 20:06 Cobalt 0.0047J 0.0050 10/05/20 20:06 EPA 6020B mg/L EPA 6020B Lithium 0.032 mg/L 0.030 10/05/20 20:06 EPA 6020B Molybdenum 0.062 mg/L 0.010 10/05/20 20:06 SM 2450C-2011 **Total Dissolved Solids** 272 mg/L 10.0 10/02/20 17:25 SM 2320B-2011 Alkalinity, Bicarbonate (CaCO3) 315 mg/L 5.0 10/09/20 12:00 SM 2320B-2011 Alkalinity, Total as CaCO3 315 mg/L 5.0 10/09/20 12:00 EPA 300.0 Rev 2.1 1993 Chloride 2.5 mg/L 1.0 10/01/20 10:40 EPA 300.0 Rev 2.1 1993 Fluoride 0.33 0.10 10/01/20 10:40 mg/L EPA 300.0 Rev 2.1 1993 Sulfate 245 5.0 10/01/20 19:06 mg/L MW-39 92495904017 CUSTOME 09/29/20 14:01 Performed by R pН 7.00 Std. Units 09/29/20 14:01 EPA 6010D Calcium 185 mg/L 1.0 10/05/20 20:16 EPA 6010D 10/05/20 20:16 Iron 0.033J mg/L 0.040 EPA 6010D 22.9 0.050 10/05/20 20:16 Magnesium mg/L EPA 6010D 0.040 10/05/20 20:16 Manganese 1.5 mg/L 8.1 0.20 10/05/20 20:16 EPA 6010D Potassium mg/L 10/05/20 20:16 EPA 6010D Sodium 8.3 mg/L 1.0 EPA 6020B Barium 0.058 mg/L 0.010 10/05/20 20:12 EPA 6020B Boron 1.3 mg/L 0.50 10/07/20 11:29 EPA 6020B Cobalt 0.0026J mg/L 0.0050 10/05/20 20:12 EPA 6020B Lithium 0.034 mg/L 0.030 10/05/20 20:12 EPA 6020B Molvbdenum 0.062 mg/L 0.010 10/05/20 20:12 10/02/20 17:25 SM 2450C-2011 **Total Dissolved Solids** 272 10.0 mg/L SM 2320B-2011 Alkalinity, Bicarbonate (CaCO3) 323 mg/L 5.0 10/09/20 12:08 Alkalinity, Total as CaCO3 323 SM 2320B-2011 mg/L 5.0 10/09/20 12:08 Chloride EPA 300.0 Rev 2.1 1993 2.4 mg/L 1.0 10/01/20 10:55 EPA 300.0 Rev 2.1 1993 Fluoride 0.33 0.10 mg/L 10/01/20 10:55 EPA 300.0 Rev 2.1 1993 Sulfate 239 mg/L 5.0 10/01/20 19:21 92495904018 **MW-41** CUSTOME Performed by 09/29/20 14:01 R pН 7.00 Std. Units 09/29/20 14:01 EPA 6010D Calcium 173 mg/L 1.0 10/05/20 20:20 0.16 EPA 6010D Iron mg/L 0.040 10/05/20 20:20 EPA 6010D Magnesium 21.4 0.050 10/05/20 20:20 mg/L EPA 6010D Manganese 0.85 0.040 10/05/20 20:20 mg/L EPA 6010D Potassium 6.7 mg/L 0.20 10/05/20 20:20

REPORT OF LABORATORY ANALYSIS

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Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Lab Sample ID	Client Sample ID	Client Sample ID									
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers					
92495904018	MW-41										
EPA 6010D	Sodium	8.1	mg/L	1.0	10/05/20 20:20						
EPA 6020B	Barium	0.071	mg/L	0.010	10/05/20 20:17						
EPA 6020B	Boron	1.2	mg/L	0.50	10/07/20 11:46						
EPA 6020B	Cobalt	0.00066J	mg/L	0.0050	10/05/20 20:17						
EPA 6020B	Lithium	0.028J	mg/L	0.030	10/05/20 20:17						
EPA 6020B	Molybdenum	0.036	mg/L	0.010	10/05/20 20:17						
SM 2450C-2011	Total Dissolved Solids	392	mg/L	10.0	10/02/20 17:25						
SM 2320B-2011	Alkalinity, Bicarbonate (CaCO3)	313	mg/L	5.0	10/08/20 20:19						
SM 2320B-2011	Alkalinity, Total as CaCO3	313	mg/L	5.0	10/08/20 20:19	M1					
EPA 300.0 Rev 2.1 1993	Chloride	2.5	mg/L	1.0	10/01/20 12:09						
EPA 300.0 Rev 2.1 1993	Fluoride	0.25	mg/L	0.10	10/01/20 12:09						
EPA 300.0 Rev 2.1 1993	Sulfate	154	mg/L	5.0	10/01/20 19:36						



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:

o.: 92495904

Sample: HGWA-1	Lab ID:	92495904001	Collecte	ed: 09/15/20	0 14:01	Received: 09/	/16/20 11:14 M	atrix: Water		
Deversations	Decisita	1 10:4-	Report	MD		Dronored	Anching		0	
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
Field Data	Analytical	Method:								
	Pace Anal	ytical Services	s - Charlotte	;						
pH	7.15	Std. Units			1		09/29/20 14:01			
6010D ATL ICP	Analytical	Method: EPA	6010D Pre	paration Met	hod: Ef	PA 3010A				
	Pace Anal	ytical Services	s - Peachtre	e Corners, C	S A					
Calcium	103	mg/L	1.0	0.070	1	09/22/20 20:12	09/23/20 17:49	7440-70-2		
Iron	0.087	mg/L	0.040	0.016	1		09/23/20 17:49			
Magnesium	4.3	mg/L	0.050	0.0076	1	09/22/20 20:12	09/23/20 17:49	7439-95-4		
Manganese	0.18	mg/L	0.040	0.0017	1		09/23/20 17:49			
Potassium	0.34	mg/L	0.20	0.056	1		09/23/20 17:49		В	
Sodium	21.1	mg/L	1.0	0.26	1		09/23/20 17:49			
6020 MET ICPMS	Analytical	Method: EPA	6020B Prej	paration Met	hod: EF	PA 3005A				
	Pace Anal	ytical Services	s - Peachtre	e Corners, C	S A					
Antimony	ND	mg/L	0.0030	0.00028	1	09/22/20 20:07	09/23/20 17:15	7440-36-0		
Barium	0.035	mg/L	0.010	0.00071	1	09/22/20 20:07	09/23/20 17:15	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000046	1	09/22/20 20:07	09/23/20 17:15	7440-41-7		
Boron	0.017J	mg/L	0.10	0.0052	1		09/23/20 17:15			
Chromium	ND	mg/L	0.010	0.00055	1		09/23/20 17:15			
Cobalt	ND	mg/L	0.0050	0.00038	1		09/23/20 17:15			
Lead	ND	mg/L	0.0050	0.000036	1		09/23/20 17:15			
Lithium	0.00087J	mg/L	0.030	0.00081	1		09/23/20 17:15			
Molybdenum	ND	mg/L	0.010	0.00069	1		09/23/20 17:15			
2540C Total Dissolved Solids	Analytical Method: SM 2450C-2011									
	-	ytical Services		e Corners, C	θA					
Total Dissolved Solids	265	mg/L	10.0	10.0	1		09/17/20 15:18			
2320B Alkalinity	Analytical	Method: SM 2	320B-2011							
,	-	ytical Services								
Alkalinity,Bicarbonate (CaCO3)	307	mg/L	5.0	5.0	1		09/24/20 19:36			
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		09/24/20 19:36			
Alkalinity, Total as CaCO3	307	mg/L	5.0	5.0	1		09/24/20 19:36			
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2D-2	011						
	Pace Anal	ytical Services	s - Asheville							
Sulfide	ND	mg/L	0.10	0.050	1		09/22/20 14:10	18496-25-8		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993						
- -	-	ytical Services								
Chloride	13.4	mg/L	1.0	0.60	1		09/18/20 21:31	16887-00-6		
Fluoride	0.082J	mg/L	0.10	0.050	1		09/18/20 21:31			
Sulfate	47.3	mg/L	1.0	0.50	1		09/18/20 21:31			



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No .:

92495904

Sample: HGWA-2	Lab ID:	92495904002	Collecte	ed: 09/15/2	0 10:58	Received: 09/	/16/20 11:14 M	atrix: Water	
D			Report		55	. .		040.11	.
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	- Charlotte						
рН	5.22	Std. Units			1		09/29/20 14:01		
6010D ATL ICP	Analytical	Method: EPA 6	010D Pre	paration Me	thod: EF	PA 3010A			
	Pace Anal	ytical Services	- Peachtre	e Corners, (GA				
Calcium	21.1	mg/L	1.0	0.070	1	09/22/20 20:12	09/23/20 17:53	7440-70-2	
Iron	0.78	mg/L	0.040	0.016	1	09/22/20 20:12	09/23/20 17:53	7439-89-6	
Magnesium	2.5	mg/L	0.050	0.0076	1	09/22/20 20:12			
Manganese	0.61	mg/L	0.040	0.0017	1	09/22/20 20:12			
Potassium	0.89	mg/L	0.20	0.056	1		09/23/20 17:53		В
Sodium	7.4	mg/L	1.0	0.26	1		09/23/20 17:53		D
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prei	naration Met	hod. EE	24 30054			
	-	vtical Services				100001			
Antimony	ND	mg/L	0.0030	0.00028	1	09/22/20 20:07	09/23/20 17:21	7440-36-0	
Barium	0.12	-	0.0030	0.00020	1	09/22/20 20:07			
	0.00013J	mg/L							
Beryllium		mg/L	0.0030	0.000046	1	09/22/20 20:07			
Boron	0.044J	mg/L	0.10	0.0052	1	09/22/20 20:07			
Chromium	ND	mg/L	0.010	0.00055	1	09/22/20 20:07			
Cobalt	0.021	mg/L	0.0050	0.00038	1	09/22/20 20:07			
Lead	0.000080J	mg/L	0.0050	0.000036	1		09/23/20 17:21		
Lithium	0.0015J	mg/L	0.030	0.00081	1	09/22/20 20:07			
Molybdenum	ND	mg/L	0.010	0.00069	1	09/22/20 20:07	09/23/20 17:21	7439-98-7	
2540C Total Dissolved Solids	Analytical	Method: SM 24	450C-2011						
	Pace Anal	ytical Services	- Peachtre	e Corners, (GΑ				
Total Dissolved Solids	124	mg/L	10.0	10.0	1		09/17/20 15:18		
2320B Alkalinity	Analytical	Method: SM 23	320B-2011						
-	Pace Anal	ytical Services	- Asheville						
Alkalinity,Bicarbonate (CaCO3)	26.1	mg/L	5.0	5.0	1		09/24/20 13:36		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		09/24/20 13:36		
Alkalinity, Total as CaCO3	26.1	mg/L	5.0	5.0	1		09/24/20 13:36		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2D-20	011					
		ytical Services							
Sulfide	ND	mg/L	0.10	0.050	1		09/22/20 14:11	18496-25-8	
300.0 IC Anions 28 Days	Analvtical	Method: EPA 3	00.0 Rev 2	2.1 1993					
	-	lytical Services							
Chloride	5.0	mg/L	1.0	0.60	1		09/18/20 21:46	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/18/20 21:46		
		iiig/ L	0.10	0.000			50/10/20 21.40	10004 40-0	



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:

92495904

Sample: HGWA-3	Lab ID:	92495904003	Collected	d: 09/15/20) 11:45	Received: 09/	/16/20 11:14 M	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	- Charlotte						
рН	7.29	Std. Units			1		09/29/20 14:01		
6010D ATL ICP	Analytical	Method: EPA 6	010D Prep	aration Met	hod: EF	PA 3010A			
	Pace Anal	ytical Services	- Peachtree	Corners, C	S A				
Calcium	73.1	mg/L	1.0	0.070	1	09/22/20 20:12	09/23/20 17:57	7440-70-2	
Iron	0.26	mg/L	0.040	0.016	1	09/22/20 20:12	09/23/20 17:57	7439-89-6	
Magnesium	4.6	mg/L	0.050	0.0076	1	09/22/20 20:12	09/23/20 17:57	7439-95-4	
Manganese	0.22	mg/L	0.040	0.0017	1		09/23/20 17:57	7439-96-5	
Potassium	0.46	mg/L	0.20	0.056	1		09/23/20 17:57		В
Sodium	4.9	mg/L	1.0	0.26	1		09/23/20 17:57		
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prep	aration Met	hod: EF	PA 3005A			
	Pace Anal	ytical Services	- Peachtree	Corners, C	S A				
Antimony	ND	mg/L	0.0030	0.00028	1	09/22/20 20:07	09/23/20 17:27	7440-36-0	
Barium	0.12	mg/L	0.010	0.00071	1	09/22/20 20:07	09/23/20 17:27	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/22/20 20:07	09/23/20 17:27	7440-41-7	
Boron	0.0071J	mg/L	0.10	0.0052	1	09/22/20 20:07	09/23/20 17:27	7440-42-8	
Chromium	ND	mg/L	0.010	0.00055	1	09/22/20 20:07			
Cobalt	ND	mg/L	0.0050	0.00038	1	09/22/20 20:07			
Lead	0.000042J	mg/L		0.000036	1		09/23/20 17:27		
Lithium	0.0026J	mg/L	0.030	0.00081	1	09/22/20 20:07			
Molybdenum	ND	mg/L	0.010	0.00069	1	09/22/20 20:07			
2540C Total Dissolved Solids	Analytical	Method: SM 24	450C-2011						
		ytical Services		e Corners, C	ΒA				
Total Dissolved Solids	258	mg/L	10.0	10.0	1		09/17/20 15:19		
2320B Alkalinity	Analytical	Method: SM 23	320B-2011						
20208 /		ytical Services							
Alkalinity,Bicarbonate (CaCO3)	187	mg/L	5.0	5.0	1		09/24/20 13:43		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		09/24/20 13:43		
Alkalinity, Total as CaCO3	187	mg/L	5.0	5.0	1		09/24/20 13:43		
4500S2D Sulfide Water	Analytical	Method: SM 45	500-S2D-20	11					
	Pace Anal	ytical Services	- Asheville						
Sulfide	ND	mg/L	0.10	0.050	1		09/22/20 14:13	18496-25-8	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2.	1 1993					
	-	ytical Services							
Chloride	6.0	mg/L	1.0	0.60	1		09/18/20 22:01	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/18/20 22:01		
Sulfate	44.7	mg/L	1.0	0.50	1		09/18/20 22:01		



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:

xt No.: 92495904

Sample: HGWA-122	Lab ID:	92495904004	Collected	d: 09/15/20) 15:41	Received: 09/	16/20 11:14 M	atrix: Water	
Development	Deculto	l la ita	Report			Dreneward	Anglungal		Qual
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Ana	lytical Services	- Charlotte						
рН	6.68	Std. Units			1		09/29/20 14:01		
6010D ATL ICP	Analytical	Method: EPA 6	010D Prep	aration Met	hod: EF	PA 3010A			
	Pace Ana	lytical Services	- Peachtree	Corners, C	ΒA				
Calcium	75.8	mg/L	1.0	0.070	1	09/24/20 14:17	09/25/20 18:33	7440-70-2	M1
Iron	0.031J	mg/L	0.040	0.016	1	09/24/20 14:17	09/25/20 18:33	7439-89-6	
Magnesium	5.6	mg/L	0.050	0.0076	1	09/24/20 14:17	09/25/20 18:33	7439-95-4	
Manganese	0.0055J	mg/L	0.040	0.0017	1	09/24/20 14:17	09/25/20 18:33	7439-96-5	
Potassium	0.90	mg/L	0.20	0.056	1	09/24/20 14:17	09/25/20 18:33	7440-09-7	
Sodium	7.1	mg/L	1.0	0.26	1	09/24/20 14:17	09/25/20 18:33	7440-23-5	
6020 MET ICPMS	Analvtical	Method: EPA 6	020B Prep	aration Met	hod: EF	PA 3005A			
		lytical Services							
Antimony	0.0010J	mg/L	0.0030	0.00028	1	09/23/20 13:53	09/23/20 19:07	7440-36-0	
Barium	0.039	mg/L	0.010	0.00071	1	09/23/20 13:53			
Beryllium	ND	mg/L		0.000046	1	09/23/20 13:53			
Boron	0.22	mg/L	0.10	0.0052	1	09/23/20 13:53			
Chromium	0.00067J	mg/L	0.010	0.00055	1	09/23/20 13:53			
Cobalt	ND	mg/L	0.0050	0.00038	1	09/23/20 13:53			
Lead	0.000043J	mg/L		0.000036	1	09/23/20 13:53			
Lithium	ND	mg/L	0.030	0.00081	1	09/23/20 13:53			
Molybdenum	0.0045J	mg/L	0.010	0.00069	1		09/23/20 19:07		
2540C Total Dissolved Solids	Analytical	Method: SM 24	450C-2011						
	-	lytical Services		e Corners, G	ΒA				
Total Dissolved Solids	267	mg/L	10.0	10.0	1		09/17/20 15:19		
2320B Alkalinity	Analytical	Method: SM 2	320B-2011						
		lytical Services							
Alkalinity,Bicarbonate (CaCO3)	202	mg/L	5.0	5.0	1		09/24/20 14:52		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		09/24/20 14:52		
Alkalinity, Total as CaCO3	202	mg/L	5.0	5.0	1		09/24/20 14:52		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2D-20	11					
	Pace Ana	lytical Services	- Asheville						
Sulfide	ND	mg/L	0.10	0.050	1		09/22/20 14:16	18496-25-8	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0 Rev 2.	1 1993					
· · · · ·		lytical Services							
Chloride	3.6	mg/L	1.0	0.60	1		09/18/20 23:45	16887-00-6	
Fluoride	0.096J	mg/L	0.10	0.050	1		09/18/20 23:45		
Sulfate	41.4	mg/L	1.0	0.50	1		09/18/20 23:45		



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Sample: HGWA-43D	Lab ID:	9249590400	5 Collecte	ed: 09/16/20) 11:58	Received: 09/	/17/20 09:45 M	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytica	Method:							
	Pace Ana	lytical Service	s - Charlotte)					
рН	7.52	Std. Units			1		09/29/20 14:01		
6010D ATL ICP	Analytica	Method: EPA	6010D Pre	paration Met	hod: EF	PA 3010A			
	•	lytical Service							
Calcium	56.0	mg/L	1.0	0.070	1	09/22/20 20:12	09/23/20 18:49	7440-70-2	
Iron	0.020J	mg/L	0.040	0.016	1	09/22/20 20:12	09/23/20 18:49	7439-89-6	
Magnesium	18.3	mg/L	0.050	0.0076	1	09/22/20 20:12	09/23/20 18:49	7439-95-4	
Manganese	0.010J	mg/L	0.040	0.0017	1		09/23/20 18:49		
Potassium	0.97	mg/L	0.20	0.056	1		09/23/20 18:49		В
Sodium	14.0	mg/L	1.0	0.26	1		09/23/20 18:49		D
6020 MET ICPMS	Analytica	Method: EPA	6020B Pre	paration Met	hod: FF	PA 3005A			
		lytical Service				110000/1			
Antimony	0.00051J	mg/L	0.0030	0.00028	1	09/22/20 20:07	09/23/20 18:54	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1		09/23/20 18:54		
Barium	0.26	mg/L	0.010	0.00070	1		09/23/20 18:54		
	ND		0.0030	0.000046	1		09/23/20 18:54		
Beryllium	0.061J	mg/L		0.00048	1		09/23/20 18:54		
Boron		mg/L	0.10						
Cadmium	ND	mg/L	0.0025	0.00012	1		09/23/20 18:54		
Chromium	ND	mg/L	0.010	0.00055	1		09/23/20 18:54		
Cobalt	ND	mg/L	0.0050	0.00038	1		09/23/20 18:54		
Lead	0.000050J	mg/L	0.0050	0.000036	1		09/23/20 18:54		
Lithium	0.0018J	mg/L	0.030	0.00081	1		09/23/20 18:54		
Molybdenum	0.0044J	mg/L	0.010	0.00069	1	09/22/20 20:07	09/23/20 18:54	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/22/20 20:07	09/23/20 18:54	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/22/20 20:07	09/23/20 18:54	7440-28-0	
7470 Mercury	Analytica	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
	Pace Ana	lytical Service	s - Peachtre	e Corners, G	βA				
Mercury	ND	mg/L	0.00050	0.000078	1	10/13/20 08:00	10/13/20 13:02	7439-97-6	
2540C Total Dissolved Solids	Analytica	Method: SM 2	2450C-2011						
	Pace Ana	lytical Service	s - Peachtre	e Corners, G	6A				
Total Dissolved Solids	272	mg/L	10.0	10.0	1		09/17/20 15:18		
2320B Alkalinity	Analytica	Method: SM 2	2320B-2011						
	Pace Ana	lytical Service	s - Asheville						
Alkalinity,Bicarbonate (CaCO3)	251	mg/L	5.0	5.0	1		09/28/20 15:11		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		09/28/20 15:11		
Alkalinity, Total as CaCO3	251	mg/L	5.0	5.0	1		09/28/20 15:11		
4500S2D Sulfide Water	Analytica	Method: SM 4	4500-S2D-2	011					
	-	lytical Service							
Sulfide	ND	mg/L	0.10	0.050	1		09/22/20 14:17	18496-25-8	
		-							

REPORT OF LABORATORY ANALYSIS

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Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Sample: HGWA-43D	Lab ID:	Lab ID: 92495904005		Collected: 09/16/20 11:58			Received: 09/17/20 09:45 Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2	.1 1993							
	Pace Ana	lytical Services	- Asheville								
Fluoride	0.058J	mg/L	0.10	0.050	1		09/19/20 21:21	16984-48-8			



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Sample: HGWA-44D	Lab ID:	92495904006	6 Collecte	ed: 09/16/20) 15:18	Received: 09/	(17/20 09:45 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Pace Ana	Method: lytical Services	s - Charlotte	e					
рН	7.83	Std. Units			1		09/29/20 14:01		
6010D ATL ICP	•	Method: EPA		-		PA 3010A			
Calcium	30.0	mg/L	1.0	0.070	1	09/22/20 20:12	09/23/20 18:53	7440-70-2	
Iron	0.42	mg/L	0.040	0.016	1	09/22/20 20:12	09/23/20 18:53	7439-89-6	
Magnesium	15.1	mg/L	0.050	0.0076	1	09/22/20 20:12	09/23/20 18:53	7439-95-4	
Manganese	0.020J	mg/L	0.040	0.0017	1	09/22/20 20:12	09/23/20 18:53	7439-96-5	
Potassium	3.2	mg/L	0.20	0.056	1	09/22/20 20:12	09/23/20 18:53	7440-09-7	
Sodium	50.3	mg/L	1.0	0.26	1	09/22/20 20:12	09/23/20 18:53	7440-23-5	
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
	Pace Ana	lytical Services	s - Peachtre	e Corners, C	B A				
Antimony	0.00049J	mg/L	0.0030	0.00028	1	09/22/20 20:07	09/23/20 19:00	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00078	1	09/22/20 20:07	09/23/20 19:00	7440-38-2	
Barium	0.24	mg/L	0.010	0.00071	1	09/22/20 20:07	09/23/20 19:00	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/22/20 20:07	09/23/20 19:00	7440-41-7	
Boron	0.23	mg/L	0.10	0.0052	1	09/22/20 20:07	09/23/20 19:00		
Cadmium	ND	mg/L	0.0025	0.00012	1	09/22/20 20:07	09/23/20 19:00	7440-43-9	
Chromium	0.0012J	mg/L	0.010	0.00055	1	09/22/20 20:07	09/23/20 19:00	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/22/20 20:07	09/23/20 19:00	7440-48-4	
Lead	0.00021J	mg/L	0.0050	0.000036	1	09/22/20 20:07	09/23/20 19:00	7439-92-1	
Lithium	0.014J	mg/L	0.030	0.00081	1	09/22/20 20:07	09/23/20 19:00	7439-93-2	
Molybdenum	0.0019J	mg/L	0.010	0.00069	1	09/22/20 20:07	09/23/20 19:00	7439-98-7	
Selenium	ND	mg/L	0.010	0.0016	1	09/22/20 20:07	09/23/20 19:00	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	09/22/20 20:07	09/23/20 19:00	7440-28-0	
7470 Mercury	-	Method: EPA				PA 7470A			
Mercury	ND	mg/L	0.00050	0.000078	1	10/13/20 08:00	10/13/20 13:04	7439-97-6	
2540C Total Dissolved Solids	•	Method: SM 2 lytical Services		e Corners (SΔ				
Total Dissolved Solids	270	mg/L		,			09/17/20 15:18		
				10.0			03/11/20 13:10		
2320B Alkalinity		Method: SM 2 lytical Services)					
Alkalinity,Bicarbonate (CaCO3)	294	mg/L	5.0	5.0	1		09/28/20 15:19		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		09/28/20 15:19		
Alkalinity, Total as CaCO3	294	mg/L	5.0	5.0	1		09/28/20 15:19		
4500S2D Sulfide Water	-	Method: SM 4 lytical Services							
Sulfide	0.11	mg/L	0.10	0.050	1		09/22/20 14:17	18496-25-8	
	v		0.10	5.000			50,22,20 IT.II	.0.00 20 0	

REPORT OF LABORATORY ANALYSIS

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Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Sample: HGWA-44D	Lab ID:	92495904006	Collected	: 09/16/20	15:18	Received: 09	/17/20 09:45 Ma	atrix: Water	
_			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2.1	1993					
	Pace Anal	ytical Services	- Asheville						
Chloride	4.1	mg/L	1.0	0.60	1		09/19/20 21:36	16887-00-6	
Fluoride	0.22	mg/L	0.10	0.050	1		09/19/20 21:36	16984-48-8	
Sulfate	43.0	mg/L	1.0	0.50	1		09/19/20 21:36	14808-79-8	



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:

92495904

Sample: HGWC-126	Lab ID:	92495904007	Collecte	ed: 09/18/20) 15:39	Received: 09/	/21/20 09:25 M	latrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	- Charlotte						
рН	6.97	Std. Units			1		09/29/20 14:01		
6010D ATL ICP	Analytical	Method: EPA 6	6010D Prej	paration Met	hod: EF	PA 3010A			
	Pace Anal	ytical Services	- Peachtre	e Corners, C	βA				
Calcium	119	mg/L	1.0	0.070	1	09/24/20 14:17	09/25/20 20:19	7440-70-2	
Iron	1.4	mg/L	0.040	0.016	1	09/24/20 14:17			
Magnesium	22.0	mg/L	0.050	0.0076	1	09/24/20 14:17	09/25/20 20:19	7439-95-4	
Manganese	0.15	mg/L	0.040	0.0017	1	09/24/20 14:17	09/25/20 20:19	7439-96-5	
Potassium	0.91	mg/L	0.20	0.056	1	09/24/20 14:17			
Sodium	28.5	mg/L	1.0	0.26	1	09/24/20 14:17			
6020 MET ICPMS	Analytical	Method: EPA 6	6020B Prei	paration Met	hod: EF	PA 3005A			
		ytical Services							
Antimony	ND	mg/L	0.0030	0.00028	1	09/24/20 14:23	09/25/20 19:45	7440-36-0	
Barium	0.21	mg/L	0.010	0.00071	1	09/24/20 14:23			
Beryllium	ND	mg/L	0.0030	0.000046	1		09/25/20 19:45		
Boron	0.041J	mg/L	0.0000	0.0052	1	09/24/20 14:23			
Chromium	0.0413 ND	mg/L	0.10	0.00055	1	09/24/20 14:23			
Cobalt	ND	mg/L	0.0050	0.00038	1	09/24/20 14:23			
Lead	ND	mg/L	0.0050	0.000036	1	09/24/20 14:23			
	0.0035J	-							
Lithium		mg/L	0.030	0.00081	1	09/24/20 14:23			
Molybdenum	ND	mg/L	0.010	0.00069	1	09/24/20 14:23	09/25/20 19:45	7439-98-7	
2540C Total Dissolved Solids	-	Method: SM 2							
	Pace Anal	ytical Services	- Peachtre	e Corners, C	βA				
Total Dissolved Solids	452	mg/L	20.0	20.0	1		09/23/20 13:16	i	
2320B Alkalinity	Analytical	Method: SM 2	320B-2011						
-	Pace Anal	ytical Services	- Asheville						
Alkalinity,Bicarbonate (CaCO3)	451	mg/L	5.0	5.0	1		09/30/20 20:45	;	
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		09/30/20 20:45		
Alkalinity, Total as CaCO3	451	mg/L	5.0	5.0	1		09/30/20 20:45		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2D-20	011					
	Pace Anal	ytical Services	- Asheville						
Sulfide	0.068J	mg/L	0.10	0.050	1		09/22/20 14:48	18496-25-8	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
· · · · · · · · · · · · · · · · · · ·	-	ytical Services							
Chloride	8.4	mg/L	1.0	0.60	1		09/24/20 10:20	16887-00-6	
Fluoride	0.43	mg/L	0.10	0.050	1		09/24/20 10:20		
Sulfate	62.7	mg/L	1.0	0.50	1		09/24/20 10:20		
Ounate	02.7	iiig/∟	1.0	0.50	1		03/24/20 10.20	1-1000-19-0	



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Sample: FB-03	Lab ID:	92495904008	Collect	ed: 09/18/20	0 16:50	Received: 09/	/21/20 09:25 Ma	atrix: Water	
Demonstern	Deside	11-16-	Report	MDI	55	Davasa	A	040 N	Qual
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP	Analytical	Method: EPA 6	010D Pre	paration Met	thod: EF	PA 3010A			
	Pace Ana	lytical Services	- Peachtre	e Corners, C	GA				
Calcium	ND	mg/L	1.0	0.070	1	09/24/20 14:17	09/25/20 20:23	7440-70-2	
Iron	ND	mg/L	0.040	0.016	1	09/24/20 14:17	09/25/20 20:23	7439-89-6	
Magnesium	ND	mg/L	0.050	0.0076	1	09/24/20 14:17	09/25/20 20:23	7439-95-4	
Manganese	ND	mg/L	0.040	0.0017	1	09/24/20 14:17	09/25/20 20:23	7439-96-5	
Potassium	0.062J	mg/L	0.20	0.056	1	09/24/20 14:17	09/25/20 20:23	7440-09-7	
Sodium	ND	mg/L	1.0	0.26	1	09/24/20 14:17	09/25/20 20:23	7440-23-5	
6020 MET ICPMS	Analytical	Method: EPA 6	020B Pre	paration Met	thod: EF	PA 3005A			
	Pace Ana	lytical Services	- Peachtre	e Corners, C	GΑ				
Antimony	ND	mg/L	0.0030	0.00028	1	09/24/20 14:23	09/25/20 19:50	7440-36-0	
Barium	ND	mg/L	0.010	0.00071	1	09/24/20 14:23	09/25/20 19:50	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/24/20 14:23	09/25/20 19:50	7440-41-7	
Boron	0.011J	mg/L	0.10	0.0052	1	09/24/20 14:23	09/25/20 19:50	7440-42-8	
Chromium	ND	mg/L	0.010	0.00055	1	09/24/20 14:23	09/25/20 19:50	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	09/24/20 14:23	09/25/20 19:50	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/24/20 14:23	09/25/20 19:50	7439-92-1	
Lithium	ND	mg/L	0.030	0.00081	1	09/24/20 14:23	09/25/20 19:50	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00069	1	09/24/20 14:23	09/25/20 19:50	7439-98-7	
2540C Total Dissolved Solids	Analytical	Method: SM 24	450C-2011						
	Pace Ana	lytical Services	- Peachtre	e Corners, C	GA				
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		09/23/20 13:16		
2320B Alkalinity	Analytical	Method: SM 23	320B-2011						
	Pace Ana	lytical Services	- Asheville	•					
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	5.0	5.0	1		09/30/20 14:46		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		09/30/20 14:46		
Alkalinity, Total as CaCO3	ND	mg/L	5.0	5.0	1		09/30/20 14:46		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2D-2	011					
	Pace Ana	lytical Services	- Asheville	•					
Sulfide	ND	mg/L	0.10	0.050	1		09/22/20 14:49	18496-25-8	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0 Rev 2	2.1 1993					
		lytical Services							
Chloride	ND	mg/L	1.0	0.60	1		09/24/20 10:35	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/24/20 10:35		
Sulfate	ND	mg/L	1.0	0.50	1		09/24/20 10:35		



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:

lo.: 92495904

Sample: HGWC-120	Lab ID:	92495904009	Collecte	ed: 09/21/20) 13:48	Received: 09/	/22/20 09:25 M	atrix: Water	
_			Report						. .
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	- Charlotte	•					
рН	6.98	Std. Units			1		09/29/20 14:01		
6010D ATL ICP	Analytical	Method: EPA 6	010D Pre	paration Met	hod: EF	PA 3010A			
	Pace Anal	ytical Services	- Peachtre	e Corners, C	A				
Calcium	152	mg/L	1.0	0.070	1	09/24/20 14:20	09/25/20 21:50	7440-70-2	
Iron	0.39	mg/L	0.040	0.016	1	09/24/20 14:20	09/25/20 21:50	7439-89-6	
Magnesium	19.9	mg/L	0.050	0.0076	1	09/24/20 14:20	09/25/20 21:50	7439-95-4	
Manganese	1.3	mg/L	0.040	0.0017	1		09/25/20 21:50		
Potassium	7.4	mg/L	0.20	0.056	1	09/24/20 14:20			
Sodium	9.9	mg/L	1.0	0.26	1		09/25/20 21:50		
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prei	paration Met	hod: FF	PA 3005A			
	-	vtical Services							
Antimony	ND	mg/L	0.0030	0.00028	1	09/29/20 14:13	09/30/20 18:57	7440-36-0	
Barium	0.046	mg/L	0.0000	0.00020	1	09/29/20 14:13			
	0.040 ND	-	0.0030	0.000046	1	09/29/20 14:13			
Beryllium		mg/L							
Boron	0.93	mg/L	0.10	0.0052	1	09/29/20 14:13			
Chromium	0.00065J	mg/L	0.010	0.00055	1	09/29/20 14:13			
Cobalt	0.0041J	mg/L	0.0050	0.00038	1	09/29/20 14:13			
Lead	ND	mg/L	0.0050	0.000036	1		09/30/20 18:57		
Lithium	0.023J	mg/L	0.030	0.00081	1	09/29/20 14:13			
Molybdenum	0.043	mg/L	0.010	0.00069	1	09/29/20 14:13	09/30/20 18:57	7439-98-7	
2540C Total Dissolved Solids	Analytical	Method: SM 24	450C-2011						
	Pace Anal	ytical Services	- Peachtre	e Corners, C	BA				
Total Dissolved Solids	272	mg/L	10.0	10.0	1		09/24/20 10:28		
2320B Alkalinity	Analvtical	Method: SM 23	320B-2011						
	-	ytical Services							
Alkalinity,Bicarbonate (CaCO3)	599	mg/L	5.0	5.0	1		09/30/20 18:44		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		09/30/20 18:44		
Alkalinity, Total as CaCO3	599	mg/L	5.0	5.0	1		09/30/20 18:44		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2D-2	011					
		ytical Services							
Sulfide	ND	mg/L	0.10	0.050	1		09/24/20 11:48	18496-25-8	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0 Rev 2	2.1 1993					
		ytical Services							
Chloride	2.4	mg/L	1.0	0.60	1		09/24/20 19:43	16887-00-6	
Fluoride	0.33	mg/L	0.10	0.050	1		09/24/20 19:43		
Sulfate	225	mg/L	3.0	1.5	3		09/25/20 13:37		



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Sample: FD-03	Lab ID:	92495904010	Collecte	d: 09/21/20	00:00	Received: 09/	22/20 09:25 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP	Analytical	Method: EPA 6	010D Prep	aration Met	thod: EF	PA 3010A			
	Pace Ana	lytical Services	- Peachtree	e Corners, C	GΑ				
Calcium	156	mg/L	1.0	0.070	1	09/24/20 14:20	09/25/20 21:55	7440-70-2	
Iron	0.40	mg/L	0.040	0.016	1	09/24/20 14:20	09/25/20 21:55	7439-89-6	
Magnesium	20.4	mg/L	0.050	0.0076	1	09/24/20 14:20	09/25/20 21:55	7439-95-4	
Manganese	1.4	mg/L	0.040	0.0017	1	09/24/20 14:20	09/25/20 21:55	7439-96-5	
Potassium	7.6	mg/L	0.20	0.056	1	09/24/20 14:20	09/25/20 21:55	7440-09-7	
Sodium	10.2	mg/L	1.0	0.26	1	09/24/20 14:20	09/25/20 21:55	7440-23-5	
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prep	aration Met	thod: EF	PA 3005A			
	Pace Ana	lytical Services	- Peachtree	e Corners, C	GΑ				
Antimony	ND	mg/L	0.0030	0.00028	1	09/29/20 14:13	09/30/20 19:03	7440-36-0	
Barium	0.047	mg/L	0.010	0.00071	1	09/29/20 14:13	09/30/20 19:03	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/29/20 14:13	09/30/20 19:03	7440-41-7	
Boron	0.92	mg/L	0.10	0.0052	1	09/29/20 14:13	09/30/20 19:03	7440-42-8	
Chromium	ND	mg/L	0.010	0.00055	1	09/29/20 14:13	09/30/20 19:03	7440-47-3	
Cobalt	0.0041J	mg/L	0.0050	0.00038	1	09/29/20 14:13	09/30/20 19:03	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	09/29/20 14:13	09/30/20 19:03	7439-92-1	
Lithium	0.023J	mg/L	0.030	0.00081	1	09/29/20 14:13	09/30/20 19:03	7439-93-2	
Molybdenum	0.044	mg/L	0.010	0.00069	1	09/29/20 14:13	09/30/20 19:03	7439-98-7	
2540C Total Dissolved Solids	Analytical	Method: SM 24	450C-2011						
	Pace Ana	lytical Services	- Peachtree	e Corners, C	GΑ				
Total Dissolved Solids	270	mg/L	10.0	10.0	1		09/24/20 10:28		
2320B Alkalinity	Analytical	Method: SM 23	320B-2011						
-	Pace Ana	lytical Services	- Asheville						
Alkalinity,Bicarbonate (CaCO3)	311	mg/L	5.0	5.0	1		10/01/20 16:22		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		10/01/20 16:22		
Alkalinity, Total as CaCO3	311	mg/L	5.0	5.0	1		10/01/20 16:22		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2D-20	11					
	Pace Ana	lytical Services	- Asheville						
Sulfide	ND	mg/L	0.10	0.050	1		09/24/20 11:48	18496-25-8	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	00.0 Rev 2	.1 1993					
	2	lytical Services							
Chloride	2.4	mg/L	1.0	0.60	1		09/24/20 19:58	16887-00-6	
Fluoride	0.36	mg/L	0.10	0.050	1		09/24/20 19:58		
Sulfate	226	mg/L	3.0	1.5	3		09/25/20 13:51		



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:

No.: 92495904

Sample: HGWC-125	Lab ID:	92495904011	Collecte	ed: 09/21/20) 12:07	Received: 09/	22/20 09:25 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	s - Charlotte	;					
рН	6.22	Std. Units			1		09/29/20 14:01		
6010D ATL ICP	Analytical	Method: EPA	6010D Pre	paration Met	hod: E	PA 3010A			
	•	ytical Services							
Calcium	155	mg/L	1.0	0.070	1	09/24/20 14:20	09/25/20 21:59	7440-70-2	
Iron	0.13	mg/L	0.040	0.016	1	09/24/20 14:20	09/25/20 21:59	7439-89-6	
Magnesium	24.3	mg/L	0.050	0.0076	1	09/24/20 14:20	09/25/20 21:59	7439-95-4	
Manganese	2.3	mg/L	0.040	0.0017	1	09/24/20 14:20	09/25/20 21:59	7439-96-5	
Potassium	3.8	mg/L	0.20	0.056	1	09/24/20 14:20			
Sodium	22.0	mg/L	1.0	0.26	1		09/25/20 21:59		
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: E	PA 3005A			
	Pace Anal	ytical Services	s - Peachtre	e Corners, C	SA				
Antimony	ND	mg/L	0.0030	0.00028	1	09/29/20 14:13	09/30/20 19:09	7440-36-0	
Barium	0.042	mg/L	0.010	0.00071	1	09/29/20 14:13	09/30/20 19:09	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	09/29/20 14:13	09/30/20 19:09	7440-41-7	
Boron	1.4	mg/L	0.10	0.0052	1		09/30/20 19:09		
Chromium	ND	mg/L	0.010	0.00055	1	09/29/20 14:13			
Cobalt	0.012	mg/L	0.0050	0.00038	1	09/29/20 14:13			
Lead	ND	mg/L	0.0050	0.000036	1	09/29/20 14:13			
Lithium	0.0038J	mg/L	0.030	0.00081	1	09/29/20 14:13			
Molybdenum	ND	mg/L	0.030	0.00069	1		09/30/20 19:09		
2540C Total Dissolved Solids	Analytical	Method: SM 2	2450C-2011						
	-	ytical Services		e Corners, C	SA				
Total Dissolved Solids	956	mg/L	20.0	20.0	1		09/24/20 10:28		
2320B Alkalinity	Analytical	Method: SM 2	2320B-2011						
	Pace Anal	ytical Services	s - Asheville						
Alkalinity,Bicarbonate (CaCO3)	205	mg/L	5.0	5.0	1		09/30/20 19:13		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		09/30/20 19:13		
Alkalinity, Total as CaCO3	205	mg/L	5.0	5.0	1		09/30/20 19:13		
4500S2D Sulfide Water	Analytical	Method: SM 4	1500-S2D-2	011					
	Pace Anal	ytical Services	s - Asheville						
Sulfide	ND	mg/L	0.10	0.050	1		09/24/20 11:48	18496-25-8	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
-	Pace Anal	ytical Services	s - Asheville						
Chloride	12.1	mg/L	1.0	0.60	1		09/24/20 20:12	16887-00-6	
Fluoride	0.11	mg/L	0.10	0.050	1		09/24/20 20:12	16984-48-8	
Sulfate	352	mg/L	5.0	2.5	5		09/25/20 14:05		



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:

92495904

Sample: HGWA-45D	Lab ID:	92495904012	Collected	d: 09/25/20	0 13:50	Received: 09/	28/20 09:40 M	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytica	I Method:							
	Pace Ana	alytical Services	- Charlotte						
Performed by	CUSTOME				1		09/29/20 14:01		
	R	.							
рН	7.57	Std. Units			1		09/29/20 14:01		
6010D ATL ICP	Analytica	I Method: EPA 6	010D Prepa	aration Met	hod: EF	PA 3010A			
	Pace Ana	alytical Services	- Peachtree	Corners, C	βA				
Calcium	56.8	mg/L	1.0	0.070	1	10/01/20 18:49	10/05/20 19:27	7440-70-2	
Iron	0.48	mg/L	0.040	0.016	1	10/01/20 18:49	10/05/20 19:27		
Magnesium	19.4	mg/L	0.050	0.0076	1	10/01/20 18:49	10/05/20 19:27		
Manganese	0.053	mg/L	0.040	0.0017	1	10/01/20 18:49			
Potassium	2.1	mg/L	0.20	0.056	1	10/01/20 18:49	10/05/20 19:27		
Sodium	19.0	mg/L	1.0	0.26	1		10/05/20 19:27		
6020 MET ICPMS	Analytica	I Method: EPA 6		aration Met	hod. EE	24 30054			
	-	alytical Services				//0000//			
Antimony	ND	mg/L	0.0030	0.00028	1	10/02/20 15:00	10/06/20 19:05	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00020	1	10/02/20 15:00	10/06/20 19:05		
Barium	0.49	mg/L	0.000	0.00078	1		10/06/20 19:05		
Beryllium	0.49 ND	mg/L		0.000046	1	10/02/20 15:00	10/06/20 19:05		
Boron	0.16	mg/L	0.0030	0.0052	1	10/02/20 15:00		-	
Cadmium	ND	mg/L	0.0025	0.00032	1	10/02/20 15:00			
Chromium	ND	mg/L	0.010	0.00012	1	10/02/20 15:00	10/06/20 19:05		
Cobalt	ND	mg/L	0.0050	0.00038	1	10/02/20 15:00	10/06/20 19:05		
Lead	ND	mg/L		0.000036	1	10/02/20 15:00	10/06/20 19:05		
Lithium	0.0049J	mg/L	0.0030	0.00081	1	10/02/20 15:00	10/06/20 19:05		
Molybdenum	0.0049J 0.0014J	mg/L	0.030	0.00069	1	10/02/20 15:00	10/06/20 19:05		
Selenium	0.00145 ND	-	0.010	0.00009	1	10/02/20 15:00	10/06/20 19:05		
Thallium	ND	mg/L mg/L	0.010	0.0016	1	10/02/20 15:00	10/06/20 19:05		
manum	ND	mg/∟	0.0010	0.00014	1	10/02/20 15:00	10/00/20 19.05	7440-20-0	
7470 Mercury	Analytica	I Method: EPA 7	470A Prepa	aration Met	hod: EP	A 7470A			
	Pace Ana	alytical Services	- Peachtree	Corners, C	SA				
Mercury	ND	mg/L	0.00050	0.000078	1	10/13/20 08:00	10/13/20 13:07	7439-97-6	
2540C Total Dissolved Solids	Analytica	I Method: SM 24	450C-2011						
		alytical Services		Corners, C	ΒA				
Total Dissolved Solids	263	mg/L	10.0	10.0	1		10/01/20 15:25		
2320B Alkalinity	Analytica	I Method: SM 23	320B-2011						
··· ··· ··· ··· ··· ··· ··· ··· ··· ··	-	alytical Services							
Alkalinity,Bicarbonate (CaCO3)	272	mg/L	5.0	5.0	1		10/08/20 22:15		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		10/08/20 22:15		
Alkalinity, Total as CaCO3	272	mg/L	5.0	5.0	1		10/08/20 22:15		
		····9, 🛏	0.0	0.0			,		



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Sample: HGWA-45D	Lab ID: 92495904	012 Collecte	Collected: 09/25/20 13:50			Received: 09/28/20 09:40 Matrix: Water			
		Report							
Parameters	Results Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
4500S2D Sulfide Water	Analytical Method: Sl Pace Analytical Servi								
Sulfide	0.68 mg/L	0.10	0.050	1		09/29/20 13:52	18496-25-8		
300.0 IC Anions 28 Days	Analytical Method: El Pace Analytical Servi								
Chloride Fluoride	3.6 mg/L 0.21 mg/L	1.0 0.10	0.60 0.050	1 1		10/01/20 09:40 10/01/20 09:40			
Sulfate	6.8 mg/L	1.0	0.50	1		10/01/20 09:40	14808-79-8		



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No .:

92495904

Sample: MW-46D	Lab ID:	92495904013	Collecte	d: 09/25/20	0 11:10	Received: 09/	/28/20 09:40 M	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytica	Method:							
	Pace Ana	lytical Services	- Charlotte						
Performed by	CUSTOME R				1		09/29/20 14:01		
рН	7.56	Std. Units			1		09/29/20 14:01		
6010D ATL ICP	Analytica	I Method: EPA 6	010D Prep	paration Me	thod: EF	PA 3010A			
	-	lytical Services							
Calcium	78.3	mg/L	1.0	0.070	1	10/01/20 18:49	10/05/20 19:32	7440-70-2	
Iron	0.42	mg/L	0.040	0.016	1	10/01/20 18:49	10/05/20 19:32		
Magnesium	16.5	mg/L	0.050	0.0076	1				
Manganese	0.31	mg/L	0.040	0.0017	1	10/01/20 18:49			
Potassium	3.8	mg/L	0.20	0.056	1	10/01/20 18:49	10/05/20 19:32		
Sodium	53.6	mg/L	1.0	0.26	1		10/05/20 19:32		
6020 MET ICPMS	Analytica	I Method: EPA 6	020B Prep	paration Met	hod: EF	PA 3005A			
	-	lytical Services							
Antimony	ND	mg/L	0.0030	0.00028	1	10/02/20 15:00	10/06/20 19:11	7440-36-0	
Barium	0.040	mg/L	0.010	0.00071	1	10/02/20 15:00	10/06/20 19:11		
Beryllium	ND	mg/L	0.0030	0.000046	1		10/06/20 19:11		
Boron	0.51	mg/L	0.10	0.0052	1	10/02/20 15:00			
Chromium	0.00075J	mg/L	0.010	0.00055	1		10/06/20 19:11		
Cobalt	0.00041J	mg/L	0.0050	0.00038	1		10/06/20 19:11		
Lead	0.000048J	mg/L	0.0050	0.000036	1	10/02/20 15:00			
Lithium	0.015J	mg/L	0.030	0.00081	1	10/02/20 15:00	10/06/20 19:11		
Molybdenum	0.027	mg/L	0.010	0.00069	1	10/02/20 15:00			
2540C Total Dissolved Solids	Analytica	I Method: SM 24	450C-2011						
	-	lytical Services		e Corners, 0	ЗA				
Total Dissolved Solids	449	mg/L	10.0	10.0	1		10/01/20 15:25		
2320B Alkalinity	Analytica	Method: SM 23	320B-2011						
	-	lytical Services							
Alkalinity,Bicarbonate (CaCO3)	238	mg/L	5.0	5.0	1		10/08/20 22:23		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		10/08/20 22:23		
Alkalinity, Total as CaCO3	238	mg/L	5.0	5.0	1		10/08/20 22:23		
4500S2D Sulfide Water	Analytica	Method: SM 4	500-S2D-20)11					
		lytical Services							
Sulfide	0.30	mg/L	0.10	0.050	1		09/29/20 13:53	18496-25-8	
300.0 IC Anions 28 Days	Analytica	I Method: EPA 3	300.0 Rev 2	.1 1993					
, -		lytical Services							
Chloride	3.7	mg/L	1.0	0.60	1		10/01/20 09:55	16887-00-6	
Fluoride	0.68	mg/L	0.10	0.050	1		10/01/20 09:55		
Sulfate	149	mg/L	3.0	1.5	3		10/01/20 18:07		



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:

92495904

Performed by CUSTOME PH 6.93 6010D ATL ICP Analytic	Units al Method: alytical Services Std. Units al Method: EPA alytical Services mg/L mg/L	6010D Prej	paration Met	DF 1 1	Prepared	Analyzed 09/29/20 14:01 09/29/20 14:01	CAS No.	Qual
Performed by CUSTOME PH 6.93 6010D ATL ICP Analytic Pace An	alytical Services Std. Units al Method: EPA alytical Services mg/L mg/L	6010D Prej s - Peachtre	paration Met	1				
Performed by CUSTOME R pH 6.93 6010D ATL ICP Analytic: Pace An	Std. Units al Method: EPA alytical Services mg/L mg/L	6010D Prej s - Peachtre	paration Met	1				
PH 6.93 6010D ATL ICP Analytic: Pace An	al Method: EPA alytical Services mg/L mg/L	s - Peachtre		1				
pH 6.93 6010D ATL ICP Analytic Pace An	al Method: EPA alytical Services mg/L mg/L	s - Peachtre				09/29/20 14:01		
Pace An	alytical Services mg/L mg/L	s - Peachtre		had. ED				
	mg/L mg/L		e Corners, G	ilou. LF	PA 3010A			
Calcium 167	mg/L	1.0		iΑ				
	mg/L		0.070	1	10/01/20 18:49	10/05/20 20:03	7440-70-2	
Iron 0.044	•	0.040	0.016	1	10/01/20 18:49	10/05/20 20:03		
Magnesium 23.6	mg/L	0.050	0.0076	1	10/01/20 18:49			
Manganese 0.68	mg/L	0.040	0.0017	1	10/01/20 18:49			
Potassium 1.2	mg/L	0.20	0.056	1	10/01/20 18:49	10/05/20 20:03		
Sodium 35.3	mg/L	1.0	0.26	1		10/05/20 20:03		
6020 MET ICPMS Analytic	al Method: EPA	6020B Prep	paration Met	hod: EF	PA 3005A			
Pace Ar	alytical Services	s - Peachtre	e Corners, G	iΑ				
Antimony ND	mg/L	0.0030	0.00028	1	10/02/20 15:00	10/05/20 19:54	7440-36-0	
Barium 0.056	mg/L	0.010	0.00071	1	10/02/20 15:00	10/05/20 19:54		
Beryllium ND	mg/L	0.0030	0.000046	1		10/05/20 19:54		
Boron 2.3	mg/L	0.50	0.026	5	10/02/20 15:00		-	
Chromium ND	mg/L	0.010	0.00055	1	10/02/20 15:00			
Cobalt ND	mg/L	0.0050	0.00038	1	10/02/20 15:00	10/05/20 19:54		
Lead ND	mg/L	0.0050	0.000036	1	10/02/20 15:00			
Lithium 0.0076J	mg/L	0.030	0.00081	1	10/02/20 15:00	10/05/20 19:54		
Molybdenum ND	mg/L	0.000	0.00069	1	10/02/20 15:00	10/05/20 19:54		
2540C Total Dissolved Solids Analytic	al Method: SM 2	450C-2011						
-	alytical Services		e Corners, G	iΑ				
Total Dissolved Solids ND	mg/L	10.0	10.0	1		10/01/20 15:27		
2320B Alkalinity Analytic	al Method: SM 2	320B-2011						
-	alytical Services							
Alkalinity,Bicarbonate (CaCO3) 376	mg/L	5.0	5.0	1		10/09/20 11:39		
Alkalinity,Carbonate (CaCO3) ND	mg/L	5.0	5.0	1		10/09/20 11:39		
Alkalinity, Total as CaCO3 376	mg/L	5.0	5.0	1		10/09/20 11:39		
4500S2D Sulfide Water Analytic	al Method: SM 4	500-S2D-20	011					
	alytical Services							
Sulfide ND	mg/L	0.10	0.050	1		10/01/20 12:53	18496-25-8	
300.0 IC Anions 28 Days Analytic	al Method: EPA	300.0 Rev 2	2.1 1993					
-	alytical Services							
Chloride 23.2	mg/L	1.0	0.60	1		10/01/20 10:10	16887-00-6	
Fluoride 0.15	mg/L	0.10	0.050	1		10/01/20 10:10		
Sulfate 182	mg/L	4.0	2.0	4		10/01/20 18:22		



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No .:

92495904

Sample: HGWC-124	Lab ID:	92495904015	Collected	: 09/28/20	0 18:00	Received: 09/	29/20 08:55 N	latrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytica	I Method:							
	Pace Ana	alytical Services	- Charlotte						
Performed by	CUSTOME				1		09/29/20 14:01	1	
рН	R 7.27	Std. Units			1		09/29/20 14:01	1	
6010D ATL ICP	Analytica	I Method: EPA 6	010D Prepa	aration Met	hod: EF	PA 3010A			
	Pace Ana	alytical Services	- Peachtree	Corners, G	BA				
Calcium	107	mg/L	1.0	0.070	1	10/01/20 18:49	10/05/20 20:07	7 7440-70-2	
Iron	0.48	mg/L	0.040	0.016	1	10/01/20 18:49	10/05/20 20:07		
Magnesium	9.6	mg/L	0.050	0.0076	1	10/01/20 18:49	10/05/20 20:07		
Manganese	0.24	mg/L	0.040	0.0017	1	10/01/20 18:49			
Potassium	0.94	mg/L	0.040	0.056	1	10/01/20 18:49	10/05/20 20:07		
Sodium	5.6	mg/L	1.0	0.26	1		10/05/20 20:07		
6020 MET ICPMS	Analytica	I Method: EPA 6	020B Prepa	aration Met	hod: EF	PA 3005A			
	-	alytical Services							
Antimony	ND	mg/L	0.0030	0.00028	1	10/02/20 15:00	10/05/20 20:00	0 7440-36-0	
Barium	0.071	mg/L	0.010	0.00071	1	10/02/20 15:00	10/05/20 20:00) 7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	10/02/20 15:00	10/05/20 20:00) 7440-41-7	
Boron	0.43	mg/L	0.10	0.0052	1	10/02/20 15:00	10/07/20 11:17	7440-42-8	
Chromium	ND	mg/L	0.010	0.00055	1	10/02/20 15:00) 7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00038	1	10/02/20 15:00			
Lead	0.000075J	mg/L		0.000036	1	10/02/20 15:00			
Lithium	0.0011J	mg/L	0.030	0.00081	1	10/02/20 15:00	10/05/20 20:00		
Molybdenum	0.00090J	mg/L	0.010	0.00069	1	10/02/20 15:00			
2540C Total Dissolved Solids	-	Method: SM 24		_					
	Pace Ana	alytical Services	- Peachtree	Corners, G	ы́А				
Total Dissolved Solids	176	mg/L	10.0	10.0	1		10/01/20 15:27	7	
2320B Alkalinity		l Method: SM 23 alytical Services							
Alkalinity,Bicarbonate (CaCO3)	240	mg/L	5.0	5.0	1		10/09/20 11:51		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		10/09/20 11:51		
Alkalinity, Total as CaCO3	240	mg/L	5.0	5.0	1		10/09/20 11:51		
4500S2D Sulfide Water	Analytica	I Method: SM 45	500-S2D-201	11					
	Pace Ana	alytical Services	- Asheville						
Sulfide	ND	mg/L	0.10	0.050	1		10/01/20 12:54	18496-25-8	
300.0 IC Anions 28 Days	Analytica	I Method: EPA 3	00.0 Rev 2.	1 1993					
-	-	alytical Services							
Chloride	2.5	mg/L	1.0	0.60	1		10/01/20 10:25	5 16887-00-6	
		-							
Fluoride	ND	mg/L	0.10	0.050	1		10/01/20 10:25	5 16984-48-8	

REPORT OF LABORATORY ANALYSIS



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

-	Lab ID: 92495904016 Collected: 09/28/20 15:44 Received: 09/29/20 08:55 Matrix: Water									
			Report							
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
Field Data	Analytical	Method:								
	Pace Ana	lytical Services	- Charlotte	9						
Performed by	CUSTOME				1		09/29/20 14:01			
рН	R 6.90	Std. Units			1		09/29/20 14:01			
þu	0.50	Std. Offits			1		09/29/20 14:01			
6010D ATL ICP		Method: EPA 6		•		PA 3010A				
	Pace Ana	lytical Services	- Peachtre	e Corners, (G Α					
Calcium	173	mg/L	1.0	0.070	1	10/01/20 18:49	10/05/20 20:11	7440-70-2		
Iron	0.021J	mg/L	0.040	0.016	1	10/01/20 18:49	10/05/20 20:11	7439-89-6		
Magnesium	20.8	mg/L	0.050	0.0076	1	10/01/20 18:49	10/05/20 20:11	7439-95-4		
Manganese	1.6	mg/L	0.040	0.0017	1	10/01/20 18:49	10/05/20 20:11	7439-96-5		
Potassium	7.7	mg/L	0.20	0.056	1	10/01/20 18:49	10/05/20 20:11			
Sodium	8.0	mg/L	1.0	0.26	1	10/01/20 18:49	10/05/20 20:11			
6020 MET ICPMS	Analytical	Method: EPA 6	020B Pre	paration Me	thod: EF	A 3005A				
	-	lytical Services								
Antimony	ND	mg/L	0.0030	0.00028	1	10/02/20 15:00	10/05/20 20:06	7440-36-0		
Barium	0.053	mg/L	0.010	0.00071	1	10/02/20 15:00	10/05/20 20:06			
Beryllium	ND	mg/L	0.0030	0.000046	1	10/02/20 15:00	10/05/20 20:06			
Boron	1.3	mg/L	0.50	0.026	5	10/02/20 15:00	10/07/20 11:23			
Chromium	0.00058J	mg/L	0.010	0.020	1	10/02/20 15:00	10/05/20 20:06			
Cobalt	0.000385 0.0047J	0	0.0050	0.00033	1	10/02/20 15:00	10/05/20 20:06			
		mg/L								
Lead	ND	mg/L	0.0050	0.000036	1	10/02/20 15:00	10/05/20 20:06			
Lithium	0.032	mg/L	0.030	0.00081	1	10/02/20 15:00	10/05/20 20:06			
Molybdenum	0.062	mg/L	0.010	0.00069	1	10/02/20 15:00	10/05/20 20:06	7439-98-7		
2540C Total Dissolved Solids		Method: SM 24								
	Pace Ana	lytical Services	- Peachtre	e Corners, (GΑ					
Total Dissolved Solids	272	mg/L	10.0	10.0	1		10/02/20 17:25			
2320B Alkalinity	Analytical	Method: SM 23	320B-2011							
	Pace Ana	lytical Services	- Asheville	•						
Alkalinity,Bicarbonate (CaCO3)	315	mg/L	5.0	5.0	1		10/09/20 12:00			
Alkalinity, Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		10/09/20 12:00			
Alkalinity, Total as CaCO3	315	mg/L	5.0	5.0	1		10/09/20 12:00			
4500S2D Sulfide Water	Analytical	Method: SM 45	500-S2D-2	011						
	•	lytical Services								
Sulfide	ND	mg/L	0.10	0.050	1		10/01/20 12:54	18496-25-8		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3		2 1 1003						
JULI IN AMONS 20 Days	-	lytical Services								
Chlorido					1		10/01/20 10:40	16997 00 6		
Chloride	2.5	mg/L	1.0	0.60	1		10/01/20 10:40			
Fluoride	0.33	mg/L	0.10	0.050	1		10/01/20 10:40			
Sulfate	245	mg/L	5.0	2.5	5		10/01/20 19:06	14808-79-8		



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Results		Report						
Results						.		-
	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical	Method:							
-	lytical Services	- Charlotte	•					
CUSTOME				1		09/29/20 14:01		
R						00/20/20 11:01		
7.00	Std. Units			1		09/29/20 14:01		
Analytical	Method: EPA	6010D Pre	paration Met	hod: El	PA 3010A			
Pace Ana	lytical Services	- Peachtre	e Corners, G	A				
185	mg/L	1.0	0.070	1	10/01/20 18:49	10/05/20 20:16	7440-70-2	
0.033J	-	0.040	0.016	1	10/01/20 18:49			
22.9	-			1	10/01/20 18:49	10/05/20 20:16	7439-95-4	
1.5	-	0.040	0.0017	1	10/01/20 18:49	10/05/20 20:16	7439-96-5	
	-			1	10/01/20 18:49			
8.3	mg/L	1.0	0.26	1	10/01/20 18:49			
Analytical	Method: EPA	3020B Pro	naration Met	hod. El	24 30054			
-					A 3003A			
	,		,		40/00/00 45 00	40/05/00 00 40	7440.00.0	
	-							
	0							
	-							
	-							
	-							
	-							
	0							
	-							
0.062	mg/L	0.010	0.00069	1	10/02/20 15:00	10/05/20 20:12	7439-98-7	
Analytical	Method: SM 2	450C-2011						
Pace Ana	lytical Services	- Peachtre	e Corners, C	A				
272	mg/L	10.0	10.0	1		10/02/20 17:25		
Analytical	Method: SM 2	320B-2011						
•								
	-					40/00/00 40 00		
	0							
	•							
323	mg/L	5.0	5.0	1		10/09/20 12:08		
Analytical	Method: SM 4	500-S2D-2	011					
Pace Ana	lytical Services	- Asheville						
ND	mg/L	0.10	0.050	1		10/01/20 12:55	18496-25-8	
Analytical	Method: EPA '		2 1 1993					
-								
	•			1		10/01/20 10.55	16887-00-6	
	0							
	-							
	7.00 Analytical Pace Ana 185 0.033J 22.9 1.5 8.1 8.3 Analytical Pace Ana ND 0.058 ND 1.3 ND 0.0026J ND 0.034 0.062 Analytical Pace Ana 272 Analytical Pace Ana 272 Analytical Pace Ana 272 Analytical Pace Ana 272 Analytical Pace Ana	R7.00Std. UnitsAnalytical Method: EPA (Pace Analytical Services)185mg/L0.033.Jmg/L2.9mg/L1.5mg/L8.1mg/L8.3mg/LAnalytical Method: EPA (Pace Analytical Services)NDmg/L0.058mg/L1.3mg/L0.058mg/LNDmg/L1.3mg/L0.054mg/L0.055mg/L0.056mg/L0.034mg/L0.034mg/L0.034mg/L0.034mg/L272mg/LAnalytical Method: SM 2Pace Analytical Services272mg/LAnalytical Method: SM 2Pace Analytical Services323mg/LAnalytical Method: SM 4Pace Analytical Services323mg/LAnalytical Method: SM 4Pace Analytical ServicesNDmg/L323mg/LAnalytical Method: SM 4Pace Analytical ServicesNDmg/LAnalytical Method: SM 4Pace Analytical ServicesNDmg/L	R7.00Std. UnitsAnalytical Method: EPA 6010DPrePace Analytical Services - Peachtre185mg/L1.00.033Jmg/L0.04022.9mg/L0.0501.5mg/L0.0408.1mg/L0.208.3mg/L1.0Analytical Method: EPA 6020BPrePace Analytical Services - PeachtreNDmg/L0.00300.058mg/L0.010NDmg/L0.00300.058mg/L0.010NDmg/L0.00300.058mg/L0.010NDmg/L0.00300.058mg/L0.010NDmg/L0.00300.058mg/L0.010NDmg/L0.0050NDmg/L0.0050NDmg/L0.00500.034mg/L0.0300.062mg/L0.010Analytical Method: SM 2450C-2011Pace Analytical Services - Peachtre272mg/L10.0Analytical Method: SM 2320B-2011Pace Analytical Services - Asheville323mg/L5.0NDmg/L5.0NDmg/L5.0Analytical Method: SM 4500-S2D-2Pace Analytical Services - AshevilleNDmg/L0.10Analytical Method: EPA 300.0 Rev 2Pace Analytical Services - AshevilleNDmg/L0.10Analytical Method: EPA 300.0 Rev 2	R 7.00 Std. Units Analytical Method: EPA 6010D Preparation Method: Precentree Corners, Orners, Orner,	R 1 Analytical Method: EPA 6010D Preparation Method: EIA Pace Analytical Services - Peachtree Corners, GA 185 mg/L 1.0 0.070 1 0.033J mg/L 0.040 0.016 1 22.9 mg/L 0.040 0.0017 1 8.1 mg/L 0.20 0.056 1 8.3 mg/L 1.0 0.26 1 Analytical Method: EPA 6020B Preparation Method: EIA 60000 1 Pace Analytical Services - Peachtree Corners, GA 1 ND mg/L 0.0030 0.00028 1 0.058 mg/L 0.010 0.00071 1 ND mg/L 0.0030 0.00046 1 1.3 mg/L 0.010 0.00051 1 0.0026J mg/L 0.010 0.00038 1 0.010 mg/L 0.030 0.00048 1 0.034 mg/L 0.030 0.00038 1 0.0262 mg/L 0.010 0.00059 1	R 1 Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA 185 mg/L 1.0 0.070 1 10/01/20 18:49 0.033J mg/L 0.040 0.016 1 10/01/20 18:49 22.9 mg/L 0.040 0.0016 1 10/01/20 18:49 8.5 mg/L 0.040 0.0017 1 10/01/20 18:49 8.3 mg/L 0.20 0.056 1 10/01/20 18:49 8.3 mg/L 0.20 0.056 1 10/01/20 18:49 8.3 mg/L 0.20 0.056 1 10/01/20 18:49 8.3 mg/L 1.0 0.26 1 10/01/20 18:49 8.3 mg/L 0.0030 0.00028 1 10/02/20 15:00 0.058 mg/L 0.010 0.00071 1 10/02/20 15:00 ND mg/L 0.0030 0.00038 1 10/02/20 15:00 0.034 mg/L 0.030 0.00065 1 10/02/20 15:00	R 09/29/20 14:01 Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA 10/01/20 18:49 10/05/20 20:16 185 mg/L 1.0 0.070 1 10/01/20 18:49 10/05/20 20:16 22.9 mg/L 0.040 0.016 1 10/01/20 18:49 10/05/20 20:16 8.1 mg/L 0.20 0.056 1 10/01/20 18:49 10/05/20 20:16 8.1 mg/L 0.20 0.056 1 10/01/20 18:49 10/05/20 20:16 8.3 mg/L 1.0 0.26 1 10/01/20 18:49 10/05/20 20:16 Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA 1 10/02/20 15:00 10/05/20 20:12 ND mg/L 0.010 0.00071 1 10/02/20 15:00 10/05/20 20:12 ND mg/L 0.010 0.00055 1 10/02/20 15:00 10/05/20 20:12 ND mg/L 0.010 0.00038 1 10/02	R 1 09/29/20 14:01 Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA 185 mg/L 0.040 0.016 1 10/01/20 18:49 10/05/20 20:16 7439-89-6 22.9 mg/L 0.050 0.0076 1 10/01/20 18:49 10/05/20 20:16 7439-89-6 1.5 mg/L 0.050 0.0076 1 10/01/20 18:49 10/05/20 20:16 7439-89-5 8.1 mg/L 0.20 0.056 1 10/01/20 18:49 10/05/20 20:16 7439-96-5 8.1 mg/L 0.20 0.056 1 10/01/20 18:49 10/05/20 20:16 7440-09-7 8.3 mg/L 1.0 0.26 1 10/02/20 18:49 10/05/20 20:12 7440-43-5 Analytical Services - Peachtree Corners, GA ND mg/L 0.0030 0.00028 1 10/02/20 15:00 10/05/20 20:12 7440-39-3 ND mg/L 0.010 0.0005 1 10/02/20 15:00 10/05/20 2



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No .:

92495904

Sample: MW-41	Lab ID:	92495904018	Collected	I: 09/28/20) 19:05	Received: 09/	/29/20 08:55 M	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytica	I Method:							
	Pace Ana	alytical Services	- Charlotte						
Performed by	CUSTOME	-			1		09/29/20 14:01		
	R				•		00/20/20 1101		
рН	7.00	Std. Units			1		09/29/20 14:01		
6010D ATL ICP	Analytica	I Method: EPA 6	010D Prepa	aration Met	hod: EF	PA 3010A			
	Pace Ana	alytical Services	- Peachtree	Corners, G	βA				
Calcium	173	mg/L	1.0	0.070	1	10/01/20 18:49	10/05/20 20:20	7440-70-2	
Iron	0.16	mg/L	0.040	0.016	1	10/01/20 18:49	10/05/20 20:20		
Magnesium	21.4	mg/L	0.050	0.0076	1		10/05/20 20:20		
Manganese	0.85	mg/L	0.040	0.0017	1		10/05/20 20:20		
Potassium	6.7	mg/L	0.20	0.056	1		10/05/20 20:20		
Sodium	8.1	mg/L	1.0	0.26	1		10/05/20 20:20		
6020 MET ICPMS	Analytica	I Method: EPA 6	020B Pren	aration Met	hod: EE	A 3005A			
JUZU MET ICFM3	-	alytical Services				A 3003A			
	Face And	ayuca Services	- Feachilee	Comers, e	A				
Antimony	ND	mg/L	0.0030	0.00028	1	10/02/20 15:00	10/05/20 20:17	7440-36-0	
Barium	0.071	mg/L	0.010	0.00071	1	10/02/20 15:00	10/05/20 20:17	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000046	1	10/02/20 15:00	10/05/20 20:17	7440-41-7	
Boron	1.2	mg/L	0.50	0.026	5	10/02/20 15:00	10/07/20 11:46	7440-42-8	
Chromium	ND	mg/L	0.010	0.00055	1	10/02/20 15:00	10/05/20 20:17	7440-47-3	
Cobalt	0.00066J	mg/L	0.0050	0.00038	1	10/02/20 15:00	10/05/20 20:17	7440-48-4	
Lead	ND	mg/L	0.0050	0.000036	1	10/02/20 15:00	10/05/20 20:17	7439-92-1	
Lithium	0.028J	mg/L	0.030	0.00081	1	10/02/20 15:00	10/05/20 20:17	7439-93-2	
Molybdenum	0.036	mg/L	0.010	0.00069	1	10/02/20 15:00	10/05/20 20:17	7439-98-7	
2540C Total Dissolved Solids	Analytica	I Method: SM 2	450C-2011						
	•	alytical Services		Corners, G	6A				
Total Dissolved Solids	392	mg/L	10.0	10.0	1		10/02/20 17:25		
2220D Alkaliniku	Analytica	I Method: SM 2	2200 2011						
2320B Alkalinity	,	alytical Services							
Alkalinity,Bicarbonate (CaCO3)	313	mg/L	5.0	5.0	1		10/08/20 20:19		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		10/08/20 20:19		
Alkalinity, Total as CaCO3	313	mg/L	5.0	5.0	1		10/08/20 20:19		M1
4500S2D Sulfide Water	Analytica	I Method: SM 4	500-S2D-20 ⁷	11					
	Pace Ana	alytical Services	- Asheville						
Sulfide	ND	mg/L	0.10	0.050	1		10/01/20 12:55	18496-25-8	
300.0 IC Anions 28 Days	Analytica	I Method: EPA 3	300 0 Rev 2	1 1993					
over to Amona 20 Daya	,	alytical Services		. 1000					
Chloride	2.5	,	1.0	0.60	1		10/01/20 12:09	16887 00 6	
Fluoride	2.5 0.25	mg/L mg/l			1		10/01/20 12:09		
		mg/L	0.10	0.050	1				
Sulfate	154	mg/L	5.0	2.5	5		10/01/20 19:36	14808-79-8	



Project: Pace Project No.:	HAMM(924959		EMIANNUAL										
QC Batch:	56820)1		Analy	sis Metho	d: I	EPA 6010D						
QC Batch Method:	EPA 3	010A	Analysis Description:			ption: 6	6010D ATL						
				Labo	ratory:		Pace Analy	tical Serv	vices - Peach	tree Corne	rs, GA		
Associated Lab Sar	mples:	924959040	01, 9249590400	2, 9249590	4003, 924	95904005,	924959040	06					
METHOD BLANK:	301080	3			Matrix: W	/ater							
Associated Lab Sar	mples:	924959040	01, 9249590400	2, 9249590	4003, 924	95904005,	924959040	06					
				Blan	ık	Reporting							
Parar	meter		Units	Resu	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Calcium			mg/L		ND	1.	0	0.070	09/23/20 17	:40			
Iron			mg/L		ND	0.04		0.016	09/23/20 17				
Magnesium			mg/L		ND	0.05	0 (0.0076	09/23/20 17	:40			
Manganese			mg/L		ND	0.04	0 (0.0017	09/23/20 17	:40			
Potassium			mg/L		0.14J	0.2	0	0.056	09/23/20 17	:40			
Sodium			mg/L		ND	1.	0	0.26	09/23/20 17	:40			
	meter		Units	Spike Conc.		sult	LCS % Rec	Li		Qualifiers	_		
Calcium			mg/L		1	0.96J	9		80-120				
Iron			mg/L		1	0.97	9		80-120				
Magnesium			mg/L		1 1	0.99	9		80-120				
Manganese Potassium			mg/L mg/L		1 1	0.98 1.1	9 10		80-120 80-120				
Sodium			mg/L		1	1.1	10	-	80-120				
MATRIX SPIKE & N	MATRIX S	SPIKE DUPI	ICATE: 3010	805 MS Spike	MSD Spike	3010806 MS	MSD	MS	MSD	% Rec		Мах	
	r	Units	92495900004 Result	Spike Conc.	Conc.	Result	Result	% Rec	-	% Rec	RPD	RPD	Qual
Paramete					1	21.1	21.9	6		75-125	4	20	M1
		ma/L	20.4				0.97		93 95		2	20	
Calcium		mg/L mg/L	0.028J	1	1	0.96	0.97						
Calcium ron		-		1 1	1 1	0.96 1.8	1.8		94 97		2		
Calcium Iron Magnesium		mg/L	0.028J					ç	94 97 94 95	75-125	2 1	20	
Paramete Calcium Iron Magnesium Manganese Potassium		mg/L mg/L	0.028J 0.88	1	1	1.8	1.8	g g	-	75-125 75-125		20 20	

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

REPORT OF LABORATORY ANALYSIS



Project:	HAMMOND AP-3 SEMIANNUAL

Pace Project No.:	92495904
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QC Batch:	568747	Analysis Method:	EPA 6010D
QC Batch Method:	EPA 3010A	Analysis Description:	6010D ATL
		Laboratory:	Pace Analytical Services - Peachtree Corners, GA
Associated Lab Sam	nles: 92495904004 92495904007	92495904008	

92495904004, 92495904007, 92495904008 ciated Lab

METHOD BLANK: 301329	94	Matrix:	Water			
Associated Lab Samples:	92495904004, 92495904007, 92	495904008				
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.070	09/25/20 18:16	
Iron	mg/L	ND	0.040	0.016	09/25/20 18:16	
Magnesium	mg/L	ND	0.050	0.0076	09/25/20 18:16	
Manganese	mg/L	ND	0.040	0.0017	09/25/20 18:16	
Potassium	mg/L	ND	0.20	0.056	09/25/20 18:16	
Sodium	mg/L	ND	1.0	0.26	09/25/20 18:16	

LABORATORY CONTROL SAMPLE:	3013295
	00.0200

Parameter Units Conc. Result % Rec Limits Qualifi	
	Parameter Ur
Calcium mg/L 1 0.98J 98 80-120	Calcium m
Iron mg/L 1 0.97 97 80-120	ron mự
Magnesium mg/L 1 1.0 100 80-120	/lagnesium me
Manganese mg/L 1 1.0 101 80-120	/langanese mg
Potassium mg/L 1 1.0 105 80-120	Potassium mg
Sodium mg/L 1 1.1 107 80-120	Sodium mợ

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3013296

Parameter	Units	92495904004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	75.8	1	1	74.9	75.7	-84	-9	75-125	1	20	M1
Iron	mg/L	0.031J	1	1	0.94	0.96	91	93	75-125	2	20	
Magnesium	mg/L	5.6	1	1	6.4	6.4	81	89	75-125	1	20	
Manganese	mg/L	0.0055J	1	1	0.95	0.97	94	97	75-125	3	20	
Potassium	mg/L	0.90	1	1	1.8	1.9	93	99	75-125	3	20	
Sodium	mg/L	7.1	1	1	8.0	8.0	82	87	75-125	1	20	

3013297

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

REPORT OF LABORATORY ANALYSIS



QC Batch: 568748		Analysis Me	thod:	EPA 601	D			
QC Batch Method: EPA 30	10A	Analysis De	scription:	6010D A	ΓL			
		Laboratory:		Pace Ana	alytical Sei	rvices - Pea	chtree Co	orners, GA
Associated Lab Samples: 9	2495904009, 92495904010), 92495904011						
METHOD BLANK: 3013298		Matrix	Water					
Associated Lab Samples: 9	2495904009, 92495904010), 92495904011						
		Blank	Reporting	g .				
Parameter	Units	Result	Limit	Ν	1DL	Analyze	əd	Qualifiers
Calcium	mg/L	ND		1.0	0.070	09/25/20 2	20:40	
Iron	mg/L	ND	0.0	040	0.016	09/25/20 2	20:40	
Magnesium	mg/L	ND	0.0	050	0.0076	09/25/20 2	20:40	
Manganese	mg/L	ND	0.0	040	0.0017	09/25/20 2	20:40	
Potassium	mg/L	0.12J	0	.20	0.056	09/25/20 2	20:40	
Sodium	mg/L	ND		1.0	0.26	09/25/20 2	20:40	
LABORATORY CONTROL SA	MPLE: 3013299							
		Spike	LCS	LCS	9	6 Rec		
Parameter	Units	Conc.	Result	% Rec	L	_imits	Qualifi	ers
Calcium	mg/L	1	0.95J		95	80-120		
Iron	mg/l	1	0 03		03	80-120		

Iron	mg/L	1	0.93	93	80-120	
Magnesium	mg/L	1	0.95	95	80-120	
Manganese	mg/L	1	0.96	96	80-120	
Potassium	mg/L	1	1.1	107	80-120	
Sodium	mg/L	1	1.1	107	80-120	
MATRIX SPIKE & MATRIX SF	PIKE DUPLICATE: 3013300	MOD	3013301			

Parameter	Units	92495894022 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	75.3	1	1	79.7	76.2	438	83	75-125	5	20	M1
Iron	mg/L	ND	1	1	0.96	0.93	95	92	75-125	3	20	
Magnesium	mg/L	8.6	1	1	10	9.5	138	94	75-125	4	20	M1
Manganese	mg/L	0.0077J	1	1	0.99	0.96	98	95	75-125	3	20	
Potassium	mg/L	0.91	1	1	2.0	2.0	110	110	75-125	0	20	
Sodium	mg/L	8.4	1	1	9.8	9.4	137	92	75-125	5	20	M1

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

REPORT OF LABORATORY ANALYSIS



QC Batch:	570395		Analy	sis Metho	d:	EPA 6010D						
QC Batch Method:	EPA 3010A		Analy	sis Descri	ption:	6010D ATL						
			Labo	ratory:		Pace Analyti	cal Servic	es - Peacht	tree Corne	rs, GA		
Associated Lab Sar	nples: 924959	04012, 9249590401	3, 9249590	4014, 924	95904015,	9249590401	16, 924959	04017, 924	495904018	3		
METHOD BLANK:	3021771			Matrix: W	/ater							
Associated Lab Sar	nples: 924959	04012, 9249590401	3, 9249590	4014, 924	95904015,	9249590401	6, 924959	04017, 924	495904018	3		
			Blar	ık	Reporting							
Paran	neter	Units	Res	ult	Limit	MDL	-	Analyzed	Qı	alifiers	5	
Calcium		mg/L		ND	1.	0	0.070 10	0/05/20 18:	52			
Iron		mg/L		ND	0.04			0/05/20 18:				
Magnesium		mg/L		ND	0.05	0 0	.0076 10	0/05/20 18:	52			
Manganese		mg/L		ND	0.04			0/05/20 18:				
Potassium		mg/L		ND	0.2			0/05/20 18:				
Sodium		mg/L		ND	1.	U	0.26 10	0/05/20 18:	52			
LABORATORY CO	NTROL SAMPLE	3021772										
			Spike	LC	S	LCS	% R	ec				
Paran	neter	Units	Conc.	Res	sult	% Rec	Limi	ts (Qualifiers			
Calcium		mg/L		1	1.0	102	2 8	30-120		_		
Iron		mg/L		1	0.99	99) (30-120				
Magnesium		mg/L		1	1.0	101	8	30-120				
Manganese		mg/L		1	0.99	99		30-120				
Potassium		mg/L		1	1.0	104		30-120				
Sodium		mg/L		1	1.1	110) 8	30-120				
MATRIX SPIKE & M	ATRIX SPIKE DI	JPLICATE: 3021	773		3021774							
			MS	MSD								
		92496524015	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	r Un	its Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qua
Calcium		J/L 72.8	1	1	73.5	75.1	70	232	75-125	2	20	M1
ron	mg	ı/L 0.39	1	1	1.4	1.5	103	107	75-125	3		
Magnesium	mg		1	1	13.8	14.1	96	132	75-125	3		M1
Manganese	mg		1	1	9.5	9.7	86	110	75-125	2		
Potassium	mg		1	1	1.8	1.8	110	108	75-125	1		
Sodium	mg	J/L 8.1	1	1	9.1	9.3	95	124	75-125	3	20	

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

REPORT OF LABORATORY ANALYSIS



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:	92495904
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QC Batch:	568198	Analysis Method:	EPA 6020B
QC Batch Method:	EPA 3005A	Analysis Description:	6020 MET
		Laboratory:	Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92495904001, 92495904002, 92495904003, 92495904005, 92495904006

METHOD BLANK: 3010799

Associated Lab Samples: 92495904001, 92495904002, 92495904003, 92495904005, 92495904006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Parameter	Units			MDL	Analyzed	Quaimers
Antimony	mg/L	ND	0.0030	0.00028	09/23/20 17:04	
Arsenic	mg/L	ND	0.0050	0.00078	09/23/20 17:04	
Barium	mg/L	ND	0.010	0.00071	09/23/20 17:04	
Beryllium	mg/L	ND	0.0030	0.000046	09/23/20 17:04	
Boron	mg/L	ND	0.10	0.0052	09/23/20 17:04	
Cadmium	mg/L	ND	0.0025	0.00012	09/23/20 17:04	
Chromium	mg/L	ND	0.010	0.00055	09/23/20 17:04	
Cobalt	mg/L	ND	0.0050	0.00038	09/23/20 17:04	
Lead	mg/L	ND	0.0050	0.000036	09/23/20 17:04	
Lithium	mg/L	ND	0.030	0.00081	09/23/20 17:04	
Molybdenum	mg/L	ND	0.010	0.00069	09/23/20 17:04	
Selenium	mg/L	ND	0.010	0.0016	09/23/20 17:04	
Thallium	mg/L	ND	0.0010	0.00014	09/23/20 17:04	

Matrix: Water

LABORATORY CONTROL SAMPLE: 3010800

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	101	80-120	
vrsenic	mg/L	0.1	0.096	96	80-120	
arium	mg/L	0.1	0.095	95	80-120	
eryllium	mg/L	0.1	0.098	98	80-120	
oron	mg/L	1	1.0	104	80-120	
admium	mg/L	0.1	0.096	96	80-120	
nromium	mg/L	0.1	0.099	99	80-120	
balt	mg/L	0.1	0.098	98	80-120	
ad	mg/L	0.1	0.098	98	80-120	
hium	mg/L	0.1	0.10	100	80-120	
olybdenum	mg/L	0.1	0.096	96	80-120	
elenium	mg/L	0.1	0.090	90	80-120	
hallium	mg/L	0.1	0.097	97	80-120	

MATRIX SPIKE & MATRIX SP	PIKE DUPL	ICATE: 3010	801		3010802							
Parameter	Units	92495900004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
							/0 Kec	/0 Kec	LIIIIIIS			Quai
Antimony	mg/L				0.10	0.10				1	20	
Arsenic	mg/L	ND	0.1	0.1	0.098	0.097	97	97	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

MATRIX SPIKE & MATRIX	SPIKE DUPLI	CATE: 3010			3010802							
Parameter	g Units	92495900004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.024	0.1	0.1	0.12	0.12	100	100	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.094	0.093	94	93	75-125	1	20	
Boron	mg/L	0.013J	1	1	0.97	0.98	96	96	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.096	0.095	96	95	75-125	0	20	
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Cobalt	mg/L	ND	0.1	0.1	0.098	0.098	98	97	75-125	0	20	
Lead	mg/L	0.000049J	0.1	0.1	0.095	0.097	95	97	75-125	2	20	
Lithium	mg/L	ND	0.1	0.1	0.092	0.092	91	92	75-125	0	20	
Molybdenum	mg/L	ND	0.1	0.1	0.093	0.094	93	94	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.094	0.095	94	95	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.097	0.098	97	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: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:	92495904
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QC Batch: 568417		Analysis Metl	hod:	EPA 6020B		
QC Batch Method: EPA 3005A		Analysis Des	cription:	6020 MET		
		Laboratory:		Pace Analytical Se	rvices - Peachtree	Corners, GA
Associated Lab Samples: 92495904004						
METHOD BLANK: 3011604		Matrix:	Water			
Associated Lab Samples: 92495904004						
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.003	0.00028	09/23/20 18:33	
Barium	mg/L	ND	0.01	0 0.00071	09/23/20 18:33	
Beryllium	mg/L	ND	0.003	0.000046	09/23/20 18:33	
Boron	mg/L	ND	0.1	0 0.0052	09/23/20 18:33	
Chromium	mg/L	ND	0.01	0 0.00055	09/23/20 18:33	
Cobalt	mg/L	ND	0.005	0.00038	09/23/20 18:33	
Lead	mg/L	ND	0.005	0.000036	09/23/20 18:33	

LABORATORY CONTROL SAMPLE: 3011605

mg/L

mg/L

Lithium

Molybdenum

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	105	80-120	
Barium	mg/L	0.1	0.099	99	80-120	
Beryllium	mg/L	0.1	0.10	102	80-120	
Boron	mg/L	1	1.0	104	80-120	
Chromium	mg/L	0.1	0.10	105	80-120	
Cobalt	mg/L	0.1	0.10	105	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.11	106	80-120	
Molybdenum	mg/L	0.1	0.10	103	80-120	

ND

ND

0.030

0.010

0.00081

09/23/20 18:33

0.00069 09/23/20 18:33

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 3011	606 MS	MSD	3011607							
Parameter	9 Units	2495876001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.099	101	99	75-125	2	20	
Barium	mg/L	0.030	0.1	0.1	0.13	0.13	96	95	75-125	1	20	
Beryllium	mg/L	0.00012J	0.1	0.1	0.098	0.095	98	95	75-125	2	20	
Boron	mg/L	0.0065J	1	1	1.0	0.98	100	97	75-125	3	20	
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	103	103	75-125	0	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	1	20	
Lead	mg/L	0.00065J	0.1	0.1	0.098	0.099	97	99	75-125	2	20	
Lithium	mg/L	0.0014J	0.1	0.1	0.10	0.10	101	100	75-125	0	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	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.

REPORT OF LABORATORY ANALYSIS



HAMMOND AP-3 SEMIANNUAL Project:

Pace Project No.:	92495904
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Cobalt

Lead

QC Batch:	568749		Analysis Meth	nod:	EPA 6020B			
QC Batch Method:	EPA 3005A		Analysis Dese	cription:	6020 MET			
			Laboratory:		Pace Analytical Se	rvices - Peachtree	Corners, GA	
Associated Lab Sam	ples: 92495904007,	92495904008						
METHOD BLANK:	3013302		Matrix:	Water				
Associated Lab Sam	ples: 92495904007,	92495904008						
			Blank	Reporting				
Param	eter	Units	Result	Limit	MDL	Analyzed	Qualifiers	
Antimony		mg/L	ND	0.00	30 0.00028	09/25/20 18:19		
Barium		mg/L	ND	0.0	0.00071	09/25/20 18:19		
Beryllium		mg/L	ND	0.00	0.000046	09/25/20 18:19		
Boron		mg/L	ND	0.	10 0.0052	09/25/20 18:19		
Chromium		mg/L	ND	0.0	0.00055	09/25/20 18:19		

Lithium	mg/L	ND
Molybdenum	mg/L	ND

mg/L

mg/L

LABORATORY CONTROL SAMPLE: 3013303

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	105	80-120	
Barium	mg/L	0.1	0.099	99	80-120	
Beryllium	mg/L	0.1	0.097	97	80-120	
Boron	mg/L	1	0.97	97	80-120	
Chromium	mg/L	0.1	0.098	98	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	
Lead	mg/L	0.1	0.099	99	80-120	
Lithium	mg/L	0.1	0.10	103	80-120	
Molybdenum	mg/L	0.1	0.10	103	80-120	

ND

ND

0.0050

0.0050

0.030

0.010

0.00038

0.00081

0.000036

09/25/20 18:19

09/25/20 18:19

09/25/20 18:19

0.00069 09/25/20 18:19

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 3013	304		3013305							
Parameter	9 Units	2495894014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.11	104	108	75-125	4	20	
Barium	mg/L	0.099	0.1	0.1	0.18	0.19	85	89	75-125	2	20	
Beryllium	mg/L	ND	0.1	0.1	0.096	0.099	96	99	75-125	4	20	
Boron	mg/L	2.0	1	1	3.0	3.1	102	106	75-125	2	20	
Chromium	mg/L	ND	0.1	0.1	0.10	0.11	101	108	75-125	7	20	
Cobalt	mg/L	ND	0.1	0.1	0.098	0.10	98	101	75-125	4	20	
Lead	mg/L	ND	0.1	0.1	0.097	0.10	97	101	75-125	4	20	
Lithium	mg/L	0.0032J	0.1	0.1	0.095	0.099	92	96	75-125	4	20	
Molybdenum	mg/L	0.014	0.1	0.1	0.12	0.12	105	109	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.

REPORT OF LABORATORY ANALYSIS



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:	92495904
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QC Batch:	569670	Analysis Method:	EPA 6020B
QC Batch Method:	EPA 3005A	Analysis Description:	6020 MET
		Laboratory:	Pace Analytical Services - Peachtree Corners, GA
Associated Lab Sam	ples: 92495904009, 92495904010, 92	2495904011	

METHOD BLANK: 30178	42	Matrix:	Water			
Associated Lab Samples:	92495904009, 92495904010,	92495904011				
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	09/30/20 17:26	
Barium	mg/L	ND	0.010	0.00071	09/30/20 17:26	
Beryllium	mg/L	ND	0.0030	0.000046	09/30/20 17:26	
Boron	mg/L	ND	0.10	0.0052	09/30/20 17:26	
Chromium	mg/L	ND	0.010	0.00055	09/30/20 17:26	
Cobalt	mg/L	ND	0.0050	0.00038	09/30/20 17:26	
Lead	mg/L	ND	0.0050	0.000036	09/30/20 17:26	
Lithium	mg/L	ND	0.030	0.00081	09/30/20 17:26	
Molybdenum	mg/L	ND	0.010	0.00069	09/30/20 17:26	

LABORATORY CONTROL SAMPLE: 3017843

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Barium	mg/L	0.1	0.099	99	80-120	
Beryllium	mg/L	0.1	0.097	97	80-120	
Boron	mg/L	1	0.98	98	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.095	95	80-120	
Lead	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.098	98	80-120	
Molybdenum	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 3017	844		3017845							
Parameter	9 Units	2495894020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	0.00029J	0.1	0.1	0.099	0.10	99	102	75-125	3	20	
Barium	mg/L	0.052	0.1	0.1	0.15	0.15	98	101	75-125	2	20	
Beryllium	mg/L	0.00011J	0.1	0.1	0.087	0.090	87	90	75-125	4	20	
Boron	mg/L	1.6	1	1	2.4	2.5	79	89	75-125	4	20	
Chromium	mg/L	0.00056J	0.1	0.1	0.093	0.094	93	93	75-125	1	20	
Cobalt	mg/L	0.0032J	0.1	0.1	0.094	0.096	91	92	75-125	2	20	
Lead	mg/L	0.00015J	0.1	0.1	0.093	0.093	93	92	75-125	0	20	
Lithium	mg/L	0.028J	0.1	0.1	0.12	0.12	87	89	75-125	2	20	
Molybdenum	mg/L	0.032	0.1	0.1	0.13	0.13	95	99	75-125	3	20	

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

REPORT OF LABORATORY ANALYSIS



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.:	92495904
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QC Batch: 570	626	Analysis Meth	nod:	EPA 6020B		
QC Batch Method: EPA	QC Batch Method: EPA 3005A		cription:	6020 MET		
		Laboratory:		Pace Analytical Se	rvices - Peachtree	Corners, GA
Associated Lab Samples:	92495904012, 92495904013					
METHOD BLANK: 3022	872	Matrix:	Water			
Associated Lab Samples:	92495904012, 92495904013					
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony		ND	0.003	0 0.00028	10/06/20 17:21	
Arsenic	mg/L	ND	0.005	0 0.00078	10/06/20 17:21	
Barium	mg/L	ND	0.01	0 0.00071	10/06/20 17:21	
Beryllium	mg/L	ND	0.003	0 0.000046	10/06/20 17:21	
Boron	mg/L	ND	0.1	0 0.0052	10/06/20 17:21	
Cadmium	mg/L	ND	0.002	5 0.00012	10/06/20 17:21	
Chromium	mg/L	ND	0.01	0 0.00055	10/06/20 17:21	
Cobalt	mg/L	ND	0.005	0 0.00038	10/06/20 17:21	
Lead	mg/L	ND	0.005	0 0.000036	10/06/20 17:21	
Lithium	mg/L	ND	0.03	0 0.00081	10/06/20 17:21	
Molybdenum	mg/L	ND	0.01	0 0.00069	10/06/20 17:21	
Selenium	mg/L	ND	0.01	0 0.0016	10/06/20 17:21	
Thallium	mg/L	ND	0.001	0 0.00014	10/06/20 17:21	

LABORATORY CONTROL SAMPLE: 3022873

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.12	116	80-120	
rsenic	mg/L	0.1	0.097	97	80-120	
arium	mg/L	0.1	0.10	101	80-120	
eryllium	mg/L	0.1	0.10	100	80-120	
oron	mg/L	1	0.99	99	80-120	
admium	mg/L	0.1	0.096	96	80-120	
nromium	mg/L	0.1	0.10	100	80-120	
balt	mg/L	0.1	0.098	98	80-120	
ad	mg/L	0.1	0.099	99	80-120	
hium	mg/L	0.1	0.10	100	80-120	
olybdenum	mg/L	0.1	0.10	100	80-120	
elenium	mg/L	0.1	0.094	94	80-120	
hallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SP	PIKE DUPLI	CATE: 3022	874		3022875							
	g	2496914020	MS Spike	MSD 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	0.12	0.12	115	116	75-125	0	20	
Arsenic	mg/L	ND	0.1	0.1	0.097	0.098	97	98	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 3022	••••		3022875							
Parameter	g Units	2496914020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.15	0.1	0.1	0.25	0.25	102	99	75-125	1	20	
Beryllium	mg/L	0.00010J	0.1	0.1	0.095	0.096	95	96	75-125	1	20	
Boron	mg/L	0.17	1	1	1.1	1.1	94	95	75-125	1	20	
Cadmium	mg/L	ND	0.1	0.1	0.095	0.097	95	97	75-125	2	20	
Chromium	mg/L	0.00063J	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Cobalt	mg/L	ND	0.1	0.1	0.097	0.099	97	98	75-125	1	20	
Lead	mg/L	0.00014J	0.1	0.1	0.094	0.096	94	96	75-125	2	20	
Lithium	mg/L	0.019J	0.1	0.1	0.11	0.11	92	96	75-125	3	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	99	100	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.093	0.095	93	95	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.096	0.097	96	97	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.



EPA 6020B 6020 MET

Pace Analytical Services - Peachtree Corners, GA

HAMMOND AP-3 SEMIANNUAL Project:

Pace Project No.:	92495904
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QC Batch:	570627	Analysis Method:
QC Batch Method:	EPA 3005A	Analysis Description:

Associated Lab Samples: 92495904014, 92495904015, 92495904016, 92495904017, 92495904018

Laboratory:

Matrix: Water

METHOD BLANK: 3022878

Associated Lab Samples:	92495904014, 92495904015, 92495904016, 92495904017, 92495904018
	Dianty Departies

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00028	10/05/20 18:29	
Barium	mg/L	ND	0.010	0.00071	10/05/20 18:29	
Beryllium	mg/L	ND	0.0030	0.000046	10/05/20 18:29	
Boron	mg/L	ND	0.10	0.0052	10/05/20 18:29	
Chromium	mg/L	ND	0.010	0.00055	10/05/20 18:29	
Cobalt	mg/L	ND	0.0050	0.00038	10/05/20 18:29	
Lead	mg/L	ND	0.0050	0.000036	10/05/20 18:29	
Lithium	mg/L	ND	0.030	0.00081	10/05/20 18:29	
Molybdenum	mg/L	ND	0.010	0.00069	10/05/20 18:29	

LABORATORY CONTROL SAMPLE: 3022879

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.096	96	80-120	
Beryllium	mg/L	0.1	0.10	100	80-120	
Boron	mg/L	1	1.0	101	80-120	
Chromium	mg/L	0.1	0.10	100	80-120	
Cobalt	mg/L	0.1	0.097	97	80-120	
Lead	mg/L	0.1	0.097	97	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	
Molybdenum	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 3022	880		3022881							
Parameter	9 Units	2498084008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.095	102	95	75-125	7	20	
Barium	mg/L	0.026	0.1	0.1	0.13	0.12	101	91	75-125	9	20	
Beryllium	mg/L	ND	0.1	0.1	0.099	0.096	99	96	75-125	4	20	
Boron	mg/L	0.053	1	1	1.1	1.1	105	103	75-125	2	20	
Chromium	mg/L	ND	0.1	0.1	0.10	0.096	103	95	75-125	8	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.093	100	93	75-125	7	20	
Lead	mg/L	ND	0.1	0.1	0.099	0.094	99	94	75-125	5	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.096	100	96	75-125	4	20	
Molybdenum	mg/L	0.0089J	0.1	0.1	0.11	0.10	100	93	75-125	7	20	

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

REPORT OF LABORATORY ANALYSIS



-,	1MOND AP-3 S 95904	SEMIANNUAL										
QC Batch: 572	2608		Analy	sis Metho	d:	EPA 7470A						
QC Batch Method: EP	A 7470A		-	sis Descri		7470 Mercu	irv					
				ratory:	•	Pace Analy	•	es - Peach	tree Corne	rs, GA		
Associated Lab Samples	924959040	005, 9249590400				,						
METHOD BLANK: 3032	2633			Matrix: W	ater							
Associated Lab Samples	924959040	005, 9249590400	6, 9249590	4012								
			Blar	ık	Reporting							
Parameter		Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Mercury		mg/L		ND	0.0005	0.0	00078 1	0/13/20 12:	38			
LABORATORY CONTRO	L SAMPLE:	3032634										
			Spike	LC	S	LCS	% F	Rec				
Parameter		Units	Conc.	Res	sult	% Rec	Lim	iits (Qualifiers			
Mercury		mg/L	0.002	5	0.0025	10	1	80-120		_		
MATRIX SPIKE & MATRI	X SPIKE DUPI	LICATE: 3032			3032636	6						
		02400924022	MS	MSD Spiles	MC	MCD	MC	MSD	0/ Dec		Max	
Parameter	Units	92499821002 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
	01110											
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0026	97	102	75-125	5	20	

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



- ,	AMMOND AP-3	SEMIANNUAL							
Pace Project No.: 9 QC Batch:	567147		Analysia	Acthoria	<u> </u>	VI 2450C-201	4		
			Analysis N		-				
QC Batch Method:	SM 2450C-2011		•	Description:			ssolved Solids		0
Associated Lab Samp	les: 92495904	1004	Laborator	y:	Pa	ace Analytica	I Services - Pe	achtree	Corners, GA
METHOD BLANK: 3	005362		Mati	ix: Water					
Associated Lab Samp	les: 92495904	4004							
			Blank	Report					
Parame	ter	Units	Result	Limi	t	MDL	Analy	zed	Qualifiers
Total Dissolved Solids		mg/L	N	D	10.0	1	0.0 09/17/20	15:18	
LABORATORY CONT	ROL SAMPLE:	3005363							
_			Spike	LCS		LCS	% Rec	-	
Parame	ter	Units	Conc.	Result		% Rec	Limits	Qua	lifiers
Total Dissolved Solids		mg/L	400	384	1	96	84-108		
SAMPLE DUPLICATE	: 3005364								
			9249587000	5 Dup			Max		
Parame	ter	Units	Result	Resu	lt	RPD	RPD		Qualifiers
Total Dissolved Solids		mg/L	N	D	ND			10	
SAMPLE DUPLICATE	: 3005365								
Parame	tor	Lipito	9249590000 Booult			חחם	Max		Qualifiers
		Units	Result	Resu		RPD	RPD		Qualifiers
Total Dissolved Solids		mg/L	189	90	1860		2	10	

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



Project:	HAMMOND AP-3	SEMIANNUAL						
Pace Project No.:	92495904							
QC Batch:	567872		Analysis M	lethod:	SM 2450C-2	2011		
QC Batch Method:	SM 2450C-2011		Analysis D	escription:	2540C Total	Dissolved Solids	;	
			Laboratory	r:	Pace Analyt	ical Services - Pe	achtree Corne	ers, GA
Associated Lab Sar	mples: 92495904	001, 9249590400	02, 92495904003	, 9249590400	5, 9249590400	06		
METHOD BLANK:	3009209		Matri	x: Water				
Associated Lab Sar	mples: 92495904	001, 9249590400	2, 92495904003	, 9249590400	5, 9249590400	06		
			Diank	Reportin	a			
			Blank	Reportin	g			
Para	meter	Units	Result	Limit	9 MDI	_ Analy	zed Q	ualifiers
Para Total Dissolved Sol		Units mg/L		Limit	0	Analy		alifiers
			Result	Limit		,		Qualifiers
	lids		Result	Limit		,		Qualifiers
Total Dissolved Sol	lids	mg/L	Result	Limit		,		Qualifiers
Total Dissolved Sol	lids	mg/L	Result	D Limit	MDI 10.0	10.0 09/17/20		

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: H	AMMOND AP-3	SEMIANNUAL						
Pace Project No.: 9	2495904							
QC Batch:	568395		Analysis N	lethod:	SM 2450C-2	2011		
QC Batch Method:	SM 2450C-2011		Analysis D	escription:	2540C Total	Dissolved Solids	6	
			Laboratory	/:	Pace Analyti	cal Services - Pe	eachtree	e Corners, GA
Associated Lab Samp	les: 92495904	007, 92495904008						
METHOD BLANK: 3	011476		Matri	ix: Water				
Associated Lab Samp	les: 92495904	007, 92495904008						
			Blank	Reporting				
Parame	ter	Units	Result	Limit	MDL	. Analy	/zed	Qualifiers
Total Dissolved Solids		mg/L	N	D 10).0	10.0 09/23/20	0 13:15	
LABORATORY CONT	ROL SAMPLE:	3011477						
			Spike	LCS	LCS	% Rec		
Parame	ter	Units	Conc.	Result	% Rec	Limits	Qua	alifiers
Total Dissolved Solids		mg/L	400	375	94	84-108	5	
SAMPLE DUPLICATE	:: 3011478		92495894018	3 Dup		Мах		
Parame	ter	Units	Result	Result	RPD			Qualifiers
Total Dissolved Solids		mg/L	38		04	6	10	
				- 7		0	10	
SAMPLE DUPLICATE	: 3011479							
			92495870020) Dup		Max		
Parame	ter	Units	Result	Result	RPD	RPD	·	Qualifiers
Total Dissolved Solids		mg/L	93.	0 91	1.0	2	10	

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



Project: Pace Project No.:	HAMMOND AP-3 92495904	SEMIANNUAL								
QC Batch:	568648		Analysis Me	ethod:	SM 2450C-2011					
QC Batch Method:	C Batch Method: SM 2450C-2011				2540C Total	Dissolv	ed Solids		e Corners, GAQualifiersQualifiers	
			Laboratory:		Pace Analytic	cal Serv	vices - Pea	chtree	Qualifiers	
Associated Lab Sam), 92495904011									
METHOD BLANK:	3012738		Matrix	: Water						
Associated Lab Sam	nples: 92495904	4009, 92495904010), 92495904011							
			Blank	Reporting						
Parameter Total Dissolved Solids		Units	Result	Limit	MDL		Analyz	ed	Qualifiers	
		mg/L	ND	10	.0	10.0	09/24/20	10:26		
LABORATORY CON	ITROL SAMPLE:	3012739								
			Spike	LCS	LCS		Rec			
Parameter		Units	Conc.	Result	% Rec	Li	imits	Qua	alifiers	
Total Dissolved Solid	ds	mg/L	400	390	98		84-108			
SAMPLE DUPLICAT	TE: 3012740			_						
Dorom	otor	Linita	92497007001	Dup	חחח		Max		Qualifiara	
Paran		Units	Result	Result	RPD		RPD		Qualifiers	
Total Dissolved Solid	ds	mg/L	207	20)4	1		10		
SAMPLE DUPLICAT	TE: 3012944									
D		l leite	92496771001	Dup	000		Max		Qualifiana	
Paran		Units	Result	Result	RPD		RPD		Qualifiers	
Total Dissolved Solid	ds	mg/L	158	15	57	1		10		

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



QC Batch Method: SM 2450C-2011 Analysis Description: 2540C Total Dissolved Solids Associated Lab Samples: 92495904012, 92495904013 Pace Analytical Services - Peachtree Corners, 0 METHOD BLANK: 3020458 Matrix: Water Associated Lab Samples: 92495904012, 92495904013 METHOD BLANK: 3020458 Associated Lab Samples: 92495904012, 92495904013 Blank Reporting Parameter Units	GA
QC Batch Method: SM 2450C-2011 Analysis Description: 2540C Total Dissolved Solids Laboratory: Pace Analytical Services - Peachtree Corners, 0 Associated Lab Samples: 92495904012, 92495904013 METHOD BLANK: 3020458 Associated Lab Samples: 92495904012, 92495904013 Blank Reporting Parameter Units	GA
Laboratory: Pace Analytical Services - Peachtree Corners, Orners, GA	
Associated Lab Samples: 92495904012, 92495904013 METHOD BLANK: 3020458 Matrix: Water Associated Lab Samples: 92495904012, 92495904013 Blank Reporting Parameter Units Result Limit MDL Analyzed Qualif	GA
METHOD BLANK: 3020458 Matrix: Water Associated Lab Samples: 92495904012, 92495904013 Blank Reporting Parameter Units Result Limit MDL Analyzed Qualif	
Associated Lab Samples: 92495904012, 92495904013 Blank Reporting Parameter Units Result Limit MDL Analyzed Qualif	
Blank Reporting Parameter Units Result Limit MDL Analyzed Qualifier	
Parameter Units Result Limit MDL Analyzed Qualif	
Parameter Units Result Limit MDL Analyzed Qualif	
Total Dissolved Solids mg/L ND 10.0 10/01/20 15:22	ifiers
-	
LABORATORY CONTROL SAMPLE: 3020459	
Spike LCS LCS % Rec	
Parameter Units Conc. Result % Rec Limits Qualifiers	
Total Dissolved Solids mg/L 400 412 103 84-108	
SAMPLE DUPLICATE: 3020460	
92497125005 Dup Max	
Parameter Units Result Result RPD RPD Qualifiers	5
Total Dissolved Solidsmg/L134142610	
SAMPLE DUPLICATE: 3020461	
92497146006 Dup Max	
	S
Parameter Units Result Result RPD RPD Qualifiers	-

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



Project: HAMMON	ND AP-3 SEMIANNUAL					
Pace Project No.: 92495904	1					
QC Batch: 570220		Analysis Me	ethod:	SM 2450C-201	1	
QC Batch Method: SM 2450	0C-2011	Analysis De	escription:	2540C Total Di	ssolved Solids	
		Laboratory:		Pace Analytica	I Services - Pea	achtree Corners, GA
Associated Lab Samples: 92	2495904014, 92495904015					
METHOD BLANK: 3020462		Matrix	: Water			
Associated Lab Samples: 92	2495904014, 92495904015					
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyz	ed Qualifiers
Total Dissolved Solids	mg/L	ND) 10	.0 1	0.0 10/01/20	15:26
LABORATORY CONTROL SAI	MPLE: 3020463					
LABORATORY CONTROL SA	MPLE: 3020463	Spike	LCS	LCS	% Rec	
LABORATORY CONTROL SAI Parameter	MPLE: 3020463 Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
						Qualifiers
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Parameter	Units mg/L	Conc.	Result	% Rec	Limits	Qualifiers
Parameter Total Dissolved Solids SAMPLE DUPLICATE: 30204	Units mg/L 464	Conc. 400 92496524014	Result	% Rec 103	Limits 84-108 Max	
Parameter Total Dissolved Solids	Units mg/L	Conc	Result	% Rec	Limits 84-108	Qualifiers

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



Project: Pace Project No.:	HAMMOND AP-3 92495904	SEMIANNUAL						
QC Batch:	570638		Analysis Me	ethod:	SM 2450C-2	011		
QC Batch Method:	SM 2450C-2011		Analysis De		2540C Total	Dissolved Solids	i	Qualifiers
			Laboratory:		Pace Analytic	cal Services - Pe	achtree	Corners, GA
Associated Lab Sam	nples: 92495904	016, 92495904017,	92495904018					
METHOD BLANK:	3022933		Matrix	: Water				
Associated Lab Sam	nples: 92495904	016, 92495904017,	92495904018					
			Blank	Reporting				
Param	neter	Units	Result	Limit	MDL	Analy	zed	Qualifiers
Total Dissolved Solid	ds	mg/L	ND) 1(0.0	10.0 10/02/20) 17:24	
LABORATORY CON	ITROL SAMPLE:	3022934						
			Spike	LCS	LCS	% Rec		
Param	neter	Units	Conc.	Result	% Rec	Limits	Qua	lifiers
Total Dissolved Solid	ds	mg/L	400	419	105	84-108		
SAMPLE DUPLICAT	FE: 3022936							
D		11-20-	92497532034	Dup	000	Max		Qualifiant
Param		Units	Result	Result	RPD	RPD		Qualifiers
Total Dissolved Solid	ds	mg/L	ND	1 (ND		10	
SAMPLE DUPLICAT	TE: 3023295							
_			92497532027	Dup	_	Max		
Param	neter	Units	Result	Result	RPD	RPD		Qualifiers
Total Dissolved Solid	ds	mg/L	243	2	45	1	10	

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



Project: Pace Project No.:	HAMMON 92495904	D AP-3 SI	EMIANNUAL										
QC Batch:	568673			Anal	ysis Method	d:	SM 2320B-2	2011					
QC Batch Method:	SM 2320	B-2011			ysis Descrij		2320B Alkal	linity					
					ratory:		Pace Analyt	ical Servi	ices - Ashevil	le			
Associated Lab Sam	nples: 92	49590400	01, 9249590400	2, 9249590	9249	95904004,	924959040	05, 9249	5904006				
METHOD BLANK:	3012830				Matrix: W	ater							
Associated Lab Sam	nples: 92	49590400	01, 9249590400	2, 9249590	4003, 9249	95904004,	924959040	05, 9249	5904006				
				Bla	nk l	Reporting							
Parameter			Units	Result		Limit	MD	L	Analyzed	Qı	ualifiers		
Alkalinity, Total as CaCO3			mg/L	ND		5.	0	5.0	09/24/20 13:0)3			
Alkalinity, Bicarbonat	e (CaCO3)		mg/L		ND	5.	0	5.0	09/24/20 13:0)3			
Alkalinity, Carbonate	(CaCO3)		mg/L		ND	5.	0	5.0	09/24/20 13:0	03			
LABORATORY CON		/IPLE: 3	3012831 Units	Spike Conc.	LC Res	-	LCS % Rec		Rec nits C	Qualifiers			
										Juaimers	_		
Alkalinity, Total as C	aCO3		mg/L	Ę	50	51.0	10:	2	80-120				
MATRIX SPIKE & M	ATRIX SPI	KE DUPL	ICATE: 30128	832		3012833	3						
				MS	MSD								
			92495900001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter		Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Alkalinity, Total as Ca	aCO3	mg/L	307	50	50	358	359	10	2 104	80-120	0	25	
MATRIX SPIKE & M	ATRIX SPI	KE DUPL	ICATE: 30128	834		3012835	5						
				MS	MSD								
			92495900007	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter		Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	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: HAM Pace Project No.: 9249	MOND AP-3 S 5904	EMIANNUAL											
QC Batch: 568	970		Anal	ysis Metho	d: S	SM 2320B-2011							
QC Batch Method: SM 2320B-2011			Anal	ysis Descri	ption: 2	2320B Alkal	inity						
			Labo	oratory:	F	Pace Analyt	ical Servi	ces - Ashevil	le				
Associated Lab Samples:	924959040	07, 9249590400	8										
METHOD BLANK: 3014	490			Matrix: W	ater								
Associated Lab Samples:	924959040	07, 9249590400	8										
			Bla	Blank R									
Parameter		Units	Result		Limit	MDI	L	Analyzed		Qualifiers			
Alkalinity, Total as CaCO3		mg/L		ND	5.0	0	5.0	09/30/20 11:3	38				
Alkalinity, Bicarbonate (Ca	,	mg/L		ND	5.0	0		09/30/20 11:3					
Alkalinity, Carbonate (CaC	O3)	mg/L		ND	5.0	0	5.0	09/30/20 11::	38				
LABORATORY CONTROL SAMPLE:		3014491 Units	Spike Conc.	LC Res	-	LCS % Rec		Rec nits (Qualifiers				
Alkalinity, Total as CaCO3		mg/L		50	52.5	10	5	80-120		_			
MATRIX SPIKE & MATRIX		ICATE: 30144	492		3014493								
			MS	MSD									
Parameter	Units	92495894013 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Alkalinity, Total as CaCO3	mg/L		50	50	274	281	86		80-120	3		Quai	
MATRIX SPIKE & MATRIX	K SPIKE DUPL	ICATE: 30144			3014495	i							
		92495894018	MS Spiko	MSD Spike	MS	MSD	MS	MSD	% Rec		Mox		
		97497694018	Spike	Spike	IVIS	10130	IVIS	INISD	70 KeC		Max		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	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: HAMMO Pace Project No.: 9249590	ND AP-3 SE 4	MIANNUAL										
QC Batch: 569912	2		Anal	ysis Method	d: S	SM 2320B-2	2011					
QC Batch Method: SM 232	20B-2011		Anal	ysis Descrij	otion: 2	2320B Alkal	linity					
			Labo	oratory:	F	Pace Analyt	ical Ser	vices - Ashevill	е			
Associated Lab Samples:	92495904009	9, 9249590401 [,]	1									
METHOD BLANK: 3018962				Matrix: W	ater							
Associated Lab Samples:	9249590400	9, 9249590401 [.]	1									
			Blai	nk l	Reporting							
Parameter		Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Alkalinity, Total as CaCO3		mg/L		ND	5.0	0	5.0	09/30/20 15:4	3			
Alkalinity, Bicarbonate (CaCO	,	mg/L		ND	5.0	0	5.0	09/30/20 15:4				
Alkalinity,Carbonate (CaCO3)		mg/L		ND	5.0	0	5.0	09/30/20 15:4	.3			
LABORATORY CONTROL S/	MPLE: 30	018963	Spike	LC	S	LCS	%	Rec				
Parameter		Units	Conc.	Res	ult	% Rec	L	imits C	ualifiers			
Alkalinity, Total as CaCO3		mg/L	5	50	50.4	10	1	80-120		_		
MATRIX SPIKE & MATRIX SP		CATE: 30189	964		3018965							
			MS	MSD								
Parameter	g Units	2497388001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	2670	50	50	2540	2630	-2		80-120	3		M1
MATRIX SPIKE & MATRIX SP		CATE: 30189			3018967							
		0400574000	MS	MSD	MC			MCD			Maria	
Parameter	Units	2496574002 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	66.3	50	50	117	119	1(01 105	80-120	2	25	

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



Project: HAMMOND AP-3 Pace Project No.: 92495904	3 SEMIANNUAL										
QC Batch: 570242		Anal	sis Metho	d: S	SM 2320B-2	2011					
QC Batch Method: SM 2320B-201	1	Anal	/sis Descri	otion: 2	320B Alka	linity					
		Labo	ratory:	F	Pace Analy	tical Serv	vices - Ashevill	е			
Associated Lab Samples: 9249590	04010										
METHOD BLANK: 3020557			Matrix: W	ater							
Associated Lab Samples: 9249590	04010										
		Bla		Reporting							
Parameter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	alifiers		
Alkalinity, Total as CaCO3	mg/L		ND	5.0)	5.0	10/01/20 14:2	25			
Alkalinity,Bicarbonate (CaCO3)	mg/L		ND	5.0			10/01/20 14:2	-			
Alkalinity,Carbonate (CaCO3)	mg/L		ND	5.0)	5.0	10/01/20 14:2	25			
LABORATORY CONTROL SAMPLE:	3020558										
5		Spike	LC	-	LCS		Rec				
Parameter	Units	Conc.	Res		% Rec			ualifiers	_		
Alkalinity, Total as CaCO3	mg/L	5	50	48.2	9	6	80-120				
MATRIX SPIKE & MATRIX SPIKE DL	JPLICATE: 3020	559		3020560							
		MS	MSD								
	92496574010	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter Uni	ts Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Alkalinity, Total as CaCO3 mg	/L 20.2	50	50	70.4	71.4	10	0 102	80-120	1	25	
······································											
		1561		3020562							
MATRIX SPIKE & MATRIX SPIKE DL)561 MS	MSD	3020562							
			MSD Spike	3020562 MS	MSD	MS	MSD	% Rec		Max	
	JPLICATE: 3020 92496574018	MS				MS % Rec	-	% Rec Limits	RPD	Max RPD	Qual

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,	HAMMOND 92495904	AP-3 SE	EMIANNUAL										
QC Batch:	571506			Anal	sis Metho	d: \$	SM 2320B-2	2011					
QC Batch Method:	SM 2320B	-2011			ysis Descri		2320B Alkal	,					
Assasiated Lab Care		0500404	0.00405004046		ratory:	F	Pace Analyt	ical Serv	vices - Ashevill	е			
Associated Lab Sam	pies: 924	9590401	2, 92495904013	>									
METHOD BLANK:	3026929				Matrix: W	ater							
Associated Lab Sam	ples: 924	9590401	2, 92495904013	3									
_				Blai		Reporting							
Param			Units	Res		Limit	MD		Analyzed		ualifiers		
Alkalinity, Total as Ca			mg/L		ND	5.0		5.0	10/08/20 14:2				
Alkalinity, Bicarbonate	, ,		mg/L mg/L		ND ND	5.0 5.0		5.0 5.0	10/08/20 14:2 10/08/20 14:2				
Alkalinity,Carbonate	(02003)		ing/L		ND	5.0	0	5.0	10/00/20 14.2	. 1			
LABORATORY CON	TROL SAM	PLE: 3	026930										
_				Spike	LC	-	LCS		Rec				
Param			Units	Conc.	Res	sult	% Rec			alifiers	_		
Alkalinity, Total as Ca	aCO3		mg/L	5	50	50.1	10	0	80-120				
MATRIX SPIKE & M	ATRIX SPIK		CATE: 30269	31		3026932							
			00100	MS	MSD	0020002							
			92497532022	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter		Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Alkalinity, Total as Ca	iCO3	mg/L	231	50	50	288	286	11	14 110	80-120	1	25	
MATRIX SPIKE & M			CATE: 30260	133		3026934							
MATRIX SPIKE & M/	ATRIX SPIK	E DUPLI	CATE: 30269	033 MS	MSD	3026934							
MATRIX SPIKE & M	ATRIX SPIK		CATE: 30269 92497532028		MSD Spike	3026934 MS	MSD	MS	MSD	% Rec		Max	
MATRIX SPIKE & M	ATRIX SPIK			MS	-			MS % Rec	-	% Rec Limits	RPD	Max RPD	Qual

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Project: Pace Project No.:	HAMMONE 92495904	D AP-3 SE	EMIANNUAL										
QC Batch:	571655			Anal	ysis Method	d:	SM 2320B-2	2011					
QC Batch Method:	SM 2320	3-2011		Anal	sis Descri	otion:	2320B Alka	linity					
				Labo	ratory:		Pace Analy	tical Servi	ces - Ashevil	le			
Associated Lab Sam	nples: 924	49590401	4, 9249590401	5, 9249590	04016, 9249	95904017,	924959040	18					
METHOD BLANK:	3027877				Matrix: W	ater							
Associated Lab Sam	nples: 924	49590401	4, 9249590401	5, 9249590	4016, 9249	95904017,	924959040	18					
				Bla	nk l	Reporting							
Param	neter		Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Alkalinity, Total as C	aCO3		mg/L		ND	5.	0	5.0 1	0/08/20 18:	28			
Alkalinity, Bicarbonat	e (CaCO3)		mg/L		ND	5.	0	5.0 1	0/08/20 18:2	28			
Alkalinity,Carbonate	(CaCO3)		mg/L		ND	5.	0	5.0 1	10/08/20 18:2	28			
LABORATORY CON		IPLE: 3	027878 Units	Spike	LC	-	LCS	% F					
Paran				Conc.	Res		% Rec	Lin		Qualifiers			
Alkalinity, Total as C	aCO3		mg/L	Ę	50	50.0	10	0	80-120				
MATRIX SPIKE & M	ATRIX SPI		ICATE: 3027	879		3027880)						
				MS	MSD								
			92497913003	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter		Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Alkalinity, Total as Ca	aCO3	mg/L	57.8	50	50	108	109	100) 103	80-120	1	25	
MATRIX SPIKE & M	ATRIX SPI		ICATE: 3029	635		3029636	6						
				MS	MSD								
				.	O ''	140	MOD	MS	MSD	% Rec		Max	
			92495904018	Spike	Spike	MS	MSD	1013	10130	10 Kec			
Parameter		Units	92495904018 Result	Spike Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	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: Pace Project No.:	HAMMOND AP-3 \$ 92495904	SEMIANNUAL										
QC Batch:	568020		Anal	ysis Method	d: :	SM 4500-S	2D-2011					
QC Batch Method:	SM 4500-S2D-20	11	Anal	ysis Descrip	otion:	4500S2D S	ulfide Wate	er				
			Labo	ratory:	I	Pace Analy	tical Servic	es - Ashevi	lle			
Associated Lab San	nples: 924959040	001, 9249590400	2, 9249590	04003, 9249	95904004,	924959040	05, 924959	904006				
METHOD BLANK:	3009676			Matrix: Wa	ater							
Associated Lab San	nples: 924959040	001, 9249590400	2, 9249590	4003, 9249	95904004,	924959040	05, 924959	904006				
			Bla	nk I	Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	alifiers		
Sulfide		mg/L		ND	0.1	0	0.050 0	9/22/20 14:	09			
LABORATORY CON		3009677	Spike	LC	-	LCS	% R					
Paran	neter	Units	Conc.	Res	ult	% Rec	Lim	its (Qualifiers	_		
Sulfide		mg/L	0	.5	0.52	10	4	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUPI	LICATE: 3009	678 MS	MSD	3009679)						
		92495900001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	· Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.52	0.52	98	98	80-120	0	10	
MATRIX SPIKE & M	IATRIX SPIKE DUPI	LICATE: 3009	680 MS	MSD	3009681							
		92495900002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	· Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.39	0.39	77	77	80-120	0	10	M1

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Project: Pace Project No.:	HAMMON 92495904	ND AP-3 SE 1	MIANNUAL										
QC Batch:	568022			Analy	sis Method	1: 5	SM 4500-S2	2D-2011					
QC Batch Method:	SM 450	0-S2D-2011			sis Descrip		4500S2D S	ulfide Wate	r				
				Labo	ratory:	I	Pace Analyt	ical Service	es - Ashevil	le			
Associated Lab San	mples: 9	2495904007	7, 9249590400	8									
METHOD BLANK:	3009689				Matrix: Wa	ater							
Associated Lab San	mples: 9	2495904007	7, 9249590400	8									
Paran	notor		Units	Blan Resi		Reporting Limit	MDI		Analyzed	0	ualifiers		
	песеі								,		anners		
Sulfide			mg/L		ND	0.1	0	0.050 09	9/22/20 14:4	10			
LABORATORY COM	NTROL SA	MPLE: 30	009690										
_				Spike	LC	-	LCS	% Re					
Paran	neter		Units	Conc.	Res		% Rec	Limi		Qualifiers	_		
Sulfide			mg/L	0.	5	0.53	100	6 8	80-120				
MATRIX SPIKE & M	ATRIX SP		CATE: 3009	691		3009692							
				MS	MSD								
			2495894013	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	r	g Units	Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	MSD % Rec	Limits	RPD	RPD	Qual
Parameter	r			Spike	Spike		-	-	-		RPD 0	RPD	Qual
		Units mg/L	Result ND	Spike Conc. 0.5	Spike Conc.	Result	Result 0.50	% Rec	% Rec	Limits		RPD	Qual
Sulfide		Units mg/L	Result ND	Spike Conc. 0.5	Spike Conc.	Result 0.50	Result 0.50	% Rec	% Rec	Limits		RPD	Qual
Sulfide MATRIX SPIKE & M	IATRIX SP	Units mg/L IKE DUPLIC	Result ND CATE: 30090	Spike Conc. 0.5 693 MS Spike	Spike Conc. 0.5 MSD Spike	Result 0.50	Result 0.50	% Rec 94 MS	% Rec 94 MSD	Limits 80-120 % Rec	0	RPD 10 Max	
Sulfide	IATRIX SP	Units mg/L	CATE: 3009	Spike Conc. 0.5 693 MS	Spike Conc. 0.5	Result 0.50 3009694	Result 0.50	% Rec 94	% Rec 94	Limits 80-120		RPD 10	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: Pace Project No.:	HAMMOND AP-3 92495904	SEMIANNUAL										
QC Batch:	568633		Analy	ysis Method	d:	SM 4500-S	2D-2011					
QC Batch Method:	SM 4500-S2D-2	2011	Analy	ysis Descrij	ption:	4500S2D S	ulfide Wate	er				
			Labo	ratory:		Pace Analy	tical Servic	es - Ashevil	le			
Associated Lab San	nples: 92495904	4009, 9249590401	0, 9249590	04011								
METHOD BLANK:	3012716			Matrix: W	ater							
Associated Lab San	nples: 92495904	4009, 9249590401	0, 9249590	04011								
			Blar	nk l	Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Sulfide		mg/L		ND	0.1	0	0.050 0	9/24/20 11:3	36			
LABORATORY COM		3012717 Units	Spike Conc.	LC Res	sult	LCS % Rec	% R Lim	its C	Qualifiers			
Sulfide		mg/L	0.	.5	0.51	10	2	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DU	PLICATE: 3012 92496675001	718 MS Spike	MSD Spike	3012719 MS	MSD	MS	MSD	% Rec		Мах	
Parameter	. Unit		Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Sulfide	mg/l	L ND	0.5	0.5	0.49	0.49	96	96	80-120	0	10	
MATRIX SPIKE & M	IATRIX SPIKE DU	PLICATE: 3012	720 MS	MSD	3012721							
		92496675002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Unit	s Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Sulfide		L ND	0.5	0.5	0.45	0.45	83	83	80-120	0	10	

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,	HAMMOND AP-3 \$ 92495904	SEMIANNUAL										
QC Batch:	569580		Anal	ysis Metho	d:	SM 4500-S	2D-2011					
QC Batch Method:	SM 4500-S2D-20)11		ysis Descri		4500S2D S	ulfide Wat	er				
			Labo	oratory:		Pace Analy	tical Servi	ces - Ashev	ille			
Associated Lab Sam	ples: 924959040	012, 9249590401	3									
METHOD BLANK:	3017581			Matrix: W	/ater							
Associated Lab Sam	ples: 924959040	012, 9249590401	3									
			Bla	nk	Reporting							
Param	eter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Sulfide		mg/L		ND	0.1	10	0.050 0	9/29/20 13	:47			
LABORATORY CON Param		3017582 Units	Spike Conc.	LC	CS sult	LCS % Rec	% F Lin		Qualifiers			
Sulfide		mg/L	0	.5	0.53	10	6	80-120				
MATRIX SPIKE & M/	ATRIX SPIKE DUP	LICATE: 3017	583 MS	MSD	301758	4						
		92497532022	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.18	0.19	31	32	80-120	2	10	M1

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Project: Pace Project No.:	HAMMOND AP-3 92495904	SEMIANNUAL										
QC Batch:	570214		Analy	/sis Method	1:	SM 4500-S	2D-2011					
QC Batch Method:	SM 4500-S2D-20	011	Analy	/sis Descrip	otion:	4500S2D S	ulfide Wate	er				
			Labo	ratory:		Pace Analy	tical Servic	es - Ashevi	lle			
Associated Lab Sar	nples: 92495904	014, 9249590401	5, 9249590	4016, 9249	95904017,	924959040	18					
METHOD BLANK:	3020426			Matrix: Wa	ater							
Associated Lab Sar	nples: 92495904	014, 9249590401	5, 9249590	4016, 9249	95904017.	924959040	18					
			Blar		Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qu	alifiers		
Sulfide		mg/L		ND	0.1	0	0.050 1	0/01/20 12:	47			
LABORATORY COl Parar		3020427 Units mg/L	Spike Conc.	LC Res .5		LCS % Rec 10	% R 9		Qualifiers	_		
MATRIX SPIKE & M	IATRIX SPIKE DUF		428 MS	MSD	3020429)						
		92497738004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.55	0.55	108	108	80-120	0	10	
MATRIX SPIKE & M	IATRIX SPIKE DUF	PLICATE: 3020	430 MS	MSD	3020431							
		92497738003	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Sulfide	mg/L	. ND	0.5	0.5	0.56	0.56	109	109	80-120	0	10	

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QC Batch:		5675	20		Δnal	sis Metho	۰. E	EPA 300.0 F	201211	1003				
QC Batch I	Method:		20 300.0 Rev 2.	1 1003		ysis Netrio		300.0 IC Ani		1000				
	wethou.		500.0 Nev 2.	1 1995		vatory:				vices - Ashevi	ماا			
Associated	I Lab Sam	ples:	924959040	001, 9249590400		,		abe / maryt						
METHOD E	BLANK:	30075	34			Matrix: W	ater							
Associated	l Lab Sam	ples:	924959040	01, 9249590400	2, 9249590	4003, 924	95904004							
					Blai	nk	Reporting							
	Param	neter		Units	Res	ult	Limit	MDI	_	Analyzed	Qu	alifiers		
Chloride				mg/L		ND	1.()	0.60	09/18/20 16:	46		_	
Fluoride				mg/L		ND	0.10			09/18/20 16:	-			
Sulfate				mg/L		ND	1.()	0.50	09/18/20 16:	46			
ABORAT	ORY CON	ITROL	SAMPLE:	3007535										
	_				Spike	LC	-	LCS		Rec	- <i></i>			
	Param	neter		Units	Conc.	Res	sult	% Rec	Li	mits (Qualifiers	_		
Chloride				mg/L		50	52.2	104		90-110				
Fluoride				mg/L		.5	2.7	106		90-110				
Sulfate				mg/L	5	50	52.4	105	0	90-110				
MATRIX SI	PIKE & M	ATRIX	SPIKE DUPL	_ICATE: 3007	536		3007537							
					MS	MSD					_			
			Linita	92496029001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	0
	arameter		Units	Result	Conc.	Conc.	Result	Result	% Rec		Limits	RPD	RPD	Qua
Chloride			mg/L	13.6	50	50	68.1	69.2	10		90-110	2	-	M1
			mg/L mg/L	0.10 7.4	2.5 50	2.5 50	2.8 62.2	2.9 63.3	1C 11			3 2	-	M1 M1
Fluoride			IIIg/L	7.4	50	50	02.2	03.5		0 112	90-110	2	10	IVII
Fluoride					E 2 0		3007539							
Fluoride Sulfate	PIKE & M	ATRIX	SPIKE DUPL	_ICATE: 3007	550									
Fluoride Sulfate	PIKE & M	ATRIX	SPIKE DUPL		MS	MSD								
Fluoride Sulfate MATRIX SI				92495653005	MS Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	~
Fluoride Sulfate MATRIX SI	PIKE & M Parameter		SPIKE DUPL		MS Spike Conc.	Spike Conc.	MS Result	Result	% Rec	% Rec	% Rec Limits	RPD	RPD	Qua
Fluoride Sulfate MATRIX SI P Chloride			Units	92495653005 	MS Spike Conc. 50	Spike Conc. 50	Result 58.5	Result 62.8	% Rec 10	06 % Rec 115	Limits 90-110	7	RPD 10	M1
Fluoride Sulfate MATRIX SI			Units	92495653005 Result	MS Spike Conc.	Spike Conc.	Result	Result	% Rec 10 10	06 % Rec 115	Limits		RPD 10	

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REPORT OF LABORATORY ANALYSIS



Project: Pace Project No.:	HAMN 92495		SEMIANNUAL										
QC Batch:	5676	607		Anal	ysis Metho	d: I	EPA 300.0 I	Rev 2.1 1	993				
QC Batch Method:	EPA	300.0 Rev 2.	.1 1993		ysis Descri		300.0 IC An		inne Ashevil	1 1-			
Associated Lab Sar	mples:	924959040	005, 92495904006		ratory:	ľ	ace Analy	ical Serv	rices - Ashevi	lie			
METHOD BLANK:	30080	04			Matrix: W	ater							
Associated Lab Sar	mples:	924959040	005, 92495904006	3									
				Blai	nk	Reporting							
Parar	meter		Units	Res	ult	Limit	MD	L	Analyzed	Qu	alifiers		
Chloride			mg/L		ND	1.	0	0.60	09/19/20 15:	23			
Fluoride			mg/L		ND	0.1			09/19/20 15:	-			
Sulfate			mg/L		ND	1.0	0	0.50	09/19/20 15:	23			
LABORATORY CO	NTROL	SAMPLE:	3008005										
_				Spike	LC		LCS		Rec				
	meter		Units	Conc.	Res		% Rec			Qualifiers	_		
Chloride			mg/L		50	52.3	10		90-110				
Fluoride Sulfate			mg/L mg/L		.5 50	2.7 52.5	10 10		90-110 90-110				
Sunate			ilig/∟		0	52.5	10	5	90-110				
MATRIX SPIKE & M	MATRIX	SPIKE DUPI	LICATE: 30080	008		3008009							
				MS	MSD								
Paramete	r	Units	92495964005 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride		mg/L	7.9	50	50	61.3	62.0	10	108	90-110	1	10	
Fluoride		mg/L	ND	2.5	2.5	2.7	2.7	10	108	90-110	1	10	
Sulfate		mg/L	256	50	50	298	299	8	85 87	90-110	0	10	M6
MATRIX SPIKE & M	MATRIX	SPIKE DUPI	LICATE: 30080	006		3008007							
MATRIX SPIKE & N	MATRIX	SPIKE DUPI	LICATE: 30080	MS	MSD	3008007							
MATRIX SPIKE & N Paramete		SPIKE DUPI Units	LICATE: 30080 92495653007 Result		MSD Spike Conc.	3008007 MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Paramete		Units	92495653007 Result	MS Spike Conc.	Spike Conc.	MS Result	MSD Result	% Rec	% Rec	Limits		RPD	Qual
MATRIX SPIKE & M Paramete Chloride Fluoride			92495653007	MS Spike	Spike	MS	MSD		6 [%] Rec 108		RPD 1 1	RPD 10	Qual

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REPORT OF LABORATORY ANALYSIS



QC Batch:		3377			/sis Metho		PA 300.0 F		993				
QC Batch M	lethod: EP	A 300.0 Rev 2.	.1 1993		/sis Descri		00.0 IC An						
					ratory:	P	ace Analyt	ical Serv	ices - Ashevil	le			
Associated L	Lab Samples:	924959040	07, 9249590400	3									
METHOD B	LANK: 3011	350			Matrix: W	ater							
Associated I	Lab Samples:	924959040	007, 9249590400	3									
				Blar	nk	Reporting							
	Parameter		Units	Res	ult	Limit	MD	L	Analyzed	Qu	alifiers		
Chloride			mg/L		ND	1.0)	0.60	09/24/20 06:	58			
Fluoride			mg/L		ND	0.10			09/24/20 06:				
Sulfate			mg/L		ND	1.0		0.50	09/24/20 06:	58			
ABORATO	RY CONTRO	L SAMPLE:	3011351										
				Spike	LC	S	LCS	%	Rec				
	Parameter		Units	Conc.	Res	sult	% Rec	Lii	mits C	Qualifiers			
Chloride			mg/L	5	50	50.7	10	1	90-110		_		
Fluoride			mg/L	2.	.5	2.6	10	2	90-110				
Sulfate			mg/L	5	60	50.1	10	C	90-110				
MATRIX SP	IKE & MATRI		LICATE: 30113	352		3011353							
				MS	MSD								
_			92495656005	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Pa	arameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qua
Oblandete		mg/L	1.9	50	50	55.8	56.2	10		90-110	1	-	
		mg/L	ND	2.5	2.5	2.8	2.8	10		90-110	1	10	
Fluoride			5.9	50	50	59.3	59.6	10	108	90-110	1	10	
Fluoride		mg/L	0.0										
Fluoride Sulfate	IKE & MATRI			354		3011355							
Fluoride Sulfate	IKE & MATRI			854 MS	MSD	3011355							
Fluoride Sulfate MATRIX SP		X SPIKE DUPI	LICATE: 30113 92496524001	MS Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Fluoride Sulfate MATRIX SP	IKE & MATRI. arameter		LICATE: 30113	MS			MSD Result	MS % Rec	-	% Rec Limits	RPD	Max RPD	Qua
Fluoride Sulfate MATRIX SP Pa		X SPIKE DUP Units	LICATE: 30113 92496524001	MS Spike	Spike	MS		-	% Rec		RPD 1	RPD	Qua
-		X SPIKE DUP	LICATE: 30113 92496524001 Result	MS Spike Conc.	Spike Conc.	MS Result	Result	% Rec	% Rec 18 110 18 110	Limits		RPD 10	Qua

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

REPORT OF LABORATORY ANALYSIS



QC Batch:	568	379		Anal	sis Metho	d: E	PA 300.0 F	Rev 2.1	1993				
QC Batch Me	ethod: EPA	300.0 Rev 2.	1 1993	-	, ysis Descri		00.0 IC An	ions					
					ratory:		ace Analyt	tical Ser	vices - Ashev	ille			
Associated La	ab Samples:	924959040	09, 9249590401	0, 9249590	94011		,						
METHOD BL/	ANK: 30113	360			Matrix: W	ater							
Associated La	ab Samples:	924959040	09, 9249590401	0, 9249590	04011								
				Blai	nk	Reporting							
	Parameter		Units	Res	ult	Limit	MD	L	Analyzed	Qu	alifiers		
Chloride			mg/L		ND	1.0		0.60	09/24/20 14	:11			
Fluoride			mg/L		ND	0.10		0.050	09/24/20 14	:11			
Sulfate			mg/L		ND	1.0		0.50	09/24/20 14	:11			
LABORATOR		SAMPLE:	3011361										
				Spike	LC	S	LCS	%	Rec				
	Parameter		Units	Conc.	Res	sult	% Rec	L	imits	Qualifiers	_		
Chloride			mg/L	5	50	51.6	10	3	90-110				
Fluoride			/1	-				-					
			mg/L		.5	2.7	10		90-110				
			mg/L mg/L		.5 50	2.7 50.7	10 10		90-110 90-110				
Sulfate	KE & MATRIX		mg/L	Ę									
Sulfate	KE & MATRIX		mg/L	Ę		50.7							
Sulfate MATRIX SPIK			mg/L LICATE: 3011 92495870024	5 362 MS Spike	50 MSD Spike	50.7 3011363 MS	10 MSD	1 MS	90-110 MSD	% Rec		Max	
Sulfate	KE & MATRIX	SPIKE DUPI	mg/L	5 362 MS	MSD	50.7 3011363	10	1	90-110 MSD	% Rec Limits	RPD	Max RPD	Qua
Sulfate MATRIX SPIK Para Chloride		Units mg/L	mg/L LICATE: 3011 92495870024 Result 0.64J	362 MS Spike Conc. 50	50 MSD Spike Conc. 50	50.7 3011363 MS Result 54.6	MSD Result 55.2	1 MS % Rec 1(90-110 MSD % Rec 08 109	Limits 90-110	1	RPD 10	Qua
Sulfate MATRIX SPIK Para Chloride Fluoride		Units mg/L mg/L	mg/L LICATE: 3011 92495870024 Result 0.64J ND	362 MS Spike Conc. 50 2.5	MSD Spike Conc. 50 2.5	50.7 3011363 MS Result 54.6 2.8	10 MSD Result 55.2 2.8	1 MS % Rec 10 1	90-110 MSD % Rec 08 109 10 110	Limits 90-110 90-110	1 0	RPD 10 10	Qua
Sulfate MATRIX SPIK Para		Units mg/L	mg/L LICATE: 3011 92495870024 Result 0.64J	362 MS Spike Conc. 50	MSD Spike Conc. 50	50.7 3011363 MS Result 54.6	MSD Result 55.2	1 MS % Rec 10 1	90-110 MSD % Rec 08 109	Limits 90-110 90-110	1	RPD 10 10	Qua
Sulfate MATRIX SPIK Para Chloride Fluoride Sulfate	ameter	Units mg/L mg/L	mg/L LICATE: 3011 92495870024 Result 0.64J ND 0.90J	362 MS Spike Conc. 50 2.5 50	MSD Spike Conc. 50 2.5	50.7 3011363 MS Result 54.6 2.8	10 MSD Result 55.2 2.8	1 MS % Rec 10 1	90-110 MSD % Rec 08 109 10 110	Limits 90-110 90-110	1 0	RPD 10 10	Qua
Sulfate MATRIX SPIK Para Chloride Fluoride Sulfate	ameter	Units mg/L mg/L mg/L	mg/L LICATE: 3011 92495870024 Result 0.64J ND 0.90J LICATE: 3011	362 MS Spike Conc. 2.5 50 364 MS	MSD Spike Conc. 50 2.5 50 MSD	50.7 3011363 MS Result 54.6 2.8 53.7 3011365	10 MSD Result 55.2 2.8 54.3	1 MS % Rec 1(1)	90-110 MSD % Rec 08 109 10 110 06 107	Limits 90-110 90-110 90-110	1 0	RPD 10 10 10	Qua
Sulfate MATRIX SPIK Para Chloride Fluoride Sulfate MATRIX SPIK	ameter <e &="" matrix<="" td=""><td>Units mg/L mg/L mg/L</td><td>mg/L LICATE: 3011 92495870024 Result 0.64J ND 0.90J LICATE: 3011 92495900019</td><td>362 MS Spike Conc. 50 2.5 50 364 MS Spike</td><td>MSD Spike Conc. 50 2.5 50 MSD Spike</td><td>50.7 3011363 MS Result 54.6 2.8 53.7 3011365 MS</td><td>10 MSD Result 55.2 2.8 54.3 MSD</td><td>1 MS % Rec 11 11 11 11</td><td>90-110 MSD % Rec 08 109 10 110 06 107 MSD</td><td>Limits 90-110 90-110 90-110 % Rec</td><td>1 0 1</td><td>RPD 10 10 10 10</td><td></td></e>	Units mg/L mg/L mg/L	mg/L LICATE: 3011 92495870024 Result 0.64J ND 0.90J LICATE: 3011 92495900019	362 MS Spike Conc. 50 2.5 50 364 MS Spike	MSD Spike Conc. 50 2.5 50 MSD Spike	50.7 3011363 MS Result 54.6 2.8 53.7 3011365 MS	10 MSD Result 55.2 2.8 54.3 MSD	1 MS % Rec 11 11 11 11	90-110 MSD % Rec 08 109 10 110 06 107 MSD	Limits 90-110 90-110 90-110 % Rec	1 0 1	RPD 10 10 10 10	
Sulfate MATRIX SPIK Para Chloride Fluoride Sulfate MATRIX SPIK	ameter	Units mg/L mg/L mg/L	mg/L LICATE: 3011 92495870024 Result 0.64J ND 0.90J LICATE: 3011	362 MS Spike Conc. 2.5 50 364 MS	MSD Spike Conc. 50 2.5 50 MSD	50.7 3011363 MS Result 54.6 2.8 53.7 3011365	10 MSD Result 55.2 2.8 54.3	1 MS % Rec 11 1 1 1 1 1 1 8 8 8 8 8 8 8 8 8 8	90-110 MSD % Rec 08 109 10 110 06 107 MSD % Rec	Limits 90-110 90-110 90-110	1 0	RPD 10 10 10 Max RPD	
Sulfate MATRIX SPIK Para Chloride Fluoride Sulfate MATRIX SPIK	ameter <e &="" matrix<="" td=""><td>Units mg/L mg/L mg/L</td><td>mg/L LICATE: 3011 92495870024 Result 0.64J ND 0.90J LICATE: 3011 92495900019</td><td>362 MS Spike Conc. 50 2.5 50 364 MS Spike</td><td>MSD Spike Conc. 50 2.5 50 MSD Spike</td><td>50.7 3011363 MS Result 54.6 2.8 53.7 3011365 MS</td><td>10 MSD Result 55.2 2.8 54.3 MSD</td><td>1 MS % Rec 11 1 1 1 1 1 1 5 8 8 8 8 8 8 8 8 8 8 8</td><td>90-110 MSD % Rec 08 109 10 110 06 107 MSD</td><td>Limits 90-110 90-110 90-110 90-110 % Rec Limits 90-110</td><td>1 0 1</td><td>RPD 10 10 10 10 8 8 8 8 7 10</td><td>Qua</td></e>	Units mg/L mg/L mg/L	mg/L LICATE: 3011 92495870024 Result 0.64J ND 0.90J LICATE: 3011 92495900019	362 MS Spike Conc. 50 2.5 50 364 MS Spike	MSD Spike Conc. 50 2.5 50 MSD Spike	50.7 3011363 MS Result 54.6 2.8 53.7 3011365 MS	10 MSD Result 55.2 2.8 54.3 MSD	1 MS % Rec 11 1 1 1 1 1 1 5 8 8 8 8 8 8 8 8 8 8 8	90-110 MSD % Rec 08 109 10 110 06 107 MSD	Limits 90-110 90-110 90-110 90-110 % Rec Limits 90-110	1 0 1	RPD 10 10 10 10 8 8 8 8 7 10	Qua

Results presented on 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: Pace Project No.:	HAMN 92495		SEMIANNUAL										
QC Batch:	5701			Anal	ysis Metho	d. E	EPA 300.0 I	Rev 2 1 1	993				
QC Batch Method:		300.0 Rev 2.	1 1003		vsis Descri		00.0 IC An						
QO Daten Method.		500.0 1.0 2.	1 1333		pratory:				ces - Ashevi	الم			
Associated Lab Sar	nples:	924959040)12, 9249590401		,						1		
METHOD BLANK:	30202	67			Matrix: W	ater							
Associated Lab Sar	nples:	924959040)12, 9249590401	3. 9249590	04014. 924	95904015. 9	924959040	16. 92495	5904017.924	495904018			
	•		,	Bla		Reporting		,	,				
Paran	neter		Units	Res		Limit	MD	L	Analyzed	Qı	alifiers		
Chloride			mg/L		ND	1.0)	0.60	10/01/20 07:	56			
Fluoride			mg/L		ND	0.10)	0.050	10/01/20 07:	56			
Sulfate			mg/L		ND	1.0)	0.50	10/01/20 07:	56			
LABORATORY COI		SAMPLE	3020268										
	OL		2020200	Spike	LC	S	LCS	%	Rec				
Parar	neter		Units	Conc.	Res		% Rec	Lin	nits (Qualifiers			
Chloride			mg/L	5	50	53.3	10	7	90-110		_		
Fluoride			mg/L	2	.5	2.7	10	9	90-110				
Sulfate			mg/L	5	50	53.4	10	7	90-110				
MATRIX SPIKE & M			LICATE: 3020	269		3020270			ec % Rec Limits 82 89 90-110 110 109 90-110 86 111 90-110				
				MS	MSD	0020270							
			92495894028	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	r	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride		mg/L	542	50	50	583	587	82	2 89	90-110	1	10	M6
Fluoride		mg/L	0.41	2.5	2.5	3.2	3.1	11(0 109	90-110	1	10	
Sulfate		mg/L	3480	50	50	3520	3530	86	5 111	90-110	0	10	M6
MATRIX SPIKE & M	IATRIX	SPIKE DUPI	LICATE: 3020	271		3020272							
				MS	MSD								
			92496914018	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	r	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride		mg/L	1.6	50	50	56.0	56.5	109	9 110	90-110	1	10	
Fluoride		mg/L	0.063J	2.5	2.5	2.8	2.8	109	Э 111	90-110	2	10	M1
Fluoride													

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REPORT OF LABORATORY ANALYSIS



QUALIFIERS

Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

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.

TNTC - Too Numerous To Count

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

_ab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
92495904001	HGWA-1				
92495904002	HGWA-2				
2495904003	HGWA-3				
2495904004	HGWA-122				
2495904005	HGWA-43D				
2495904006	HGWA-44D				
2495904007	HGWC-126				
2495904009	HGWC-120				
2495904011	HGWC-125				
2495904012	HGWA-45D				
2495904013	MW-46D				
2495904014	HGWC-121A				
2495904015	HGWC-124				
2495904016	MW-32				
2495904017	MW-39				
2495904018	MW-41				
2495904001	HGWA-1	EPA 3010A	568201	EPA 6010D	568230
2495904002	HGWA-2	EPA 3010A	568201	EPA 6010D	568230
2495904003	HGWA-3	EPA 3010A	568201	EPA 6010D	568230
2495904004	HGWA-122	EPA 3010A	568747	EPA 6010D	568813
	-				
2495904005	HGWA-43D	EPA 3010A	568201	EPA 6010D	568230
2495904006	HGWA-44D	EPA 3010A	568201	EPA 6010D	568230
2495904007	HGWC-126	EPA 3010A	568747	EPA 6010D	568813
2495904008	FB-03	EPA 3010A	568747	EPA 6010D	568813
2495904009	HGWC-120	EPA 3010A	568748	EPA 6010D	568812
2495904010	FD-03	EPA 3010A	568748	EPA 6010D	568812
2495904011	HGWC-125	EPA 3010A	568748	EPA 6010D	568812
2495904012	HGWA-45D	EPA 3010A	570395	EPA 6010D	570414
2495904013	MW-46D	EPA 3010A	570395	EPA 6010D	570414
2495904014	HGWC-121A	EPA 3010A	570395	EPA 6010D	570414
2495904015	HGWC-124	EPA 3010A	570395	EPA 6010D	570414
2495904016	MW-32	EPA 3010A	570395	EPA 6010D	570414
2495904017	MW-39	EPA 3010A	570395	EPA 6010D	570414
2495904018	MW-41	EPA 3010A	570395	EPA 6010D	570414
2495904001	HGWA-1	EPA 3005A	568198	EPA 6020B	568229
2495904002	HGWA-2	EPA 3005A	568198	EPA 6020B	568229
2495904003	HGWA-3	EPA 3005A	568198	EPA 6020B	568229
2495904004	HGWA-122	EPA 3005A	568417	EPA 6020B	568454
2495904005	HGWA-43D	EPA 3005A	568198	EPA 6020B	568229
2495904006	HGWA-44D	EPA 3005A	568198	EPA 6020B	568229
2495904007	HGWC-126	EPA 3005A	568749	EPA 6020B	568811
2495904008	FB-03	EPA 3005A	568749	EPA 6020B	568811
2495904009	HGWC-120	EPA 3005A	569670	EPA 6020B	569718



Project: HAMMOND AP-3 SEMIANNUAL

Pace Project No.: 92495904

Analytical **QC Batch Method** QC Batch Lab ID Sample ID **Analytical Method** Batch 92495904010 FD-03 EPA 3005A 569670 EPA 6020B 569718 92495904011 HGWC-125 EPA 3005A 569670 EPA 6020B 569718 92495904012 HGWA-45D EPA 3005A 570626 EPA 6020B 570683 92495904013 MW-46D 570626 EPA 3005A EPA 6020B 570683 570627 92495904014 HGWC-121A EPA 3005A EPA 6020B 570682 HGWC-124 92495904015 EPA 3005A 570627 EPA 6020B 570682 92495904016 MW-32 EPA 3005A 570627 EPA 6020B 570682 92495904017 MW-39 EPA 3005A 570627 EPA 6020B 570682 92495904018 **MW-41** EPA 3005A 570627 EPA 6020B 570682 92495904005 HGWA-43D EPA 7470A 572608 EPA 7470A 572822 92495904006 HGWA-44D EPA 7470A 572608 EPA 7470A 572822 92495904012 HGWA-45D EPA 7470A 572608 EPA 7470A 572822 92495904001 HGWA-1 SM 2450C-2011 567872 92495904002 HGWA-2 SM 2450C-2011 567872 HGWA-3 92495904003 SM 2450C-2011 567872 92495904004 **HGWA-122** SM 2450C-2011 567147 92495904005 HGWA-43D SM 2450C-2011 567872 92495904006 HGWA-44D SM 2450C-2011 567872 92495904007 HGWC-126 SM 2450C-2011 568395 568395 92495904008 FB-03 SM 2450C-2011 92495904009 HGWC-120 SM 2450C-2011 568648 SM 2450C-2011 92495904010 FD-03 568648 92495904011 HGWC-125 SM 2450C-2011 568648 92495904012 HGWA-45D SM 2450C-2011 570219 92495904013 **MW-46D** SM 2450C-2011 570219 92495904014 HGWC-121A SM 2450C-2011 570220 92495904015 HGWC-124 SM 2450C-2011 570220 92495904016 MW-32 SM 2450C-2011 570638 92495904017 MW-39 SM 2450C-2011 570638 92495904018 **MW-41** SM 2450C-2011 570638 92495904001 HGWA-1 SM 2320B-2011 568673 92495904002 HGWA-2 SM 2320B-2011 568673 92495904003 HGWA-3 SM 2320B-2011 568673 **HGWA-122** 92495904004 SM 2320B-2011 568673 92495904005 HGWA-43D SM 2320B-2011 568673 92495904006 HGWA-44D SM 2320B-2011 568673 92495904007 **HGWC-126** SM 2320B-2011 568970 92495904008 FB-03 SM 2320B-2011 568970 92495904009 **HGWC-120** SM 2320B-2011 569912 92495904010 FD-03 SM 2320B-2011 570242 92495904011 **HGWC-125** SM 2320B-2011 569912



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Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
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Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
Pace Project No.:					
Project:	HAMMOND AP-3 SEMIANNUAL				

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. FaceAnalytical Client Name:	OAI	OWEr	WUH · 32433304
Courier: D Fed Ex D UPS USPS Clien	t Commerc	ial Pace	92495904
Custody Seal on Cooler/Box Present: Ves		eals intact:	yes no
Packing Material: Bubble Wrap Bubble	Bags Non	e D Other	
Thermometer Used 214	Type of Ice:	15	one Samples on ice, cooling process has begun
Cooler Temperature		sue is Frozen:	Yes No Date and Initials of person examining
Temp should be above freezing to 6°C		Comments	contents: <u>416/2004</u>
Chain of Custody Present:	Cres DNo D	IN/A 1.	
Chain of Custody Filled Out:	LYes DNo D	IN/A 2.	
Chain of Custody Relinquished:	ElYes DNo D	JN/A 3.	
Sampler Name & Signature on COC:	UYes DNo D)N/A 4.	
Samples Arrived within Hold Time:	TYes DNo D]N/A 5.	
Short Hold Time Analysis (<72hr):	OYes Stro C		
Rush Turn Around Time Requested:	UYes DNO D		
Sufficient Volume:]N/A 8.	
Correct Containers Used:	THUS DNO C		
-Pace Containers Used:	Dres DNo D		
Containers Intact:]N/A 10.	
Filtered volume received for Dissolved tests	UYes DNo C		
Sample Labels match COC:	TYes DNo D	3N/A 12.	
	VV		
All containers needing preservation are found to be in compliance with EPA recommendation.	OYes DNo D	AIN	
exceptions: VDA, coliform, TOC, O&G, WI-DRO (water)	PUSICes IZNO	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	OYes ONo 2	INIA 14.	bieservalive
Headspace in VOA Vials (>6mm):	A A DESCRIPTION OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF T	IN/A 14.	
Trip Blank Present:		N/A 16.	
Trip Blank Custody Seals Present		SN/A	
Pace Trip Blank Lot # (if purchased):			
Client Notification/ Resolution:		ate/Time:	Field Data Required? Y / N
Person Contacted: Comments/ Resolution:			
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Project Manager Review:			Date:
Note: Whenever there is a discrepancy affecting North C Certification Office (i.e out of hold, incorrect preservative			of this form will be sent to the North Carolina DEHNR
	e, set et temp, not		F-ALLC003rev.3, 11September2006

			results v	One san	"Major	App III	Please	Ì	Ŧ	1	1	1	1	Ť	4	T	- 1		-		ITEM #		7	Γ	Reques	Phone	Email To	Τ	Address	Requin	
intpontant Note: By Stgrang this form you are accepting	3		results will be reported for AP-1/2/3 SDGs	nple set submitted for HGWA-1, HGWA-2, HGWA-3	Majorions= Alk, Bicarb Alk, Fe, Mg, Mn, K, Na, Sulfide	note when the last sample for the event has been taken. "App IllaN Metals= Sb, Ba, Be, B, Ca, Cr, Co, Pb, Li Mo	ADDITIONAL COMMENTS		Mik/ 46D	MW 41	05-MM		HGMC-124	HGWC-121A	HCWC 120	HGWA 122	HISIN/A-3	HGWA-2	I-WARLU		Sample IDs MUST BE UNIQUE 115.6	Required Clant Information Valid Matrix Codes MATRIX CO		Ľ	Recuested Due Date (TAT: 10 Nev		o SCS Contante			lien	Face Analytical"
accepting Paca's NET 30 day payment terms and agreeing to take charges of 1,5% pe	SIGNATURE of SA	PRINT Marma of SA	Main Willing / PRC-	Notic Martin Caro	and white loco	Wisher Thukar ber	- 32		WT G	WT G	WT C	WT 8	WIT G	WIT G	WT C	WT C	MT G	- 8501 01-32-6 5 IM	WT G Y-V-W KAX -		해 의 옷 옷 위 가 옷 옷 위 MATRIX CODE (see value coder SAMPLE TYPE (G=GRAB C=C D) 패	s to left)		LOCOANS CRAME	S		Durchash Ander No.	COPY 10 Geosyntec Contacts		Required Project Information:	
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2007		es Intac (/N)	l				IONS											tool	180	NoJ Lab I.D.						Ro L	DRINKING WATER	経営に設め込		2	

aut.	One sample set : results will be rep	** Major ions= Alk	App. IIISIV Metal	Please note do u	12	#	10	0		7	142 B		4	3	2			ITEM #	Required Ci	Cartho	Requested Due Date/TAT:	PIDIP	ī		A seamon	Company (Section A Required Client Information	rac
portant Note: By signing this form you are accepted	One sample set submitted for HGWA-1, HGWA-2, HGWA-3 but results will be reported for AP-1/2/3 SDCs	Major ions= Alk, Bicarb Alk, Fe, Ma, Mn, K, Na, Sulfide	note when the last sample for the event has been taken. "About BAN Metals= Shi Ba Ba Pi Ca Cr Co Phili Mo	ADDITIONAL COMMENTS		-WW-49D	TOTW-41	VMW 30	0-2-2-C2		HOMC-121A	-HOWG-120	HGWA-122	HGWA-3	-HOWA2	-HOWA-1		Sample IDs MUST BE UNIQUE TISSLE	terri information		Date/TAT: 10 Dey	Tex	SUS Contacts		Alianta, GA	3A Power	Information	ACE AN ILLIYUCAI
SAMPLER NAME AND S PRINT Name of S SIGNATURE of SA SIGNATURE of SA SIGNATURE of SA SIGNATURE of SA	100 10 Nillies / Pice	Nolia Munhan geo	and Rupper 100	RELINQUISHED BY / AFFILIATION		WID	9	WT G	101 8	WT O	WIT G	WT G	WT 6 9/15 1541 -	a		WT O		교 및 을 및 위 가 및 될 및 MATRIX CODE (see valid code) SAMPLE TYPE (G=GRAB C=C DA 편 TIME			Project Number: GW6581	Project Name: Plant Hammond AP-3 Semiannual/BHG 04	1 2		Copy To Geosyntec Contacts		Section B Required Project Information:	The
anature Inpler: Chad Kusto Inpler: Chad Rugo	"114 /2 1450 Cheerle that	16/20 1113 P. M. Mike /		TIME ACCEPTED BY /					<u>* + + + + + + + + + + + + + + + + + + +</u>	┈╺╎╸╶╎╶┝╶┠╶╿╸╿╛ ┥┥ ┥┍╿╺╽╺╿╸┥╺╎┉ ╿┯			3 1					SAMPLE TEMP AT COLLECTION # OF CONTAINERS Unpreserved H ₂ SO ₄ HNO ₃ HCI NaOH Na ₂ S ₂ O ₃ Methanol Other Analysis Test Norde, Fluoride, Sulfate			Pace Profile 5: 10839-5/10839-2	-		Address	Company Name	Attention: Southern Co.	Section C Invoice Information.	Ine Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.
DATE Signed 9/15/2020	Le 4/1 (22) /4 52)	er 9/16/24	640	AFFILIATION DATE TIME	▼▼▼▼▼▼▼↓↓↓↓↓	<mark> x x x - - - - - - - </mark>	<mark>┥╾┨╸┨╺┨╺┨╸┨╸┨╸┨╸┨╸</mark>	<mark>╞╫╎╫╎╫╎╖╎╌╎╌╎╶╎╶╎╶╎╴╎╴</mark>		┥╌┤╌╎╌╎╌╎╌╎		*	××				A) R	DS pp. III&IV Metals 6010/6020* AD 226/228 Isjor Ions**	Z Z Z	Requested Analysis Filtered (VIN)	STATE	Site Location	٦	T NPDES T GROUND WATH	REGULATORY AGENCY		Page:	must be completed accurately.
Received on Ice (Y/N) Custody Seated Cooler (Y/N) Samples Intact (Y/N)				SAMPLE CONDITIONS	Z			N prim		* 0+-	-	DH	PH = C	モンンコ		141-0H2-2	Pace Project No./ Lab I.U.	Residual Chlorine (Y/N)			1		~	D WATI DRINKING WATER			2 " 2	

	One sample MW-43D. M	"Major ions= /	"Full App. It	Please note	12	11	10	8	6	7	•	6	4	6.0	2	-	ITEM#		vodnaste		Dian	Email To	Cealing	Company	Section A Required C
	One sample set submitted for HGWA-1, HGWA-2, HGWA-3, MW-43D, MW-44D but they will be reported for AP-1/2/3 SDGs	i, Hg Ma Se Ti Majorions= Alk, Bicarb Alk, Fe, Mg, Mn, K, Na, Sulfide	note when the last sample for the event has been taken. Full App. 18 & IV Metals=Sb, As, Bo, Be, B, Cd, Ca, Cr, Co, Pb	ADDITIONAL COMMENTS							EB-03		MW-44D	MW-43D	HGWC-126	HGMC-125	Acquired Ciert Information MATRIX BRUNCH WATER WATER WASTE WATER WATER WASTE WATER WASTE WATER ACCOUNT SOLUTION (A-Z, G-97) Sample IC's MUST BE UNIQUE TISSUE	Section D Valid Matrix Codes	roquested Uve Date/TAT: 10 Day			600 Data	Atlanta, GA		Cien A
SAMPLER NAME AND SIG PRINT Name of SAM SIGNATURE of SAM	Ţ	Vellia Marsh	" Und Kusse loec	RELINO			9						6 0/16	WT 6 9/16 1158 -	W* C	WT G	제외 첫 옷 우 부 가 꽃 옷 못 많 MATRIX CODE (see vaild codes to bit SAMPLE TYPE (G=GRAB C=COMP DATE TIME DATE TIME	v	Project Number GW6581	Project Name Plant Hammond AP-3 Semiannual/BKC	1 2		Copy To Geosyntec Contacts	N N	Section B Required Project Information:
AND SIGNATL	13.66	on till	9/6	DATE		20.0	400	(CAD)	Ì								SAMPLE TEMP AT COLLECTION	+		nnual/BKG 04					
RE Chrid Russo Chrid Durie Signed	Check pence 9	0945 Runi / Pred	1955 Modela Marguel 400	TIME ACCEPTED BY / AFFILIATION									2 0 2 0 4 0 4 0 4 0 4 0 4 0 4 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5				# OF CONTAINERS Unpreserved H2SO4 HNO3 HCI NaOH Ne2S2O3 Methanol Other Analysis Test Y/ N Norde, Fruoride, Sulfate Z DS Z ddl App. III&IV Metals 6010/8020/7 Z AD 228/228 Z	100	Pace Profile # 10839-4/10839-2	Pace Project Kevin Herring			Name:	Attention Southern Co.	Section C Invoice Information
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	MW-43D	Major IO	Li, Hg. Mo. Se, TI	Please no		12	1	10	9	•	7	6	5	4	3	2	1	ITEM #					Dhone.	Email	Address	Company	Section A Required C
	One sample set submitted for HGWA-1. HGWA-2, HGWA-3, MW-43D, MW-44D but they will be reported for AP-1/2/3 SDGs	Major Kins- Alk, Bicard Alk, Fe, Mg, Mit, K, Ne, Suinde	5 Se, 11	Please note dry wells, sinke though any wells not sampled, and note when the last sample for the event has been taken.	ADDITIONAL COMMENTS						/	FB-03	MW-45D	MW-44D	MW-43D	HGWC-126		SAMPLE ID Source the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of	Required Client Information MATRIX DRIVEN	Section D Valid Mat			Sho Collects		Atlanta, GA		Clien
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SIGNATURE of SAMPLER:	PRINT Name of SAMPLER:	UND SIGNATURE	1/20 13	68 02/82 12		4-15-20 17	DATE		- 20 7												LE TEMP AT COLLECTION		Pag	2		Adx	Cor	Att	Se	in-of-Custody is a LE
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DATE Signed			71.00	JPACE	hus louo	1900	BY / AFFILIATION	*	× × ×	× × ×	*	*	*	*			x x x	***			Alysis Test Y/ N e. Fluoride. Sulfate Z Z AlV Metals 6010/6020* Z 8//280 Z	Requested Analysis Filtered								Kequest Document
2-2-2			120/2	abeb.	9/2/20	5214	DATE		×												2	nalysis Filto	STATE:	Site Location	UST	NPDES	REGULATORY AGENCY			d accurately
-					6800	120	TIME															(NIA) peu			☐ RCRA	☐ GROUN	Y AGENCY	ſ	Page:	
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		R	10		e le	25		01/29/20	gle	5-	when	lie	"Voul	Pb, Li, Mo	a, B, Ca, Cr, Ca,	App. IIISIV Metals= Sb, Ba, Bo, B, Ca, Cr, Co, Pb, Li, Mo	App. IIIa
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TIME SAMPLE CONDITIONS	DATE	FILLATION	BYIAF	ICCEPTED BY / AFFILIATIÓN		TIME		DATE	ION:	RELINQUISHED BY / AFFILIATION	JISHED BY	ELINOL	の時代の	必要ななない	ADDITIONAL COMMENTS	ADDITION	中的
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Residual Chlorine (Y/N) Pace Project No./ Lab LD	Major ions**	TDS App. III&IV Metals 6010/6020* RAD 226/228	Analysis Test Chloride, Fluoride, Sulfate	Na ₂ S ₂ O ₃ Methanol Other	HCI NaOH	Unpreserved H ₂ SO ₄ HNO ₃	# OF CONTAINERS		DATE	TIME	DATE	MATRIX CODE (see valid codes SAMPLE TYPE (G=GRAB C=C	≓ ♀ ≴ ≴ ♀ ♀ ⋗ ⋡ ¥ ₩	WATER WATER PRODUCT SOLUSOLID OIL OIL OIL CITHER TISSUE		SAMPLE ID (A-2, 0-91 -) Semple IDs MUST BE UNIQUE	ITEM#
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修建銀銅	Site Location			ing	Kevin Hemi			Plant Hammond AP-3 Semiannual/BKG 04	Semiannu	ond AP-3	int Hamm		Project Name:		Fax		Phone:
						Pace Quote Reference:	Pace					Jer No.	Purchase Order No		8	SCS Contacts	Email To:
GROUND WATE DRINKING WATER	L NbDes L					155	Address:										
GENCY	REGULATORY AGENCY					Company Name:	Com			octs	Geosyntec Contacts	eosyn	Copy To: G			Atlanta, GA	Address
				, P	Southern Co.		Attention:				ontacts	CS Co	Report To: SCS Contacts			GA Power	Company:
					10	INCOMENTATION	THAT IS NOT THE OWNER.										

Page 87 of 88

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

Face Analytical

F-ALL-Q-020rev.07, 15-Fab-2007

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to tale charges of 1.5% per month for any involves not paid within 30 days.

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E SAMPLE CONDITIONS	DATE TIME	CCEPTED BY / AFFILIATION	ACCEPTED B	TIME		DATE	ILIATION	RELINQUISHED BY / AFFILIATION	NQUISHE	REL	a state and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the st	ADDITIONAL COMMENTS	のないの
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Residual Chlorine (Y/N) Pace Project NoJ Lab ID.	Major ions**	Chloride, Fluoride, Suffate TDS App. III&IV Metals 6010/6020* RAD 226/228	Na ₂ S ₂ O ₃ Methanol Other Analysis Test	Unpreserved H ₂ SO ₄ HNO ₃ HCI NaOH	SAMPLE TEMP AT COLLECTION # OF CONTAINERS	DATE TIME	TIME DATE	DATE	SAMPLE TYPE (G=GRAB C=C	MATRIX CODE (see valid codes	WATER WITH OW WATER WW PRODUCT P OIL OIL OIL OIL OIL OIL OIL OIL OIL OIL	Sample ID MUST BE UNIQUE 115	ITEM#
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			100.	an: Southern Co.	Attention:			st	S Contac	Report To SCS Contacts	Rep	GA Power	Company Gr
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ace Analytical



October 21, 2020

Joju Abraham Georgia Power-CCR 2480 Maner Road Atlanta, GA 30339

RE: Project: HAMMOND AP-3 SEMIANNUAL RADS Pace Project No.: 92495892

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory between September 16, 2020 and September 29, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network: • Pace Analytical Services - Greensburg

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

Sincerely,

Kein Hung

Kevin Herring kevin.herring@pacelabs.com 1(704)875-9092 HORIZON Database Administrator

Enclosures

cc: Christine Hug, Geosyntec Consultants, Inc. Kristen Jurinko Thomas Kessler, Geosyntec Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Ms. Lauren Petty, Southern Co. Services Nardos Tilahun, GeoSyntec Dawit Yifru, Geosyntec Consultants, Inc.





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

CERTIFICATIONS

Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Pace Analytical Services Pennsylvania

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: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92

HAMMOND AP-3 SEMIANNUAL No.: 92495892

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92495892001	HGWA-1	Water	09/15/20 14:01	09/16/20 11:14
92495892002	HGWA-2	Water	09/15/20 10:58	09/16/20 11:14
92495892003	HGWA-3	Water	09/15/20 11:45	09/16/20 11:14
92495892004	HGWA-122	Water	09/15/20 15:41	09/16/20 11:14
92495892005	HGWA-43D	Water	09/16/20 11:58	09/17/20 09:45
92495892006	HGWA-44D	Water	09/16/20 15:18	09/17/20 09:45
92495892007	HGWC-126	Water	09/18/20 15:39	09/21/20 09:25
92495892008	FB-03	Water	09/18/20 16:50	09/21/20 09:25
92495892009	HGWC-120	Water	09/21/20 13:48	09/22/20 09:25
92495892010	FD-03	Water	09/21/20 00:00	09/22/20 09:25
92495892011	HGWC-125	Water	09/21/20 12:07	09/22/20 09:25
92495892012	HGWA-45D	Water	09/25/20 13:50	09/28/20 09:40
92495892013	MW-46D	Water	09/25/20 11:10	09/28/20 09:40
92495892014	HGWC-121A	Water	09/28/20 16:04	09/29/20 08:55
92495892015	HGWC-124	Water	09/28/20 18:00	09/29/20 08:55
92495892016	MW-32	Water	09/28/20 15:44	09/29/20 08:55
92495892017	MW-39	Water	09/28/20 17:27	09/29/20 08:55
92495892018	MW-41	Water	09/28/20 19:05	09/29/20 08:55



SAMPLE ANALYTE COUNT

Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92495892001	HGWA-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92495892002	HGWA-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92495892003	HGWA-3	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92495892004	HGWA-122	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92495892005	HGWA-43D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892006	HGWA-44D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892007	HGWC-126	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892008	FB-03	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892009	HGWC-120	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892010	FD-03	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892011	HGWC-125	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892012	HGWA-45D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892013	MW-46D	EPA 9315	LAL	1	PASI-PA



SAMPLE ANALYTE COUNT

Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892014	HGWC-121A	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892015	HGWC-124	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892016	MW-32	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892017	MW-39	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92495892018	MW-41	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



SUMMARY OF DETECTION

Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Method Parameters Result Units 92495892001 HGWA-1 EPA 9315 Radium-226 0.0193 ± 0.226 (0.595) pCi/L 0.226 (0.595)	Report Limit Analyzed Qualifiers 10/07/20 07:29 10/07/20 14:00
EPA 9315 Radium-226 0.0193 ± pCi/L 0.226 (0.595)	
0.226 (0.595)	
(0.595)	10/07/20 14:00
	10/07/20 14:00
C:83% T:NA	10/07/20 14.00
EPA 9320 Radium-228 0.729 ± pCi/L 0.435	10/07/20 14:00
(0.807)	
C:71%	
T:83% Total Radium Calculation Total Radium 0.748 ± pCi/L	10/19/20 09:49
0.661	
(1.40)	
92495892002 HGWA-2	
EPA 9315 Radium-226 0.124 ± pCi/L 0.339 0.339 0.339 0.339	10/07/20 07:30
(0.807)	
C:88% T:NA	
EPA 9320 Radium-228 -0.233 ± pCi/L 0.417	10/07/20 14:00
(1.01)	
C:66% T:81%	
Total Radium Calculation Total Radium 0.124 ± pCi/L	10/16/20 12:16
0.756 (1.82)	
92495892003 HGWA-3	
EPA 9315 Radium-226 0.161 ± pCi/L	10/07/20 07:30
0.215	10/01/20 01:50
(0.449) 0.000/ TNA	
C:89% T:NA EPA 9320 Radium-228 -0.305 ± pCi/L	10/07/20 14:00
0.343	
(0.865) C:74%	
T:83%	
Total Radium Calculation Total Radium 0.161 ± pCi/L 0.558 0.558	10/16/20 12:16
(1.31)	
92495892004 HGWA-122	
EPA 9315 Radium-226 0.192 ± pCi/L	10/14/20 07:29
0.240	
(0.500) C:88% T:NA	
EPA 9320 Radium-228 0.183 ± pCi/L	10/15/20 14:29
0.426 (0.945)	
C:69%	
T:80% Total Radium Calculation Total Radium 0.375 ± pCi/L	10/16/00 10:10
Total Radium Calculation Total Radium 0.375 ± pCi/L 0.666 0.666	10/16/20 12:16
(1.45)	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495892005	HGWA-43D					
EPA 9315	Radium-226	0.531 ± 0.341	pCi/L		10/07/20 07:38	
EPA 9320	Radium-228	(0.558) C:83% T:NA -0.0158 ± 0.401 (0.931) C:73%	pCi/L		10/08/20 11:52	
Total Radium Calculation	Total Radium	T:74% 0.531 ± 0.742 (1.49)	pCi/L		10/20/20 08:55	
92495892006	HGWA-44D					
EPA 9315	Radium-226	0.129 ± 0.179 (0.380) C:100% T:NA	pCi/L		10/07/20 07:38	
EPA 9320	Radium-228	0.293 ± 0.412 (0.887) C:76% T:83%	pCi/L		10/08/20 11:52	
Total Radium Calculation	Total Radium	0.422 ± 0.591 (1.27)	pCi/L		10/20/20 08:55	
92495892007	HGWC-126					
EPA 9315	Radium-226	0.369 ± 0.289 (0.513) C:85% T:NA	pCi/L		10/14/20 06:28	
EPA 9320	Radium-228	0.472 ± 0.423 (0.866) C:82% T:80%	pCi/L		10/15/20 11:08	
Total Radium Calculation	Total Radium	0.841 ± 0.712 (1.38)	pCi/L		10/20/20 08:55	
92495892008	FB-03					
EPA 9315	Radium-226	0.0162 ± 0.159 (0.433)	pCi/L		10/14/20 06:29	
EPA 9320	Radium-228	C:85% T:NA -0.0349 ± 0.399 (0.926) C:77% T:82%	pCi/L		10/15/20 11:08	
Total Radium Calculation	Total Radium	0.0162 ± 0.558 (1.36)	pCi/L		10/20/20 09:06	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495892009	HGWC-120					
EPA 9315	Radium-226	0.0994 ±	pCi/L		10/14/20 07:18	
		0.201 (0.468)				
		C:86% T:NA				
EPA 9320	Radium-228	0.454 ± 0.512	pCi/L		10/15/20 11:07	
		(1.08)				
		C:75%				
Total Radium Calculation	Total Radium	T:73% 0.553 ±	pCi/L		10/20/20 09:06	
		0.713	p 0 % =			
		(1.55)				
92495892010	FD-03					
EPA 9315	Radium-226	0.213 ± 0.268	pCi/L		10/14/20 07:19	
		(0.569)				
		C:92% T:NA				
EPA 9320	Radium-228	0.127 ± 0.309	pCi/L		10/15/20 11:06	
		(0.688)				
		C:80%				
Total Radium Calculation	Total Radium	T:81% 0.340 ±	pCi/L		10/20/20 09:06	
		0.577	poire		10/20/20 00:00	
		(1.26)				
92495892011	HGWC-125					
EPA 9315	Radium-226	0.621 ±	pCi/L		10/14/20 06:29	
		0.312 (0.353)				
		C:87% T:NA				
EPA 9320	Radium-228	0.824 ± 0.389	pCi/L		10/15/20 11:06	
		(0.653)				
		C:79%				
Total Radium Calculation	Total Radium	T:86% 1.45 ±	pCi/L		10/20/20 09:06	
		0.701	p 0 % =			
		(1.01)				
92495892012	HGWA-45D					
EPA 9315	Radium-226	0.444 ±	pCi/L		10/14/20 06:37	
		0.255 (0.298)				
		C:90% T:NA				
EPA 9320	Radium-228	0.622 ± 0.414	pCi/L		10/15/20 11:07	
		(0.789)				
		C:80%				
Total Radium Calculation	Total Radium	T:76% 1.07 ±	pCi/L		10/20/20 09:06	
		0.669				
		(1.09)				



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495892013	MW-46D					
EPA 9315	Radium-226	0.217 ± 0.191 (0.315)	pCi/L		10/14/20 06:40	
EPA 9320	Radium-228	C:90% T:NA 0.377 ± 0.345 (0.702) C:75%	pCi/L		10/15/20 11:07	
Total Radium Calculation	Total Radium	T:89% 0.594 ± 0.536 (1.02)	pCi/L		10/20/20 09:06	
92495892014	HGWC-121A					
EPA 9315	Radium-226	0.417 ± 0.303 (0.513) C:84% T:NA	pCi/L		10/15/20 07:07	
EPA 9320	Radium-228	0.344 ± 0.470 (1.01) C:68% T:79%	pCi/L		10/15/20 11:14	
Total Radium Calculation	Total Radium	0.761 ± 0.773 (1.52)	pCi/L		10/20/20 10:07	
92495892015	HGWC-124					
EPA 9315	Radium-226	0.140 ± 0.201 (0.433) C:93% T:NA	pCi/L		10/15/20 08:02	
EPA 9320	Radium-228	0.337 ± 0.467 (1.00) C:70% T:80%	pCi/L		10/15/20 11:14	
Total Radium Calculation	Total Radium	0.477 ± 0.668 (1.43)	pCi/L		10/20/20 10:07	
92495892016	MW-32					
EPA 9315	Radium-226	0.220 ± 0.262 (0.549) C:89% T:NA	pCi/L		10/15/20 08:02	
EPA 9320	Radium-228	0.789 ± 0.444 (0.802) C:73% T:80%	pCi/L		10/15/20 11:30	
Total Radium Calculation	Total Radium	1.01 ± 0.706 (1.35)	pCi/L		10/20/20 10:07	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92495892017	MW-39					
EPA 9315	Radium-226	0.588 ± 0.326 (0.462) C:86% T:NA	pCi/L		10/15/20 07:07	
EPA 9320	Radium-228	0.428 ± 0.388 (0.778) C:76% T:68%	pCi/L		10/15/20 11:30	
Total Radium Calculation	Total Radium	1.02 ± 0.714 (1.24)	pCi/L		10/20/20 10:07	
92495892018	MW-41					
EPA 9315	Radium-226	0.295 ± 0.248 (0.444) C:88% T:NA	pCi/L		10/15/20 07:08	
EPA 9320	Radium-228	0.114 ± 0.324 (0.729) C:76% T:82%	pCi/L		10/15/20 11:30	
Total Radium Calculation	Total Radium	0.409 ± 0.572 (1.17)	pCi/L		10/20/20 10:07	



Qual

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Total Radium

Face Fl0ject No 92493692					
Sample: HGWA-1 PWS:	Lab ID: 924958 Site ID:	92001 Collected: 09/15/20 14:01 Sample Type:	Received:	09/16/20 11:14 Ma	atrix: Water
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.
	Pace Analytical Se	ervices - Greensburg			
Radium-226	EPA 9315	0.0193 ± 0.226 (0.595) C:83% T:NA	pCi/L	10/07/20 07:29	13982-63-3
	Pace Analytical Se	ervices - Greensburg			
Radium-228	EPA 9320	0.729 ± 0.435 (0.807) C:71% T:83%	pCi/L	10/07/20 14:00	15262-20-1

0.748 ± 0.661 (1.40)

pCi/L

10/19/20 09:49 7440-14-4

Pace Analytical Services - Greensburg

Total Radium

Calculation



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Face Floject No 9249569	2					
Sample: HGWA-2 PWS:	Lab ID: 9249 Site ID:	55892002 Collected: 09/15/20 10:58 Sample Type:	Received:	09/16/20 11:14 M	latrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.124 ± 0.339 (0.807) C:88% T:NA	pCi/L	10/07/20 07:30	13982-63-3	
	Pace Analytica	Services - Greensburg				
Radium-228	EPA 9320	-0.233 ± 0.417 (1.01) C:66% T:81%	pCi/L	10/07/20 14:00	15262-20-1	
	Pace Analytica	Services - Greensburg				
Total Radium	Total Radium Calculation	0.124 ± 0.756 (1.82)	pCi/L	10/16/20 12:16	7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Tace 1 10ject 110 9249509	2					
Sample: HGWA-3 PWS:	Lab ID: 9249 Site ID:	5892003 Collected: 09/15/20 11:43 Sample Type:	5 Received:	09/16/20 11:14	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.161 ± 0.215 (0.449) C:89% T:NA	pCi/L	10/07/20 07:30	0 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	-0.305 ± 0.343 (0.865) C:74% T:83%	pCi/L	10/07/20 14:00	0 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.161 ± 0.558 (1.31)	pCi/L	10/16/20 12:10	6 7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 924958

lo.: 92495892

Sample: HGWA-122 PWS:	Lab ID: 9249589 Site ID:	2004 Collected: 09/15/20 15:41 Sample Type:	Received:	09/16/20 11:14 I	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Ser	vices - Greensburg				
Radium-226	EPA 9315	0.192 ± 0.240 (0.500) C:88% T:NA	pCi/L	10/14/20 07:29	13982-63-3	
	Pace Analytical Ser	vices - Greensburg				
Radium-228	EPA 9320	0.183 ± 0.426 (0.945) C:69% T:80%	pCi/L	10/15/20 14:29	15262-20-1	
	Pace Analytical Ser	vices - Greensburg				
Total Radium	Total Radium Calculation	0.375 ± 0.666 (1.45)	pCi/L	10/16/20 12:16	5 7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

No: 02405802

Sample: HGWA-43D PWS:	Lab ID: 9249 Site ID:	5892005 Collected: 09/16/20 11:58 Sample Type:	Received:	09/17/20 09:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.531 ± 0.341 (0.558) C:83% T:NA	pCi/L	10/07/20 07:38	3 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	-0.0158 ± 0.401 (0.931) C:73% T:74%	pCi/L	10/08/20 11:52	2 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.531 ± 0.742 (1.49)	pCi/L	10/20/20 08:55	5 7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

No: 02405802

Sample: HGWA-44D PWS:	Lab ID: 9249 Site ID:	5892006 Collected: 09/16/20 15:18 Sample Type:	Received:	09/17/20 09:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.129 ± 0.179 (0.380) C:100% T:NA	pCi/L	10/07/20 07:38	3 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.293 ± 0.412 (0.887) C:76% T:83%	pCi/L	10/08/20 11:52	2 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.422 ± 0.591 (1.27)	pCi/L	10/20/20 08:55	5 7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

	—					
Sample: HGWC-126 PWS:	Lab ID: 9249 Site ID:	5892007 Collected: 09/18/20 15:39 Sample Type:	Received:	09/21/20 09:25	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.369 ± 0.289 (0.513) C:85% T:NA	pCi/L	10/14/20 06:28	3 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.472 ± 0.423 (0.866) C:82% T:80%	pCi/L	10/15/20 11:08	3 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.841 ± 0.712 (1.38)	pCi/L	10/20/20 08:55	5 7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Sample: FB-03	Lab ID: 9249	5892008 Collected: 09/18/20 16:50	Received:	09/21/20 09:25	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.0162 ± 0.159 (0.433) C:85% T:NA	pCi/L	10/14/20 06:29	9 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	-0.0349 ± 0.399 (0.926) C:77% T:82%	pCi/L	10/15/20 11:08	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.0162 ± 0.558 (1.36)	pCi/L	10/20/20 09:06	6 7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Sample: HGWC-120 PWS:	Lab ID: 9249 Site ID:	5892009 Collected: 09/21/20 13:48 Sample Type:	Received:	09/22/20 09:25	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.0994 ± 0.201 (0.468) C:86% T:NA	pCi/L	10/14/20 07:18	8 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.454 ± 0.512 (1.08) C:75% T:73%	pCi/L	10/15/20 11:07	7 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.553 ± 0.713 (1.55)	pCi/L	10/20/20 09:00	6 7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Sample: FD-03	Lab ID: 9249	5892010 Collected: 09/21/20 00:0	0 Received:	09/22/20 09:25	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg	_			
Radium-226	EPA 9315	0.213 ± 0.268 (0.569) C:92% T:NA	pCi/L	10/14/20 07:19	9 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.127 ± 0.309 (0.688) C:80% T:81%	pCi/L	10/15/20 11:06	6 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.340 ± 0.577 (1.26)	pCi/L	10/20/20 09:00	6 7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Sample: HGWC-125 PWS:	Lab ID: 92495 Site ID:	892011 Collected: 09/21/20 12:07 Sample Type:	Received:	09/22/20 09:25	Matrix: Water	
F W3.	Sile ID.	Sample Type.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Services - Greensburg				
Radium-226	EPA 9315	0.621 ± 0.312 (0.353) C:87% T:NA	pCi/L	10/14/20 06:29	9 13982-63-3	
	Pace Analytical S	Services - Greensburg				
Radium-228	EPA 9320	0.824 ± 0.389 (0.653) C:79% T:86%	pCi/L	10/15/20 11:06	6 15262-20-1	
	Pace Analytical S	Services - Greensburg				
Total Radium	Total Radium Calculation	1.45 ± 0.701 (1.01)	pCi/L	10/20/20 09:00	6 7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

	-					
Sample: HGWA-45D PWS:	Lab ID: 9249 Site ID:	5892012 Collected: 09/25/20 13:50 Sample Type:	Received:	09/28/20 09:40 N	latrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.444 ± 0.255 (0.298) C:90% T:NA	pCi/L	10/14/20 06:37	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.622 ± 0.414 (0.789) C:80% T:76%	pCi/L	10/15/20 11:07	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.07 ± 0.669 (1.09)	pCi/L	10/20/20 09:06	7440-14-4	



Qual

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Total Radium

Pace Project No.: 92495692					
Sample: MW-46D PWS:	Lab ID: 924958 Site ID:	392013 Collected: 09/25/20 11:10 Sample Type:	Received:	09/28/20 09:40 M	latrix: Water
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.
	Pace Analytical Se	ervices - Greensburg			
Radium-226	EPA 9315	0.217 ± 0.191 (0.315) C:90% T:NA	pCi/L	10/14/20 06:40	13982-63-3
	Pace Analytical Se	ervices - Greensburg			
Radium-228	EPA 9320	0.377 ± 0.345 (0.702) C:75% T:89%	pCi/L	10/15/20 11:07	15262-20-1

0.594 ± 0.536 (1.02)

pCi/L

10/20/20 09:06 7440-14-4

Pace Analytical Services - Greensburg

Total Radium

Calculation



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Sample: HGWC-121A PWS:	Lab ID: 9249 Site ID:	5892014 Collected: 09/28/20 16:04 Sample Type:	Received:	09/29/20 08:55	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.417 ± 0.303 (0.513) C:84% T:NA	pCi/L	10/15/20 07:07	7 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.344 ± 0.470 (1.01) C:68% T:79%	pCi/L	10/15/20 11:14	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.761 ± 0.773 (1.52)	pCi/L	10/20/20 10:07	7 7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 924958

No.: 92495892

Sample: HGWC-124 PWS:	Lab ID: 9249 Site ID:	5892015 Collected: 09/28/20 18:00 Sample Type:	Received:	09/29/20 08:55	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.140 ± 0.201 (0.433) C:93% T:NA	pCi/L	10/15/20 08:02	2 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.337 ± 0.467 (1.00) C:70% T:80%	pCi/L	10/15/20 11:14	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.477 ± 0.668 (1.43)	pCi/L	10/20/20 10:07	7 7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Sample: MW-32	Lab ID: 9249		Received:	09/29/20 08:55	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.220 ± 0.262 (0.549) C:89% T:NA	pCi/L	10/15/20 08:02	2 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.789 ± 0.444 (0.802) C:73% T:80%	pCi/L	10/15/20 11:30	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.01 ± 0.706 (1.35)	pCi/L	10/20/20 10:07	7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Sample: MW-39	Lab ID: 92495	5892017 Collected: 09/28/20 17:27	Received:	09/29/20 08:55 I	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.588 ± 0.326 (0.462) C:86% T:NA	pCi/L	10/15/20 07:07	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.428 ± 0.388 (0.778) C:76% T:68%	pCi/L	10/15/20 11:30	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.02 ± 0.714 (1.24)	pCi/L	10/20/20 10:07	7440-14-4	



Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Sample: MW-41 PWS:	Lab ID: 9249 Site ID:	5892018 Collected: 09/28/20 19:05 Sample Type:	Received:	09/29/20 08:55	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 9315	0.295 ± 0.248 (0.444) C:88% T:NA	pCi/L	10/15/20 07:08	3 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 9320	0.114 ± 0.324 (0.729) C:76% T:82%	pCi/L	10/15/20 11:30) 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.409 ± 0.572 (1.17)	pCi/L	10/20/20 10:0	7 7440-14-4	



Project:	HAMMOND AP-3 SEM	IANNUAL RADS					
Pace Project No .:	92495892						
QC Batch:	415616		Analysis Method:	EPA 9315			
QC Batch Method:	n Method: EPA 9315 Analysis Description: 9315 Total Radium						
			Laboratory:	Pace Analytical	Services - Greensbur	g	
Associated Lab Sa	mples: 92495892002,	92495892003, 92	2495892005, 92495892006	6			
METHOD BLANK:	2009756		Matrix: Water				
Associated Lab Sa	mples: 92495892002,	92495892003, 92	2495892005, 92495892006	6			
Para	meter	Act ± Unc ((MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226	0.09	20 ± 0.177 (0.4	08) C:91% T:NA	pCi/L	10/07/20 07:30		

Results presented on 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:	HAMMOND AP-3	SEMIANNUAL RADS			
Pace Project No .:	92495892				
QC Batch:	417134	Analysis Method:	EPA 9315		
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radiu	ım	
		Laboratory:	Pace Analytical	Services - Greensbur	g
Associated Lab Sa	mples: 92495892	007, 92495892008, 92495892009, 92495892010	0, 92495892011, 9	2495892012, 924958	392013
METHOD BLANK:	2016817	Matrix: Water			
Associated Lab Sa	mples: 92495892	007, 92495892008, 92495892009, 92495892010	0, 92495892011, 9	2495892012, 924958	392013
Para	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226		0.280 ± 0.239 (0.418) C:85% T:NA	pCi/L	10/14/20 06:41	

Results presented on 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:	HAMMOND AP-3 SEMIANNUA	L RADS			
Pace Project No.:	92495892				
QC Batch:	417131	Analysis Method:	EPA 9320		
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 22	28	
		Laboratory:	Pace Analytical	Services - Greensbui	g
Associated Lab Sa	mples: 92495892001, 9249589	2002, 92495892003, 9249589200	4		
METHOD BLANK:	2016812	Matrix: Water			
Associated Lab Sa	mples: 92495892001, 9249589	2002, 92495892003, 9249589200	4		
Para	meter Ac	t ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.888 ± 0.38	0 (0.600) C:70% T:99%	pCi/L	10/15/20 11:15	

Results presented on 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:	HAMMOND AP-3	SEMIANNUAL RAD	S				
Pace Project No.:	92495892						
QC Batch:	415615		Analysis Method:	EPA 9315			
QC Batch Method:	EPA 9315		Analysis Description:	9315 Total Radi	ium		
			Laboratory:	Pace Analytical	Services - Greensbur	g	
Associated Lab Sa	mples: 9249589	2001					
METHOD BLANK:	2009755		Matrix: Water				
Associated Lab Sa	mples: 9249589	2001					
Para	meter	Act ± Un	c (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.119 ± 0.160 (0.3	326) C:94% T:NA	pCi/L	10/06/20 17:26		

Results presented on 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:	HAMMOND AP-3	3 SEMIANNUAL RADS				
Pace Project No.:	92495892					
QC Batch:	417130	Analysis Method:	EPA 9315			
QC Batch Method:	EPA 9315	Analysis Description	: 9315 Total Rad	lium		
		Laboratory:	Pace Analytica	I Services - Greensbu	rg	
Associated Lab Sa	mples: 9249589	2004				
METHOD BLANK:	2016810	Matrix: Water				
Associated Lab Sa	mples: 9249589	2004				
Para	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		-0.00529 ± 0.135 (0.392) C:94% T:NA	pCi/L	10/14/20 07:09		

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



Project:	HAMMON	ND AP-3 SEMIANNUAL	RADS			
Pace Project No.:	92495892	2				
QC Batch:	417135		Analysis Method:	EPA 9320		
QC Batch Method:	EPA 932	20	Analysis Description:	9320 Radium 22	28	
Associated Lab Sat		2495892005, 92495892 2495892012, 92495892	Laboratory: 2006, 92495892007, 9249589200 2013		Services - Greensbu 92495892010, 92495	0
METHOD BLANK:	2016818		Matrix: Water			
Associated Lab Sa	•	2495892005, 92495892 2495892012, 92495892	2006, 92495892007, 9249589200 2013	08, 92495892009, 9	92495892010, 92495	5892011,
Para	meter	Act	± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228		0.274 ± 0.291	(0.602) C:84% T:86%	pCi/L	10/15/20 11:05	

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.



Project: Pace Project No.:	HAMMOND AP-3 SEMIAN 92495892	NUAL RADS			
QC Batch:	417136	Analysis Method:	EPA 9315		
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radiu	Im	
		Laboratory:	Pace Analytical S	Services - Greensbur	g
Associated Lab Sa	mples: 92495892014, 924	95892015, 92495892016, 924958920 ²	17, 92495892018		
METHOD BLANK:	2016820	Matrix: Water			
Associated Lab Sa	mples: 92495892014, 924	95892015, 92495892016, 924958920 ²	17, 92495892018		
Para	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.0209	± 0.127 (0.392) C:91% T:NA	pCi/L	10/15/20 07:09	

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



Project: Pace Project No.:	HAMMOND AP-3 S 92495892	EMIANNUAL RADS			
QC Batch:	417137	Analysis Metho	od: EPA 9320		
QC Batch Method:	EPA 9320	Analysis Desc	ription: 9320 Radium 2	28	
		Laboratory:	Pace Analytical	Services - Greensbur	g
Associated Lab Sa	mples: 924958920	14, 92495892015, 92495892016, 92	495892017, 92495892018		
METHOD BLANK:	2016821	Matrix: V	Water		
Associated Lab Sa	mples: 924958920	14, 92495892015, 92495892016, 92	495892017, 92495892018		
Para	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	C	0.369 ± 0.373 (0.768) C:73% T:75%	pCi/L	10/15/20 11:15	

Results presented on 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: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

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.

TNTC - Too Numerous To Count

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.: 92495892

Analytical Lab ID **QC Batch Method** QC Batch Batch Sample ID **Analytical Method** 92495892001 HGWA-1 EPA 9315 415615 92495892002 HGWA-2 EPA 9315 415616 92495892003 HGWA-3 EPA 9315 415616 92495892004 **HGWA-122** EPA 9315 417130 92495892005 HGWA-43D 415616 EPA 9315 92495892006 HGWA-44D EPA 9315 415616 92495892007 HGWC-126 EPA 9315 417134 92495892008 FB-03 EPA 9315 417134 92495892009 HGWC-120 EPA 9315 417134 92495892010 FD-03 EPA 9315 417134 92495892011 HGWC-125 EPA 9315 417134 92495892012 HGWA-45D EPA 9315 417134 92495892013 **MW-46D** EPA 9315 417134 HGWC-121A 417136 92495892014 EPA 9315 92495892015 HGWC-124 EPA 9315 417136 92495892016 MW-32 EPA 9315 417136 92495892017 MW-39 EPA 9315 417136 92495892018 **MW-41** EPA 9315 417136 92495892001 HGWA-1 EPA 9320 417131 HGWA-2 92495892002 EPA 9320 417131 92495892003 HGWA-3 EPA 9320 417131 92495892004 **HGWA-122** EPA 9320 417131 92495892005 HGWA-43D EPA 9320 417135 HGWA-44D 92495892006 EPA 9320 417135 92495892007 HGWC-126 417135 EPA 9320 92495892008 FB-03 EPA 9320 417135 92495892009 HGWC-120 EPA 9320 417135 92495892010 EPA 9320 417135 FD-03 92495892011 **HGWC-125** EPA 9320 417135 92495892012 HGWA-45D EPA 9320 417135 92495892013 **MW-46D** EPA 9320 417135 92495892014 HGWC-121A EPA 9320 417137 92495892015 HGWC-124 EPA 9320 417137 92495892016 MW-32 EPA 9320 417137 92495892017 MW-39 EPA 9320 417137 92495892018 MW-41 EPA 9320 417137 92495892001 **HGWA-1 Total Radium Calculation** 419126 92495892002 HGWA-2 **Total Radium Calculation** 418910 92495892003 HGWA-3 **Total Radium Calculation** 418910 92495892004 **HGWA-122 Total Radium Calculation** 418910 92495892005 HGWA-43D Total Radium Calculation 419262 92495892006 HGWA-44D Total Radium Calculation 419262 HGWC-126 Total Radium Calculation 92495892007 419262



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND AP-3 SEMIANNUAL RADS

Pace Project No.:

92495892

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92495892008	FB-03	Total Radium Calculation	419263		
92495892009	HGWC-120	Total Radium Calculation	419263		
92495892010	FD-03	Total Radium Calculation	419263		
92495892011	HGWC-125	Total Radium Calculation	419263		
92495892012	HGWA-45D	Total Radium Calculation	419263		
92495892013	MW-46D	Total Radium Calculation	419263		
92495892014	HGWC-121A	Total Radium Calculation	419264		
92495892015	HGWC-124	Total Radium Calculation	419264		
92495892016	MW-32	Total Radium Calculation	419264		
92495892017	MW-39	Total Radium Calculation	419264		
92495892018	MW-41	Total Radium Calculation	419264		

San	nple Condition	Upon Receipt		
PaceAnalytical Client Name	1 A D		4.0040200	-
. Pace Analytical Client Name:	UA PO	wer WO	#:9249589	2
Courier: C Fed Ex C UPS USPS C Clien	t Commercial	Pace 0 92495	 	
Custody Seal on Cooler/Box Present: yes	no Seals	intact: yes	no Distances and and	Sector And Andrews
Packing Material: Bubble Wrap Bubble	Bags None	Other		
Thermometer Used 214	Type of Ice: Net	1	Samples on ice, cooling process	has begun
Cooler Temperature		is Frozen: Yes No	Date and Initials of person	
Temp should be above freezing to 6°C	3	Comments:	contents: 6/16/20	2Corp-
Chain of Custody Present:	Cres ONO ON/A	1.		
Chain of Custody Filled Out:				
Chain of Custody Relinquished:				
Sampler Name & Signature on COC:		4		
Samples Arrived within Hold Time:				
Short Hold Time Analysis (<72hr):				
Rush Turn Around Time Requested:				
Sufficient Volume:	Dres DNo DN/A		in the second second second second second second second second second second second second second second second	
Correct Containers Used:				
-Pace Containers Used:	Dres DNo DN/A	0.		
Containers Intact:		10		
Filtered volume received for Dissolved tests		-	the second second second second second second second second second second second second second second second s	
Sample Labels match COC:		the second second second second second second second second second second second second second second second se		
-Includes date/time/ID/Analysis Matrix:	-W		58	1
All containers needing preservation have been checked.		42		
All containers needing preservation are found to be in compliance with EPA recommendation.		10.		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	Dares IZNo	Initial when completed	Lot # of added	
Samples checked for dechlorination:			preservative	
Headspace in VOA Vials (>6mm):		-		
Trip Blank Present:				
Trip Blank Custody Seals Present				
Pace Trip Blank Lot # (if purchased):				
Client Notification/ Resolution:			Field Data Required? Y	/ N
Person Contacted:		Time:		
Comments/ Resolution:				
		·····		
	 			
Project Manager Review:			Date:	
Note: Whenever there is a discrepancy affecting North C	arolina compliance com	nles a conv of this form	I be cost to the North Courts	IN O
Certification Office (i.e. out of hold, incorrect preservative	, out of temp, incorrect	containers)	e sent to the North Carolina DEI	אויור
			F-ALLC003rev.3, 11Sep	tember2006

"Important Note: By signing that form you are accepting Pace's N	One sample set submitted for HGWA-1, HGWA-2, HGWA-3 but results will be reported for AP-1/2/3 SDGs	"Major ions= Alk, Bicarb Alk, Fe, Mg, Mn, K, Na, Sulfide	App. UI&N Metals= Sb, Ba, Be, B. Ca, Cr, Co, Pb, U, Mo	Please note dry wells, strike thorugh any wells not sampled, and I	ADDITIONAL COMMENTS	P FD 83						4	-8 HCWC 120	4 HGWA 122		HGWA-2	HGWA-1	SAMPLE ID (A-Z, 0-97) Sample IDs MUST BE UNIQUE		Section D Valid Matrix Codes		Requested Due Date/TAT: 10 Day Pro	Fax	Email To SCS Contacts Pu			Section A Section A Section A Section A Section A Section A Required Client Information Recompany. GA Power Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A Section A SectionA Section A Section A Section A Section A Section A Section A	Face Analytical
NAME AND SI	Ven William Have 1/11/20	9	DHOR/ BEV			П	WT C	WT C	1-1	- WT 0	MAT C		W7 0		6	0 4-1-W	le Uzry	MATRIX CODE (see valid co SAMPLE TYPE (G=GRAB C DA rit	des to le	l)		Project Number: GW6581	Project Name: Plant Hammond AD-3 Company Minute	Purchase Order No.		Copy To Gensynler Contacts	Section B Required Project Information:	The Chain-of-Cuite
HE WALKER TANKAR	113 Art Win	5 180 April antherper 1640	10 ADS West Courses a co	TIME ACCEPTED BY / AFFILIATION		Т											J I H H H H H H H H H H H H H H H H H H H	p. III&IV Metals 6010/6020* D 226/228	Preservatives	Requested /	Page Prolite # 10839-5/10839-2	Manager Manager	Pace Quole Reference	Address	Company Name:	Attention: Southern Co.	Section C Invoice Information	The Cham-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.
1-15-27	111/2 1/14		7/15/20 1705	DATE TIME											×	×		ijor ions**	Z	Requested Analysis Filtered (Y/N)	1	Sita Location	FUST FRC	「 NPDES 「 GR	REGULATORY AGENCY	-		ed accurately.
Temp in *C Received on Ice (Y/N) Custody isealed Cooler (Y/N) amples Intact (Y/N)				SAMPLE CONDITIONS			N pH=		N pH=	N PH =	N-pHa-				N DH= 2.55 QUZ	1 00 21. £ = Hq N	R Pace Project No./ Lab I.D.	esidual Chlorine (Y/N)			GA			GROUND WATE DRINKING WATER			Page: 1 Viron of	

Page 41 of 63

				results wi	"Major io	App. mo	note whe		12	11	10		0	7		() ()	4	S	N	10 - 4 - 10	ITEM #			Request	PUDDe	Email Io		Address	Company	Required C	0
mpodant Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to take changes of 1.5% pe				One sample set submitted for HGWA-1, HGWA-2, HGWA-3 but results will be reported for AP-1/2/3 SDGs	"Major ions= Alk, Bicarb Alk, Fe, Mg, Mn, K, Na. Suinde	IV Medas= 30, Ba, Ba, B, Ca, Cr, Co, Pb, Li, Mo	noise when the last sample for the event has been taken.	ADDITIONAL COMMENTS	~FB-03	-WWW-40D	TRIV-44	SC MMA	CE WINE	CHOWC-124	HGALC-121A	-HCWC-128-	HGWA-122	HGWA-3	-HOWA2	-HOWA-1		Section D Valid Matrix Codes Required Clent Information MATRIX COI		Requested Due Oate/TAT: 10 Day		SCS Contacts		Atlanta, GA		le	Face Analytical
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CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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Please note dry wells, strike thorugh any wells not sampled, and note when the last sample for the event has been taken. "App. IB&IV Metals= Sb, Ba, Be, B, Ca, Cr, Co, Pb, Li, Mo Email To: Section A One sample set submitted for HGWA-1, HGWA-2, HGWA-3 but results will be reported for AP-1/2/3 SDGs Requested Due Date/TAT: ddress. Company: Required Client Information: ITEM # Major ions= Alk, Bicarb Alk, Fe, Mg, Mn, K, Na, Sulfide N 3 8 . 60 -. • ch. 6 Section D Required Cloril Inform ace Analytical (A-2, 0-9 / .-) Sample IDs MUST BE UNIQUE GA Power Important Note SCS Contacts Atlanta, GA SAMPLE ID ADDITIONAL COMMENTS Shill Gundrs Ag HGWC-TZTA HOWA-122 HGWA-2 HGWA-3 10 Day HGWC-120 HONG 124 HGWA-1 R **WW-46D** MW-32 MW-41 BE-MM FD-03 form you are accepting Pace's NET 30 day payment DIBARDAG WATER WATER WASTE WATER PRODUCT SOIL/SOLID OIL Valid Matrix Codes MATRIX <u>CODE</u> Copy To: Geosyntec Contacts Section B Required Project Information: Project Number: GW6581 Purchase Order No.: Report To: SCS Contacts Project Name and PRAL A WT O \$ 5 WTG RELINQUISHED BY / AFFILIATION ŧ ŧ A 1 3 ŧ 4 MATRIX CODE (see valid codes to left) 6 AD1 þ d 6 4 d Plant Hammond AP-3 Semiannual/BKG 04 0 Kupper Jeo 6 SAMPLE TYPE (G=GRAB C=COMP) 12/21 wedin IN terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days. DATE 2 1348 SAMPLER NAME AND SIGNATURE TIME COLLECTED SIGNATURE OF SAMPLER: PRINT Name of SAMPLER: Chad 1900 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately. CHAIN-OF-CUSTODY / Analytical Request Document DATE 1/22/24 9121/20 9/12/20 TIME DATE T 3 SAMPLE TEMP AT COLLECTION Reference: Pace Project Manager: 0905 1815 2110 Section C Company Name: Attention: ~ # OF CONTAINERS ace Quote ddress nvoice Information TIME Profee #: 10839-5/10839-2 w ω ω Unpreserved H2SO4 Preservatives Russo 4 HNO₃ Norra Kevin Herring Southern Co. 5 HCI Kupp NaOH LINX Na2S2O3 ACCEPTED BY / AFFILIATION Methanol TŦ Ŧ Other -Τ Y/N Analysis Test inter and Prchloride, Fluoride, Sulfate DATE Signed (MIM/DD/YY): × z HEW Requested Analysis Filtered (YIN) × × DS z × × × × App. III&IV Metals 6010/6020 z × × × × RAD 228/228 z 9/21/1020 × × × Asior ions" z REGULATORY AGENCY Site Location 9/22/24 9/21/20 WITCUL UST NPDES DATE STATE: 7 326 ٦ 2110 JAK TIME GROUND WATE RCRA R Page 4 F-ALL-Q-020rev.07, 15-Feb-2007 Temp in *C ŧ 2 1 P z z Residual Chlorine (Y/N) z PH SO. - Ha DH-PHT 3 早三 만 = Received on Ice (Y/N) SAMPLE CONDITIONS Pace Project No./ Lab I.D. 12415842 80. ٩, Custody OTHER CCR DRINKING WATER Sealed Coole 3 (Y/N) 2 B Samples Intac (Y/N) 0

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(NIA)	Requested Analysis Filtered	Requested /	- Constant											e
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App. III&IV Metals= Sb, Ba, Ba, B, Ca, Cr, Co, Pb, U, Mo Section A One sample set submitted for HGWA-1, HGWA-2, HGWA-3 but results will be reported for AP-1/2/3 SDGs mail to ddress Company. Required Client Information: TION IN "Major ions= Alk, Bicarb Alk, Fe, Mg, Mn, K, Na, Sulfide . ITEM # lease note dry wells, strike thorugh any wells not sampled, and equested Due Date/TAT: = 10 -1 8 • N 12 * Section D **Required** Clent Information (A-Z 0-9 / ,-) Sample IDs MUST BE UNIQUE GA Power Atlanta, GA SCS Contacts SAMPLE ID ADDITIONAL COMMENTS HEARE-151Y 10 Day Fex HOWA-122 HGWC-120 HOMC-124 HGWA-3 -MW-40D-HGWA-2 ZS-MAN HGWA-1 MW-39 WW-41 1000 Valid Matrix Codes MATRIX Codes Webotownite OW VIER WY VIER WW VIER WW VIER WW VIER WW VIET WW VIET SA DE (see VB) Project Number: GW6581 Project Name Plant Hammond AP-3 Semiannual/BKG 04 Copy To: Geosyntec Contacts Report To: SCS Contacts Section B Required Project Information Purchase Order No. Thomas husder Brenner loution ¥ M 8 **RELINQUISHED BY / AFFILIATION** 41 0 AL 3 4/22 HUR 4 ٤ WI G WT G MATRIX CODE 9 9 G 9 6 b SAMPLE TYPE (G=GRAB C=COMP) 4/24 18316 DATE Lin 120 11 SAMPLER NAME AND SIGNATURE and TIME COLLECTED Pala lopes SIGNATURE of SAMPLER: PRINT Name of SAMPLER: HUCOMUS FOURDATE DATE 64-0 3216 2/20 0855 24 /24 TIME DATE H Ø 8 SAMPLE TEMP AT COLLECTION Pace Quale Relevance: Pace Project Kevin Herring 0752 Attention: Section C 2000 Company Name moice Infor # OF CONTAINERS Address: ſ 130 ace Profile #: 10839-5/10839-2 TIME 44 4 Unpreserved 4 ω 4 H2SO4 HNO₃ ation 4 4 414 Preservatives Southern Co. 4 w Med HCI NaOH J à ۶ Na2S203 ACCEPTED BY / AFFILIATION Necsly NIE Methanol -4 Other Y/ N Analysis Test 1 XX XX chloride, Fluoride, Sutfate DATE Signed z Pres an Gar Howna Requested Analysis Filtered (Y/N) XX × × XX DS z × App. III&IV Metals 6010/6020* × 1 × z × × × RAD 226/228 z REGULATORY AGENCY × × × ×× Major ions* z × Site Location 02/192/150 1/211 4-28 UST NPDES 24 20 DATE STATE: 2 E C 7 2000 2540 398 14 TIME RCRA GROUND WATI R Page: I Temp in *C || ‡ | ‡ | * 17 z Ł z. Residual Chlorine (Y/N) z • p11--7_(2) ł 3 1 pH = LEG I DH=696 P. Z Received on Pace Project No./ Lab i.D. MULLASSALL SAMPLE CONDITIONS Ice (Y/N) 205 9 Custody aled Coo OTHER COR DRINKING WATER C (Y/N) N Samples Inte the second (Y/N) 06 T 016

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to tate changes of 1.5% per month (or any involves not paid within 30 days

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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.

ace Analytical

Quality Control Sample Performance Assessment

MS/MSD 2

MS/MSD 1

Face Analytical		Analyst Must Manually Enter All Fields Highlighted in Yellow.
Test:	Ra-226	
Analyst	LAL	Sample Matrix Spike Control Assessment MS/MSE
Date:	10/6/2020	Sample Collection Date:
Worklist	56393	Samole I.D.
Matrix:	DW	Sample MS I.D.
		Sample MSD I,D.
Method Blank Assessment		Spike I.D.:
MB Sample ID	2009755	MS/MSD Decay Corrected Spike Concentration (pCi/mL);
MB concentration:	0.119	Spike Volume Used in MS (mL):
M/B Counting Uncertainty:	0.159	Spike Volume Used in MSD (mL):
MB MDC:	0.326	MS Aliquot (L, g, F);
MB Numerical Performance indicator:	1,46	MS Target Conc.(pCi/L, g, F);
MB Status vs Numerical Indicator:	N/A	MSD Aliauot (L. c. F):
MB Status vs. MDC:	Pass	MSD Target Conc. (pCl/l, g, F):
		MS Spike Uncertainty (calculated):
Laboratory Control Sample Assessment	LCSD (Y or N)?	N MSD Spike Uncertainty (calculated):

	0010007			
MB concentration:	0.119		Spike Volume Used in MS (mL):	
M/B Counting Uncertainty:	0.159		Spike Volume Used in MSD (mL):	
MB MDC:	0.326		MS Aliquot (L, g, F):	
MB Numerical Performance Indicator:	1.46		MS Target Conc.(pCi/L, g, F);	
MB Status vs Numerical Indicator.	N/A		MSD Aliauot (L. c. F):	
MB Status vs. MDC:	Pass		MSD Target Conc. (pC/A., g, F):	
			MS Spike Uncertainty (calculated):	
Laboratory Control Sample Assessment	LCSD (Y or N)?	z	MSD Spike Uncertainty (calculated):	
	LCS56393	LCSD56393	Sample Result:	
Count Date:	10/7/2020		Sample Result Counting Uncertainty (pCi/l, g, F);	
Spike I.D.:	19-033		Sample Matrix Spike Result:	
Decay Corrected Spike Concentration (pCi/mL):	24.044		Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	
Volume Used (mL):	0.10		Sample Matrix Spike Duplicate Result:	
Aliquot Volume (L, g, F):	0.505		Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F);	
Target Conc. (pCi/L, g, F):	4.763		MS Numerical Performance Indicator:	
Uncertainty (Calculated):			MSD Numerical Performance Indicator:	
Result (pCi/L, g, F):			MS Percent Recovery:	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):			MSD Percent Recovery:	
Numerical Performance Indicator.	-0.53		MS Status vs Numerical Indicator.	
Percent Recovery:	95.58%		MSD Status vs Numerical Indicator:	
Status vs Numerical Indicator:	N/A		MS Status vs Recovery:	
Status vs Recovery:	Pass		MSD Status ve Beowery	
Inner % Renvent Imits	125%		MCRACD Linner 92 Decontory Limiter	
	120.00		NO/MOD OPPER & LECARD LINES	
Lower % Recovery Limits:	%c/		MS/MSD Lower % Recovery Limits:	ļ
Duplicate Sample Assessment			Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.:	92495649004	Enter Duplicate	Sample I.D.	
Duplicate Sample 1.D. 92495649004DUP	92495649004DUP	sample IDs if	Sample MS I.D.	
Sample Result (pCi/L, g, F):	0.205	other than	Sample MSD I.D.	
Sample Result Counting Uncertainty (pCi/L, g, F):		LCS/LCSD in	Sample Matrix Spike Result:	
Sample Duplicate Result (pCi/L, g, F):	0.239	the space below.	Matrix Spike Result Counting Uncertainty (pCi/L, g, F);	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.276		Sample Matrix Spike Duplicate Result:	
Are sample and/or duplicate results below RL?	See Below #		Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	
Duplicate Numerical Performance Indicator:	-0.193	92495649004	Duplicate Numerical Performance Indicator:	
Duplicate RPD:	15.40%	92495649004DUP	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	
Developments Office and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Market and Mar				

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Duplicate Numerical Performance Indicator: Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/ MSD Duplicate RPD: MS/ MSD Duplicate Status vs RPD: MS/ MSD Duplicate Status vs RPD Unit

N/A Pass 25%

Duplicate Status vs RPD: % RPD Limit:

Duplicate Status vs Numerical Indicator:

Comments:

TAR_56393_W.xls Total Alpha Radium (R104-3 11Feb2019).xls M. N. N. W

2002/L/01 mp

Pace Analytical

Quality Control Sample Performance Assessment

Ra-226	LAL 10/6/2020	56393 DW
Test	Analyst Date:	Worklist: Matrix:

MS/MSD 2

MS/MSD 1

Sample I.D. Sample MS I.D.

Sample MSD I.D. Spike LD.

MS/MSD Decay Corrected Spike Concentration (pCi/mL):

Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL):

MS Aliquot (L, g, F); MS Target Conc. (pCi/L, g, F). MSD Aliquot (L, g, F); MSD Target Conc. (pCi/L, g, F);

MS Spike Uncertainty (calculated) MSD Spike Uncertainty (calculated) sult Counting Uncertainty (pCi/L, g, F)

Sample Collection Date:

Sample Matrix Spike Control Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment MB Sample ID 20 MB concentration: 0 MB Counting Uncertainty: 0 MB MDC: 0 MB MDC: 0 MB MDC: 0	2009755 0.119 0.159 0.326 1.46
MB Status vs Numerical Indicator:	NVA
MB Status vs. MDC:	Dace

÷	10/7/2020	Count Date:
2	LCS56393	
	LCSD (Y or N)?	Control Sample Assessment
	Pass	MB Status vs. MDC:
	NA	MB Status vs Numerical Indicator:
	1.46	MB Numerical Performance Indicator:
	0.326	MB MDC:
	~~~~	

LCSD ( Count Date: 10/2 Spike I.D.: 528 ( Volume Used (mL): 0516 ( Miguot Volume Used (mL): 0516 ( Aliquot Volume Used (mL): 0516 ( Jincertainty (ColiL, 9, F): 0516 ( Dincertainty (ColiL, 9, F): 0516 ( Dincertainty (ColiL, 9, F): 0516 ( Percent Recovery: 0518 ( Volume Used Indicator: 0518 ( Volume Status vs Recovery: 0518 ( Status vs Recovery: 0518 ( Status vs Recovery: 0518 ( Volupticate Sample I,D.: LCS Duppicate Sample I, 9, F): 00				Are comelo and/as durilante and/as his halani Di O
LCSD (Y or N)?         Y         MSD Si           Count Date:         10/7/2020         10/7/2020         10/7/2020           Spike I.D.:         10/7/2020         10/7/2020         Sample Result Count           Spike I.D.:         10/7/2020         10/7/2020         Sample Result Count           Spike I.D.:         10/7/2020         10/7/2020         Sample Result Count           Aliquot Volume Used (mL):         24.044         24.044         Sample Result Count           Jonechtainty Calculated):         0.10         0.10         Matrix Spike Duplicate Result Count           Jonechtainty Calculated):         0.550         0.510         Matrix Spike Duplicate Result Count           Jonechtainty Calculated):         0.057         0.051         MS Num           Jonechtainty Calculated):         0.057         0.730         Matrix Spike Duplicate Result Count           Jonechtainty (Calculated):         0.057         0.730         0.730         Matrix Spike Duplicate Result Count           Jonechtainty (Calculated):         0.770         0.770         0.790         Matrix Spike Puplicate Result Count           Jonetrainty (Calculated):         0.770         0.770         0.790         Matrix Spike Puplicate Result Count           Status vs Recovery:         175%         N/A	Sample Matrix Spike Duplicate Result:		0.790	Sample Duplicate Result Counting Uncertainty (pCi/L, g, F);
LCSD (Y or N)?         Y         MSD St           Count Date:         10/7/2020         10/7/2020         Sample Result Count           Spite I.D.:         10/7/2023         24.044         Xantix Spike Result Count           Volume Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           Inget Coro.         0.507         0.510         Matrix Spike Duplicate Result Count           Incertainty (calculated):         0.553         4.533         4.593           Drocertainty (pc/fl, g, F):         4.753         4.593         MS Num           Terrent Recovery:         0.558%         97.35%         MS S           Volume Used (mL):         0.770         0.730         0.730           Drocertainty (pc/fl, g, F):         0.770         0.735         MS S           Status vs Recovery:         95.58%         97.35%         MS S           Status vs Recovery:         125%         75%         MS S           Wer % Recovery Limits:         12	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	the space below.	4.593	Sample Duplicate Result (pCi/L, g, F):
LCSD (Y or N)?         Y         MSD Sy           Count Date:         1LCSD (Y or N)?         Y         MSD Sy           Spike I.D.:         19772020         10772020         10772020         Sample Result Count           Spike I.D.:         19.0778020         10772020         19.0778         Sample Result Count           Spike I.D.:         19.07780         19.0778         Matrix Spike Result Count         Sample Result Count           Aliquo Volume Used (mL):         24.044         24.044         24.044         Sample Result Count           Jingot Volume Used (mL):         0.10         0.10         0.10         Natrix Spike Duplicate Result Count           Jocentainty (cit.l., 9.1):         0.510         0.510         Matrix Spike Duplicate Result Count         Sample MS Num           Jocentainty (pcif., 9.1):         0.573         0.570         0.570         MS Num           Jocentainty (pcif., 9.1):         0.790         0.790         MS Num         MS Num           Jocentainty (pcif., 9.1):         0.553         97.35%         MS Nu         MS NS           Jocentainty (pcif., 9.1):         0.538         97.35%         MS NS         MS NS           Status vs Recovery:         95.58%         97.35%         MS NS         MS NS <t< td=""><td>Sample Matrix Spike Resut:</td><td>LCS/LCSD in</td><td>0.770</td><td>Sample Result Counting Uncertainty (pCi/L, g, F);</td></t<>	Sample Matrix Spike Resut:	LCS/LCSD in	0.770	Sample Result Counting Uncertainty (pCi/L, g, F);
LCSD (Y or N)?         Y         MSD Si           Count Date:         10/7/2020         19/7/2020         Sample Result Count           Spike I.D.:         10/7/2020         19/7/2020         Sample Result Count           Spike I.D.:         10/7/2020         19/7/2020         Sample Result Count           Aliquot Volume Used (mL):         24.044         24.044         Sample Result Count           Jourt Volume Used (mL):         0.10         0.10         Matrix Spike Duplicale Result Count           Jonentainty (Calculater):         24.044         24.044         Sample MS Num           Jonentainty (Calculater):         0.550         0.510         Matrix Spike Duplicale Result Count           Jonentainty (Calculater):         0.057         0.057         0.057         Matrix Spike Duplicale Result Count           Jonentainty (Calculater):         0.057         0.057         0.057         Matrix Spike Duplicale Result Count           Jonentainty (Calculater):         0.057         0.057         0.051         Matrix Spike Duplicale Result Count           Jonentainty (Calculater):         0.0790         0.0790         0.0790         Matrix Spike Duplicale Result Count           Jonentainty (Calculater):         10.555%         97.36%         MS NU         MS S           Verentrecov	Sample MSD I.D.	other than	4.553	Sample Result (pCi/L, g, F):
LCSD (Y or N)?         Y         MSD Si           Count Date:         10/7/2020         10/7/2020         10/7/2020           Spike I.D.:         10/7/2020         10/7/2020         10/7/2020           Spike I.D.:         10/7/2020         10/7/2020         Sample Result Count           Spike I.D.:         10/7/2020         19.033         Sample Result Count           Volume Used (mL):         24.044         24.044         Sample Result Count           Journary Volume Used (mL):         0.10         0.10         Matrix Spike Result Count           Journary Volume Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           Journary Volume Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           Jocertainty (Calculated):         0.057         0.510         Matrix Spike Duplicate Result Count           Jocertainty (Calculated):         0.057         0.510         Matrix Spike Duplicate Result Count           Jocertainty (Calculated):         0.057         0.770         0.790         Matrix Spike Rouplicate Result Count           Jordertainty (Calculated):         0.770         0.770         0.790         Matrix Spike Puplicate Result Count           Jordertainty (Calculated):         0.770         0.770         0.790	Sample MS I.D.	sample IDs if	LCSD56393	Duplicate Sample I.D.
LCSD (Y or N)?         Y         MSD Si           Count Date:         10/7/2020         10/7/2020         Sample Result Count           Spike I.D.:         10/7/2020         19.033         Sample Result Count           Spike I.D.:         10/7/2020         19.033         Sample Result Count           Aliquot Volume Used (mL):         24.044         24.044         Sample Result Count           Jourt Volume Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           Journ Volume Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           Jonchrlainty (Calculater):         1.4.718         Matrix Spike Duplicate Result Count           Jonchrlainty (Calculater):         0.553         0.510         Matrix Spike Duplicate Result Count           Jonchrlainty (Calculater):         0.533         4.593         MS Num           Jonchrlainty (Calculater):         0.533         97.36%         MS S           Jonchrainty (Calculater):         0.533         97.36%         MS S           Jonchrainty (Calculater):         0.534         Percontery Limits:         75%           Jonchrainty (Calculater):         1.55%         N/A         MS S           Jonchrainty (Calculateor:         0.533         9.53% <td< td=""><td>Sample I.D.</td><td>Enter Duplicate</td><td>LCS56393</td><td>Sample I.D.:</td></td<>	Sample I.D.	Enter Duplicate	LCS56393	Sample I.D.:
LCSD (Y or N)?         Y         MSD Si           Count Date:         10/7/2020         10/7/2020         Sample Result Count           Spike I.D.:         10/7/2020         19.033         Sample Result Count           Concentration (pCl/mL):         24.044         24.044         Sample Result Count           Aliquot Volume Used (mL):         0.10         0.10         Matrix Spike Result Count           Dicertainty (calculated):         24.044         24.044         Sample Monton           Uroutine Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           Dicertainty (calculated):         9.510         Matrix Spike Duplicate Result Count         MS Num           Uncertainty (pCl/L, g, F):         0.533         0.510         Matrix Spike Duplicate Result Count         MS S           I Percent Recovery:         4.553         4.593         0.314         MS S         MS S           I Percent Recovery:         9.35%         N/A         N/A         MS S         MS S         MS S           Status vs Recovery:         Pass         7.5%         7.5%         MS/MS         MS/MS	Matrix Spike/Matrix Spike Duplicate Sample Assessment			Duplicate Sample Assessment
LCSD (Y or N)?         Y         MSD St.           Count Date:         10/7/2020         10/7/2020         10/7/2020           Spike I.D.:         10/7/2020         19.130         Sample Result Count           Concentration (pcl/mL):         24.044         24.044         Sample Result Count           Aliquot Volume Used (mL):         0.10         0.10         Matrix Spike Result Count           Job Aliquot Volume Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           Job Aliquot Volume Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           Job Aliquot Volume Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           Job Aliquot Volume Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           Job Aliquot Volume Used (mL):         0.10         0.116         Matrix Spike Duplicate Result Count           Job Result (pcl/t, g, F):         4.553         4.593         Matrix Spike Duplicate Result Count           Job Result (pcl/t, g, F):         0.5790         0.311         Matrix Spike Duplicate Result Count           Job Result (pcl/t, g, F):         0.533         97.36%         MS S           Job Result (pcl/t, g, F):         0.534         MS S				
LCSD (Y or N)?         Y         MSD St.           Count Date         LCS565333         LCS565333         LCS565333         LCS565333         MSD St.           Spike I.D.:         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.0772020         19.077200         19.077200         19.07700         19.07700         19.07700         19.07700         19.07700         19.07700         10.07700         10.07700         10.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700         0.07700	MS/MSD Lower % Recovery Limits:	75%	75%	Lower % Recovery Limits:
LCSD (Y or N)?         Y         MSD Si           Count Date:         LCSB65333         LCSD656333         LCSD656333         LCSD656333         LCSD656333         MSD Si           Count Date:         LCS565333         LCS565333         LCS565333         LCS1656333         LCS1656333         LCS1656333         LCS1656333         LCS1656733         LCS161         MSD Si           Concentration (pCl/mL):         19-033         10-033         10-033         Matrix Spike Result Count 3           Aliquot Volume (L, 9, F):         0.10         0.10         Matrix Spike Duplicate Result Count 3           Jonentainty (pCl/L, 9, F):         4.763         4.718         MS Numn MS Num MS Num Siget Conc. (pCl/L, 9, F):         0.057         0.057           Jonentainty (pCl/L, 9, F):         0.530         0.790         0.790         MS Num Siget Conc. (pCl/L, 9, F):         MS Num Siget Co	MS/MSD Upper % Recovery Limits:	125%	125%	Upper % Recovery Limits:
LCSD (Y or N)?         Y         MSD Si           LCSD (Y or N)?         Y         MSD Si           LCSD (Y or N)?         N         N           Count Date:         10/7/2020         10/7/2020         Sample Result Count           Spike I.D.:         10/7/2020         19.033         Sample Result Count           Volume Used (mL):         24.044         24.044         Sample Result Count           Aliquot Volume Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           Insertainty (Calculate):         24.044         24.044         Sample M           Incertainty (Calculate):         0.10         0.10         Matrix Spike Duplicate Result Count           Uncertainty (Calculate):         4.763         4.718         MS Num           Uncertainty (Calculate):         0.530         0.531         Matrix Spike Duplicate Result Count           Uncertainty (pc/it, g, F):         0.770         0.790         0.790         0.790           Uncertainty (pc/it, g, F):         0.770         0.790         0.790         0.790           Percent Recovery:         N/A         N/A         N/A         MS Si           Volume Used Indicator:         97.35%         N/A         MS Si	MSD Status vs Recovery:	Pass	Pass	Status vs Recovery:
LCSD (Y or N)?         Y         MSD Si           LCSD (Y or N)?         Y         MSD Si           LCSD (Y or N)?         Natrix Spike Result Count           Spike I.D.:         10/7/2020         10/7/2020           Spike I.D.:         19/7/2020         19/7/2020           Alquot Volume Used (mL):         24.044         24.044           Volume Used (mL):         24.044         24.044           Noutor Volume Used (mL):         0.10         0.10           Alquot Volume Used (mL):         0.510         Matrix Spike Duplicate Result Count           Ingert Conc., (pc/it, g, F):         0.5510         Matrix Spike Duplicate Result Count           Incertainty (Calculater):         0.573         4.593           Uncertainty (pc/it, g, F):         4.553         4.593           Uncertainty (pc/it, g, F):         0.790         0.790           Differentianty (pc/it, g, F):         0.730         0.730           Percent Recovery:         9.5.36%         97.35%           MS S         97.35%         MS S	MS Status vs Recovery:	N/A	N/A	Status vs Numerical Indicator:
LCSD (Y or N)?         Y         MSD Sr           LCSD (Y or N)?         Y         MSD Sr           LCSD (Y or N)?         Natrix Spike I.D.:         10.772020           Spike I.D.:         10.772020         10.772020         10.772020           Spike I.D.:         19.033         19.033         Sample Result Count           Volume Used (mL):         24.044         24.044         Sample Result Count           Aliquot Volume Used (mL):         0.10         0.10         Sample Matrix Spike Duplicate Result Count           Inset Conc. (pCi/l, g. F):         0.505         0.510         Matrix Spike Duplicate Result Count           Inset Conc. (pCi/l, g. F):         0.503         0.510         Matrix Spike Duplicate Result Count           Incertainty (calculated):         0.057         0.057         0.057           Dicertainty (pCi/l, g. F):         0.770         0.730         0.730           Unmarce Indicat.         0.733         0.33         0.31         MS S	MSD Status vs Numerical Indicator:	97.35%	95.58%	Percent Recovery:
LCSD (Y or N)?         Y         MSD Si           LCSSD (Y or N)?         Y         MSD Si           LCSSD (Y or N)?         NS         NS           Count Date:         10/7/2020         10/7/2020           Spike I.D.:         19-033         19-033           Concentration (pC/imL):         24.044         Matrix Spike Result Count           Volume Used (mL):         0.10         0.10         Sample Result Count           Jinquot Volume (L, g, F):         0.505         0.510         Matrix Spike Duplicate Result Count           Jncettainty (Calculated):         0.057         0.510         Matrix Spike Duplicate Result Count           Jncettainty (pC/iL, g, F):         0.057         0.573         0.593           Uncertainty (pC/iL, g, F):         0.770         0.790         0.790	MS Status vs Numerical Indicator:	-0.31	-0.53	Numerical Performance Indicator:
LCSD (Y or N)?         Y         MSD Si           LCSS (Y or N)?         Y         MSD Si           Count Date:         LCS56533         LCSD56533         LCSD56533           Count Date:         10/7/2020         10/7/2020         Sample Result Count           Spike I.D.:         10/7/2020         19/033         Sample Result Count           Concentration (pCi/mL):         24.044         24.044         Sample Result Count           Volume Used (mL):         0.10         0.10         Matrix Spike Result Count           Aliquot Volume (L, g, F):         0.505         0.510         Matrix Spike Duplicate Result Count           Jncertainty (Calculate)         0.571         Matrix Spike Duplicate Result Count         MS Num.           Jncertainty (Calculate)         0.557         0.557         0.557         Matrix Spike Duplicate Result Count	MSD Percent Recovery:	0.790	0.770	LCS/LCSD Counting Uncertainty (pCi/L, g, F):
LCSD (Y or N)?         Y         MSD Si           LCSD (Y or N)?         Y         MSD Si           Count Date:         LCS56333         LCSD56333         LCSD562333           Count Date:         10/7/2020         10/7/2020         10/7/2020           Spike I.D.:         19/07         19.033         Sample Result Count           Concentration (pCl/mL):         24.044         24.044         Sample Result Count           Volume Used (mL):         0.10         0.10         Matrix Spike Result Count           Aliquot Volume (L, 9, F):         0.505         0.510         Matrix Spike Duplicate Result Count           Ingert Conc. (pCl/L, 9, F):         0.505         0.510         Matrix Spike Duplicate Result Count           Incertainty (Calcutater):         0.057         0.057         0.057         MSD Num	MS Percent Recovery:	4.593	4.553	Result (pCi/L, g, F):
LCSD (Y or N)?         Y         MSD St           LCSS6593         LCS56533         MSD St           LCSS65033         LCS56533         Sample Result Count           Spite I.D.:         19.0772020         10.772020         Sample Result Count           Spite I.D.:         19.033         19.033         Sample Result Count           Volume Used (mL):         24.044         Z4.044         Sample Result Count           Alquot Volume Used (mL):         0.10         0.10         Matrix Spike Duplicate Result Count           arget Conc. (pC//L, 9, F):         0.505         0.510         Matrix Spike Duplicate Result Count	MSD Numerical Performance Indicator:	0.057	0.057	Uncertainty (Calculated):
LCSD (Y or N)?         Y         MSD Si           LCSS (Y or N)?         Y         MSD Si           Count Date:         10/7/2020         LCSD65333           Spike I.D.:         19-033         19-033           Spike I.D.:         19-033         19-033           Concentration (pCi/mL):         24.044         24.044           Volume Used (mL):         24.044         24.044           Aliquot Volume Used (m1, g, F):         0.505         0.510	MS Numerical Performance indicator;	4.718	4.763	Target Conc. (pCi/L, g, F):
LCSD (Y or N)?         Y         MSD Si           LCSSD (Y or N)?         Y         MSD Si           Count Date:         10/7/2020         10/7/2020           Spike I.D.:         19-033         19-033           Concentration (pc//mL):         24.044         24.044           Volume Used (mL):         0.10         0.10	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, q, F);	0.510	0,505	Aliquot Volume (L, g, F):
LCSD (Y or N)?         Y         MSD Si           LCS56533         LCS56533         LCS56533         MSD Si           Count Date:         10/7/2020         10/7/2020         Sample Result Count           Spike I.D.:         19-033         19-033         Matrix Spike Result Count	Sample Matrix Spike Duplicate Result:	0.10	0.10	Volume Used (mL):
LCSD (Y or N)? Y MSD 5r LCSD65333 LCSD65333 Count Date: 107/72020 107/72020 Sample Result Count Spike LD.: 19-023 19-033 19-033	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	24.044	24.044	Decay Corrected Spike Concentration (pCl/mL):
LCSD (Y or N)? Y LCS56593 LCS56533 Count Date: 10/7/2020 10/7/2020 Sample Resu	Sample Matrix Spike Result:	19-033	19-033	Spike I.D.:
LCSD (Y or N)? Y LCS66333 LCSD66333	Sample Result Counting Uncertainty (pCi/L, g, F);	10/7/2020	10/7/2020	Count Date:
LCSD (Y or N)? Y	Sample Result	LCSD56393	LCS56393	
	MSD Spike Uncertainty (calculated):	٢	LCSD (Y or N)?	Laboratory Control Sample Assessment

Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator:

(Based on the Percent Recoveries) MS/ MSD Duplicate RPD

495649004DL 2495649002

4.553 0.770 4.593 0.790 0.790 N.7 1.83% N/A Pass 25%

Duplicate Numerical Performance Indicator (Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:

Duplicate Status vs Numerical Indicator

Duplicate Status vs RPD: % RPD Limit

Are sample and/or duplicate results below RL?

## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

MS/ MSD Duplicate Status vs Numerical Indicator. MS/ MSD Duplicate Status vs RPD: % RPD Limit.

Comments:

TAR DW QC Printed: 10/7/2020 9:36 AM

UAM 10/1/2020

TAR_56393_W.xls Total Alpha Radium (R104-3 11Feb2019).xls



# Quality Control Sample Performance Assessment

MS/MSD 2

MS/MSD 1

<u>Analyst Must Manually Enter All Fields Highlighted in Yellow.</u>	ample Coll	Sample I.D. Sample MS I.D. Sample MSD I.D.	Spike I.D.: MSMSD Deray Corrected Solive Concentration (nCi/mL):	Spike Volume Used in MS (mL):	Spike Volume Used in MSD (mL); MS Aliauot (L. a. F);	MS Target Conc.(pCVL, g, F):	MSD Target Conc. (pCi/L, g, F): MSD Target Conc. (pCi/L, g, F): MS Suite Hometrick / Concurrently:	MS Spike Uncertainty (calculated). MSD Spike Uncertainty (calculated):	Sample Result:	Sample Resuit Counting Uncertainty (pCi/L, g, F): Samole Matrix Soike Result:	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F); MS Numerical Performance Indicator:	MSD Numerical Performance Indicator:	MS Percent Recovery:	MSD Percent Recovery: MS Status vs Numerical Indicator	MSD Status vs Numerical Indicator:	MS Status vs Recovery:	MSD Status vs Recovery:	MS/MS/J Upper % Recovery Limits; MS/MSD Lower % Recovery Limits;	ate Sample Assessment	Samole I.D.	Sample MS I.D.	Sample MSD I.D.	Sample Matrix Spike Result	Matrix Spike Result Counting Uncertainty (pCI/L, g, F);	Sample Matrix Spike Duplicate Result Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, q, F):	Duplicate Numerical Performance Indicator:	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD:
<u>Analyst Must Manually En</u>	Sample Matrix Spike Control Assessment S		MSMSN Derev Correct						CSD56394	10/6/2020 Sample Result			0.512 Matrix Spike Duplicate Result	2		0.322				125% 75%	Matrix Spike/Matrix Spike Duplicate Sample Assessment	Enter Duplicate	sample IDs if	other than		the space below. Matrix Spike Result	San Matrix Spike Duplicate Result	Duplicate	(Based on the Percent Rec	MS/ MSD Dupli	_
Ra-226	LAL 10/6/2020	56394 DW	2000756	0.092	0.177 0.408	1.02	N/A Pass	CSD (Y or N)?	F	10/7/2020	24.044	0.10	0.514 4 675	0.056	3.980	0.760	85.14%	N/A	Pass	125% 75%		1 CS56394 Fri					0.322 NO	-1.143	11.03%	N/A	Pass
Pace Analytical Test	Analyst Date:	Worklist: Matrix:	Method Blank Assessment MD Samola ID	MB concentration:	M/B Counting Uncertainty: MB MDC:	MB Numerical Performance Indicator:	MB Status vs Numerical Indicator: MB Status vs. MDC:	aboratory Control Samole Assessment		Count Date:	Decay Corrected Spike Concentration (pCi/mL):	Volume Used (mL):	Aliquot Volume (L, g, F):	Uncertainty (Calculated):	Result (pCi/L, g, F):	LCS/LCSD Counting Uncertainty (pC//L, g, F): Municipal Deformance Indicators		Status vs Numerical Indicator:	Status vs Recovery:	Upper % Recovery Limits: Lower % Recovery Limits:	Dublicate Sample Assessment	. [] - Jumes	Duplicate Sample I.D.	Sample Result (pCi/l., g, F):	Sample Result Counting Uncertainty (pCi/L, g, F);	Sample Duplicate Result (pC/IL, g, F).	Sample Duplicate Result Counting Uncertainty (pCvL, g, h): Are sample and/or duplicate results below RL2	Duplicate Numerical Performance indicator:	(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	Duplicate Status vs Numerical Indicator:	Duplicate Status vs RPD:

## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

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# Quality Control Sample Performance Assessment

	Z QSWSW		
Yellow.	MS/MSD 1		
<u>Analyst Must Manually Enter All Fields Highlighted in Yellow.</u>	Sample Matrix Spike Control Assessment Sample Collection Date: Sample I.D. Sample MS I.D. Sample MS I.D.	Spike IJD: MS/MSD Decay Corrected Spike Concentration (pc/irm): Spike Volume Used in MS (mL): Spike Volume Used in MS (mL): Spike Volume Used in MS (mL): MS Target Conc. (pc/it., g. F): MSD Target Conc. (pc/it., g. F): MSD Target Conc. (pc/it., g. F): MSD Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated): MSD Spike Duplicate Result Matrix Spike Result Counting Uncertainty (pc/it., g. F): MSD Numerical Result Counting Uncertainty (pc/it., g. F): MSD Numerical Performance Indicator: MSD Numerical Performance Indicator: MSD Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MSD Status vs Numerical Indicator: MSD Status vs Recovery Limits: Matrix Spike Matrix Spike Duplicate Result Matrix Spike Natrix Spike Duplicate Result Matrix Spike Result Counting Uncertainty (pc/it., g. F): Sample Matrix Spike Result Matrix Spike Result Counting Uncertainty (pc/it., g. F): Sample Matrix Spike Result Matrix Spike Result Counting Uncertainty (pc/it., g. F): Sample Matrix Spike Result Matrix Spike Duplicate Result Matrix Spike Duplicate Result Matrix Spike Duplicate Result Counting Uncertainty (pc/it., g. F): Sample Matrix Spike Result Counting Uncertainty (pc/it., g. F): Sample Matrix Spike Result Counting Uncertainty (pc/it., g. F): Sample Matrix Spike Result Counting Uncertainty (pc/it., g. F): Sample Matrix Spike Result Counting Uncertainty (pc/it., g. F): Cample Matrix Spike Result Counting Uncertainty (pc/it., g. F): Sample Matrix Spike Result Counting Uncertainty (pc/it., g. F): Cample Matrix Spike Duplicate Result C	(based on the rencent recovertes) may made Dupmake rencer MS/ MSD Duplicate Status vs Numerical Indicator: MS/ MSD Duplicate Status vs RPD MS/ MSD Duplicate Status vs RPD Limit;
		N LCSD56394 LCSD56394 Enter Duplicate sample IDs if other than LCS/LCSD in the space below.	1012001000068525
Ra-226	LAL 10/6/2020 56394 DW	2009756 0.177 0.408 1.02 N/A Pass 1.02 N/A Pass 24.044 0.17 0.17020 19.033 24.044 0.166 3.980 0.056 3.980 0.056 3.980 0.056 3.980 0.750 0.179 85.14% N/A Pass 75% 75% 0.339 0.339 0.339 0.339 0.334 0.334 0.334 0.334 0.334 0.334 0.360	04.30% N/A 25%
Pace Analytical" Test:	Analyst Date: Worklist Matrix:		Duplicate Status vs Numerical Indicator: Duplicate Status vs RPD % RPD Limit.

## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

0.702 (Cioi MM Pin Nice precision - Nice Man 101) 2070

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1 of 1

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MS/MSD 2 MS/MSD 1 Analyst Must Manually Enter All Fields Highlighted in Yellow. Sample I.D. Sample MS I.D. MS/ MSD Duplicate Status vs RPD: % RPD Limit: Sample Matrix Spike Duplicate Result: Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/ MSD Duplicate RPD: MSD Aliquot (L, g, F): MS/MSD Upper % Recovery Limits: Sample MSD I.D. Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g. F): Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F); MS/ MSD Duplicate Status vs Numerical Indicator. Sample Collection Date: Sample I.D. Sample MS I.D. Sample MSD I.D. Spike I.D. MS/MSD Decay Corrected Spike Concentration (pCi/mL) Spike Volume Used in MS (mL) MS Aliquot (L, g, F) MS Target Conc.(pCi/L, g, F): MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated): VISD Spike Uncertainty (calculated) Sample Result: Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F); MS Percent Recovery: MSD Percent Recovery MS Status vs Numerical Indicator MSD Status vs Numerical Indicator MS Status vs Recovery MSD Status vs Recovery MS/MSD Lower % Recovery Limits Spike Volume Used in MSD (mL) MSD Numerical Performance Indicator MS Numerical Performance Indicator Matrix Spike/Matrix Spike Duplicate Sample Assessment Sample Matrix Spike Control Assessment 92497113001 497113001 Enter Duplicate he space below sample IDs if LCS/LCSD in LCSD56587 10/14/2020 19-033 24.044 0.512 4.697 4.459 0.56 0.59 94.94% N/A N/A 75% 75% other than 10/13/2020 10/14/2020 19-033 24.044 0.10 0.508 4.732 0.057 4.419 _CSD56587 (V io V) .CS56687 0.793 -0.77 93.40% _CS5658] NO -0.071 1.64% Ra-226 56587 DW 2016810 -0.005 0.135 0.392 -0.08 4.419 0.793 4.459 0.781 Pass 125% 75% N/A Pass 25% Pass MA  $\overline{}$ Test: Duplicate Numerical Performance Indicator: (Based on the LCS/LCSD Percent Recoveries) Duplicate RPD: Duplicate Status vs Numerical Indicator: Date: Worklist: Matrix: MB Status vs Numerical Indicator: MB Status vs. MDC: Upper % Recovery Limits: Lower % Recovery Limits: Sample I.D.: Duplicate Sample I.D. Sample Result (pCi/L, g, F): Sample Result Counting Uncertainty (pCi/L, g, F): Sample Duplicate Result (pCi/L, g. F): Are sample and/or duplicate results below RL? Duplicate Status vs RPD: Analyst MB Sample ID MB MDC: MB Numerical Performance Indicator: Count Date: Decay Corrected Spike Concentration (pCi/mL): Volume Used (mL): Aliquot Volume (L, g, F): Target Conc. (pCi/L, g, F); Uncertainty (Calculated): Result (pCi/L, g, F): LCS/LCSD Counting Uncertainty (pCi/L, g, F): Percent Recovery: Status vs Recovery: Sample Duplicate Result Counting Uncertainty (pCi/L, g, F); MB concentration: Numerical Performance Indicator Status vs Numerical Indicator M/B Counting Uncertainty. Spike I.D. Laboratory Control Sample Assessmen Duplicate Sample Assessmen Pace Analytical Method Blank Assessment

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Quality Control Sample Performance Assessment

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## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

% RPD Limit:

Quality Control Sample Performance Assessment	erformance Assessment	
Face Analytical" ************************************	<u>Analyst Must Manually Enter All Fields Highlighted in Yellow.</u>	
Analyst: LAL Date: 10/13/2020 Workliet: 56587	Sample Matrix Spike Control Assessment MS/MSD 1 Sample Collection Date: Sample 1D.	1 MS/MSD 2
	Sample MS I.D. Sample MSD I.D. Solite I.D.	
MB Sample ID 2016810 MB concentration: -0.005	MS/MSD Decay Corrected Spike Concentration (pC/mL): Solive Volume Used in MS (mL):	
	Spike Volume Used in MSD (mt): MS Aliquet (L, g, F):	
	MS Target Conc.(pC/N_, g, F): MSD Aliquot (L, g, F):	
MB Status vs. MDC: Pass	MSD Target Conc. (pCi/L, g, F): MS Spike Uncertainty (calculated):	
-	MSD Spike Uncertainty (calculated):	
Count Date: 10/14/2020 Count Date: 10/14/2020	Sample Result: Sample Result Counting Uncertainty (pCt/L, g, F);	
	Sample Matrix Syle Result:	
Decay Corrected Spike Concentration (putimu.): 24.044   Volume Used (mL): 0.10	Matrix Spike Result Counting Uncertainty (puert, g, r.); Sample Matrix Spike Duplicate Result;	
Aliquot Volume (L, g, F): 0.508	Matrix Spike Duplicate Result Counting Uncertainty (pC/L, g, F): MS Nimerical Performance indicator	
	MSD Numerical Performance Indicator:	
	MS Percent Recovery: MSD Parcent Bernwood	
	MS Status vs Numerical Indicator:	
<b>б</b>	MSD Status vs Numerical Indicator:	
Status vs Numerical Indicator: N/A Status vs Docession Doce	MSD Status vs Recovery: MSD Status vs Recovery:	
-	MS/MSD Upper % Recovery Limits: MS/MSD Jourow & Percovery Limits:	
Duplicate Sample Assessment	Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.: 92497113001 Enter Duplicate Duplicate Sample I.D. 92497113001DUP sample IDs if	Sample 1.D. Sample MS 1.D.	
0.393	Sample MSD I.D.	
Sample Result Counting Uncertainty (PU/L, 9, F); U.25/ LUS/LUSU II Sample Dunlicate Result (nCi/L or F): 0.393 the space below.	Matrix Spike Result Counting Uncertainty (pCt/L, g, F):	
0.369		
Are sample and/or duplicate results below RL? See Below ##	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	
18	(Based on t	
nerical Indicator:	MS/ MSD Duplicate Status vs Numerical Indicator: MS/ MSD Duplicate Status ve DDD-	
UUPPINGARE Status VS KPU Limit 25%	Red mode compared cards of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the contr	

## **Quality Control Sample Performance Assessment**

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## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

Face Analytica

# Quality Control Sample Performance Assessment

MS/MSD 2

MS/MSD 1

Sample I.D. Sample MS I.D.

Sample MSD I.D. Spike I.D.:

MS/MSD Decay Corrected Spike Concentration (pCi/mL):

Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F) MS Target Conc.(pCi/L, g, F):

Sample Collection Date:

Sample Matrix Spike Control Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

	Ra-226	LAL	10/13/2020	56591	MQ	
	Test:	Analyst:	Date:	Worklist:	Matrix:	
af"	<del>3</del> -1					1

Method Blank Assessment	
MB Sample ID	2016817
MB concentration:	0.280
M/B Counting Uncertainty:	0.235
MB MDC:	0.418
MB Numericai Performance Indicator.	2.33
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass
Laboratory Control Sample Assessment	LCSD (Y or N)

	Cantrol Cample Accocoment
Pass	MB Status vs. MDC:
N/A	MB Status vs Numerical Indicator:
2.33	MB Numerical Performance Indicator.
0.418	MB MDC:
0.235	M/B Counting Uncertainty:
202.2	

19-033		Snike I D
10/14/2020	10/14/2020	Count Date:
LCSD56591	LCS56591	
٢	LCSD (Y or N)?	ory Control Sample Assessment
	Pass	MB Status vs. MDC:
	N/A	MB Status vs Numerical Indicator:
	2.33	MB Numerical Performance Indicator.
	0.418	

MSD Aliquot (L, g, F): MSD Target Conc. (pCi/l, g, F): MS Spike Uncertainty (calculated):

MSD Spike Uncertainty (calculated)

Sample Result:

• • • • •	LCS56591	LCSD56591	Sample Result:
Count Date:	10/14/2020	10/14/2020	Sample Result Counting Uncertainty (pCi/L, g, F):
Spike I.D.:	19-033	19-033	Sample Matrix Spike Result:
Decay Corrected Spike Concentration (pCi/mL):	24.044	24.044	Matrix Spike Result Counting Uncertainty (pCI/L, g, F):
Volume Used (mL):	0.10	0.10	Sample Matrix Spike Duplicate Result:
Aliquot Volume (L, g, F):	0.512	0.510	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):
Target Conc. (pCi/L, g, F):	4.697	4.711	MS Numerical Performance Indicator:
Uncertainty (Calculated):	0.056	0.057	MSD Numerical Performance Indicator:
Result (pCi/L, g, F):	4,666	4.350	MS Percent Recovery:
LCS/LCSD Counting Uncertainty (pCi/L, g, F);	0.761	0.758	MSD Percent Recovery:
Numerical Performance Indicator:	90,0-	-0.93	MS Status vs Numerical Indicator.
Percent Recovery:	99.33%	92.35%	MSD Status vs Numerical Indicator.
Status vs Numerical Indicator:	N/A	N/A	MS Status vs Recovery:
Status vs Recovery:	Pass	Pass	MSD Status vs Recovery:
Upper % Recovery Limits:	125%	125%	MS/MSD Upper % Recovery Limits:
Lower % Recovery Limits:	75%	75%	MS/MSD Lower % Recovery Limits:
Duplicate Sample Assessment			Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D.:	LCS56591	Enter Duplicate	Sample I.D.
Duplicate Sample I.D.	LCSD56591	sample iDs if	Sample MS I.D.
Sample Result (pCi/L, g, F):	4.666	other than	Sample MSD I.D.
Sample Result Counting Uncertainty (pCift, g, F):	0.761	LCS/LCSD in	Sample Matrix Spike Result:

## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC. N/A Pass 25% % RPD Limit

O PROHIMON MAN

MS/ MSD Duplicate Status vs RPD: % RPD Limit:

2202/hilon wor

Matrix Spike Result Counting Uncertainty (pCi/L, g, F):

he space belov

4.666 0.761 4.350 0.758 NO 7.29%

Sample Result Counting Uncertainty (pCift., g, F): Sample Ungificate Result (pCift., g, F): Sample Dupficate Result (pCift., g, F): Sample Dupficate Result Counting Uncertainty (pCift., g, F): Are sample and/or dupficate results below RL?

Duplicate Numerical Performance Indicator:

(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:

Duplicate Status vs Numerical Indicator:

Duplicate Status vs RPD:

Sample Matrix Spike Duplicate Result Duplicate Numerical Performance Indicator

Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): (Based on the Percent Recoveries) MS/ MSD Duplicate RPD: MS/ MSD Duplicate Status vs Numerical Indicator.

Comments:

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Face Analytical

# **Quality Control Sample Performance Assessment**

Pace Analytical			<u>Analyst Must Manually Enter All Fields Highlighted in Yellow.</u>	ellow.	
	Ra-226				
Analyst: Date:	LAL 10/13/2020		Sample Matrix Spike Control Assessment Sample Collection Date:	MS/MSD 1 M:	MS/MSD 2
Worklist Matrix	56591 DW		Sample I.D. Sample MS I.D.		
Method Blank Assessment			Sample MSD I.D.		
MB Sample ID	2016817		MS/MSD Decay Corrected Spike Concentration (pCi/mL):		
MB concentration: M/B Counting LIncertainty	0.280		Spike Volume Used in MS (mL): Saito Volume Load in MSD (mL):		
MB MDC:	0.418		William Addition and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s		
MB Numerical Performance Indicator:	2.33		MS Target Conc.(pCi/L, g, F):		
MB Status vs Numerical Indicator: MB Status vs. MDC:	N/A Pass		MSD Aliquot (L, g, F); MSD Target Conc. (pCML, g, F);		
			MS Spike Uncertainty (calculated):		
ŀ	LCSD (Y or N)?	z	MSD Spike Uncertainty (calculated):		
Count Date:	LCS56591 10/14/2020	LCSD56591	Sample Result Counting Uncertainty (oCitit or E):		
Spike I.D.:	19-033		Sample Matrix Spike Result:		
Decay Corrected Spike Concentration (pCt/mL): Volume Lead (m1):	24.044		Matrix Spike Result Counting Uncertainty (pCI/L, g, F):		
Aliquot Volume (L. q. F):	0.512		<ul> <li>Matrix Snike Dunlicate Result Counting Uncertainty (nCin a EV)</li> </ul>		
Target Conc. (pC/lL, g, F):	4.697		MS Numerical Performance Indicator		
Uncertainty (Calculated):	0.056		MSD Numerical Performance Indicator:		
LCS/LCSD Counting Uncertainty (pCl/L, g, F);	4.000	-	MS Percent Recovery: MSD Percent Percent		
Numerical Performance Indicator:	-0.08		MS Status vs Numerical Indicator		
Percent Recovery:	99.33%		MSD Status vs Numerical Indicator.		
Status vs Numencal Indicator	A/A		MS Status vs Recovery:		
linner % Recovery Linner %	105%		MSD Status vs Recovery:		
Lower % Recovery Limits:	75%		MOVINOU OUDER TO RECOVERY LITTICS		
Duplicate Sample Assessment			Matrix Spike/Matrix Spike Duplicate Sample Assessment		
Sample I.D.:	92496904020	Enter Duplicate	Samole   D		
	92496904020DUP	sample IDs if	Sample MS I.D.		
Sample Result (pCi/L, g, F):	0.317	other than	Sample MSD I.D.	,	
Sample Result Counting Uncertainty (pCi/L, g, F):		LCS/LCSD in	Sample Matrix Spike Result:		
Sample Unplicate Result (pCVL, 0, F): Sample Disfinate Result Counting (1000001, 0, F):	-	the space below.	Matrix Spike Result Counting Uncertainty (pCIA, g, F):		
Administry of the sample and/or duplicate results below R1.9	See Relow ##		Sample Matrix Spike Duplicate Pesult Counting (conductor Result;		
Duplicate Numerical Performance Indicator,		92496904020	Duplicate Numerical Performance Indicator:		•
Duplicate RPD:	ş	92496904020DUP	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD;		
Duplicate Status vs Numerical Indicator.	A/A		MS/ MSD Duplicate Status vs Numerical Indicator:		
Duplicate Status vs RPD:	Pass		MS/ MSD Duplicate Status vs RPD:		
	%.07				
## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.	nple or duplicate re	ssults are below the			
Comments:					
				21010100	14417
					シーフラー
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Pace Analytical

## **Quality Control Sample Performance Assessment**

MS/MSD 2

<u>Analyst Must Manually Enter All Fields Highlighted in Yellow.</u>	Sample Matrix Spike Control Assessment Sample Collection Date: Sample Collection Date: Sample I.D. Samole NG. I.D.	MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Aliquot (L, g, F): MS Target Conc. (pCi/L, g, F): MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F):	MS Spike Uncertainty (calculated):	MSD Spike Uncertainty (calculated): Sample Result	Sample Result Counting Uncertainty (pCl/I., g. F): Sample Matrix Spike Result:	Matrix Spike Result Counting Uncertainty (pCl/t., g, F): Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCl/L, g, F): MS Numerical Performance Indicator:	MSD Numerical Performance Indicator	MSD Percent Recovery: MSD Percent Recovery: MS Status vs Numorical Indicators	MSD Status v Numerical Indicator	MS Status vs Recovery: MSD Status vs Recovery: MSMSD Upper % Recovery Limits: MSMSD Lower % Recovery Limits:	Matrix Spike/Matrix Spike Duplicate Sample Assessment	Sample I.D. Sample MS I.D. Sample MS I.D. Sample MS I.D. Sample Matrix Spike Result Matrix Spike Result Counting Uncertainty (pC/I, g, F): Sample Matrix Spike Duplicate Result Sample Matrix Spike Duplicate Result Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/ MSD Duplicate RPD: MS/ MSD Duplicate Status vs RPD Limit: MS/ MSD Duplicate Status vs RPD Limit:
Analys				LCSD56593		0.10	Matrix					Matrix Sj	Enter Duplicate sample IDs if other than LCS/LCSD in the space below. 92495887027DUP 92495887027DUP
Ra-226	10	2016820 -0.021 0.127 0.392 -0.32 N/A Pass		LCSD (Y or N)? LCS56593	10/15/2020 19-033	24.044 0.10	0.508 4.737	0.057	4.134 0.806 1.46	87.27%	N/A Pass 125%		92495887027 92495887027DUP 0.155 0.155 0.165 0.165 0.104 See Below ## 0.209% NA NA Pass 25%
Test Test	Analyst Date: Worklist Matrix:	Method Blank Assessment MB Sample ID MB concentration: M/B Counting Uncertainty: M/B Counting Uncertainty: MB Numerical Performance indicator: MB Status vs Numerical indicator: MB Status vs Numerical indicator:		Laboratory Control Sample Assessment	Count Date: Spike I.D.:	Decay Corrected Spike Concentration (pCl/mL): Volume Used (mL):	Aliquot Volume (L, g, F): Target Conc. (pC)/L, g, F):	Uncertainty (Calculated):	LCS/LCSD Counting Uncertainty (pCi/L, g, F): Numerical Derformance Infiniteror	Percent Recovery	Status vs numencal indicator. Status vs Recovery: Upper % Recovery Limits: Lower % Recovery Limits:	Duplicate Sample Assessment	Sample I.D.: Duplicate Sample I.D.: Sample Result (pCifL, g, F): Sample Duplicate Result (pCifL, g, F): Sample Duplicate Result (pCifL, g, F): Sample Duplicate Result (pCifL, g, F): Are sample and/or duplicate results below RL? Duplicate Numerical Performance Indicator: Duplicate Status vs Numerical Indicator: Duplicate Status vs RPD Limit:

## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:



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Face Analytical

## Quality Control Sample Performance Assessment

			<u>Analyst Must Manually Enter All Fields Highlighted in Yellow</u>	<u>Yellow.</u>	
	077-22				
Analyst Date:	VAL 10/13/2020		Sample Matrix Spike Control Assessment Sample Collection Date:	MS/MSD 1	MS/MSD 2
Worklist Matrix:	56588 WT		Sample I.D. Sample MS I.D.		
Method Blank Assessment			Sample MSU I.U. Spike I.D.:		
	2016812		MS/MSD Decay Corrected Spike Concentration (pCl/mL):		
MB 2 Sigma CSU:	0.388		Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL):		
MB MDC:	0.600		MS Aliquot (L, g, F):		
MB Numerical Performance Indicator:	4.58		MS Target Conc.(pCi/L, g, F):		
MB Status vs Numerical Indicator: MB Status vs. MDC:	Fail* See Comment*		MSD Aliquot (L. g. F.); MSD Target Conc. (pCi/L, g, F.);		
			MS Spike Uncertainty (calculated):		·
Laboratory Control Sample Assessment	LCSD (Y or N)?	7	MSD Spike Uncertainty (calculated):		
	LCS56588	LCSD56588	Sample Result:		
Count Date: Snike ID -	10/15/2020 20-030	10/15/2020 20-030	Sample Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Solke Result		
Decay Corrected Spike Concentration (pCi/mL):	38.018	38.018	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):		
Volume Used (ml.):	0.10	0.10	Sample Matrix Spike Duplicate Result.		
Aliquot Volume (L, g, F):	0.817	0.810	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
arget Conc. (pCNL, g, F):	4.634	4.655			
Uncertainty (Calculated):	0.228	0.230	MSU NUMERCAI PERFORMANCE Indicator: MS Dercent Recovery		
LCS/LCSD 2 Sigma CSU (pCI/L, g, P):	1.207	1.191	MSD Percent Recovery:		
Numerical Performance Indicator:	0.85	1.09	MS Status vs Numerical Indicator:		
Percent Recovery:	111.49%	114.37%	MSD Status vs Numerical Indicator:		
Status vs Numerical Indicator.	NA	N/A	MS Status vs Recovery:		
Status vs Recovery:	Pass	Pass	MSD Status vs Recovery:		
Upper % Recovery Limits: Lower % Recovery Limits:	135% 60%	130% 60%	MS/MSD Lower % Recovery Limits: MS/MSD Lower % Recovery Limits:		
Duplicate Sample Assessment			Matrix Spike/Matrix Spike Duplicate Sample Assessment		
Sample I.D.:	LCS56588	Enter Duplicate	Sample LD.		
Duplicate Sample I.D.	LCSD56588	sample IDs if	Sample MS LD.		
Sample Result (pCI/L, g, F):	5.189	other than	Sample MSU I.U.		
Sample Result 2 Sigma CSU (pUIL, g, F):	1.20/	the snare helow	Matrix Shike Result 9 Sinna CSU (nCi/l n F)-		
Sample Dunicate Result 2 Sigma CSU (pCi/L, g, T);	1.191		Sample Matrix Spike Duplicate Result:		
Are sample and/or duplicate results below RL?	N		Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
Duplicate Numerical Performance Indicator	-0,210		Duplicate Numerical Performance Indicator		
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	2.55%		(Based on the Percent Recovenes) MS/ MSU Uuplicate RPU:		
Duplicate Status vs Numerical Indicator:	Pass		MS/ MSU Duplicate Status vs Numencal Indicator. MS/ MSD Duplicate Status vs DDD:		
UUPIICATE STATUS KPUS	36%		MOJ MOJ UNDU UNDUARIO VIGILIO VA NEU.		

## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments: *The method blank result is below the reporting limit for this analysis and is acceptable.

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## **Quality Control Sample Performance Assessment**

MS/MSD 2

MS/MSD 1

Yellow.	MS/MSE																	
<u>Analyst Must Manually Enter All Fields Highlighted in Yellow.</u>	Sample Matrix Spike Control Assessment	Sample Collection Date:	Sample I.D.	Sample MSD LD.	Spike I.D.:	MS/MSD Decay Corrected Spike Concentration (pCi/mL):	Spike Volume Used in MS (mL):	Spike Volume Used in MSD (mL):	MS Aliquot (L, g, F):	MS Target Conc.(pCl/L, g, F):	MSD Aliquot (L, g, F):	MSD Target Conc. (pCi/L, g, F):	MS Spike Uncertainty (calculated):	MSD Spike Uncertainty (calculated):	Sample Result:	Sample Result 2 Sigma CSU (pCi/L, g, F):	Sample Matrix Spike Result:	
					¥								1	Y	LCSD56592	10/19/2020	20-030	1000 10
Ra-228	VAL	10/16/2020	56592 WT											LCSD (Y or N)?	LCS56592	10/19/2020	20-030	000 10
Face Analytical Test	Analyst	Date:	Worklist		Method Blank Assessment	MB Sample ID	MB concentration:	M/B 2 Sigma CSU:	MB MDC:	MB Numerical Performance Indicator:	MB Status vs Numericai Indicator:	MB Status vs. MDC:		Laboratory Control Sample Assessment		Count Date:	Spike I.D.:	

UIOD DIATIK ASSESSITIERI			Spike I.U.:
MB Sample ID			MS/MSD Decay Corrected Spike Concentration (pCi/mL):
MB concentration:			Spike Volume Used in MS (mL):
M/B 2 Sigma CSU:			Spike Volume Used in MSD (mL):
MB MDC:			MS Aliquot (L, g, F):
MB Numerical Performance Indicator:			MS Target Conc.(pCi/L, g, F):
MB Status vs Numerical Indicator:			MSD Aliquot (L, g, F):
MB Status vs. MDC:			MSD Target Conc. (pCi/L, g, F):
			MS Spike Uncertainty (calculated):
poratory Control Sample Assessment	LCSD (Y or N)?	Y	MSD Spike Uncertainty (calculated):
	LCS56592	LCSD56592	Sample Result:
Count Date:	10/19/2020	10/19/2020	Sample Result 2 Sigma CSU (pCi/L, g, F):
Spike I.D.:	20-030	20-030	Sample Matrix Spike Result:
Decay Corrected Spike Concentration (pCl/mL):	37.968	37.968	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):
Volume Used (mL):	0,10	0,10	Sample Matrix Spike Duplicate Result:
Aliquot Volume (L, g, F):	0.813	0.836	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):
Target Conc. (pCi/L, g, F):	4.670	4.542	MS Numerical Performance Indicator:
Uncertainty (Calculated):	0.229	0.223	MSD Numerical Performance Indicator:
Result (pCi/L, g, F):	4.645	4.409	MS Percent Recovery:
LCS/LCSD 2 Sigma CSU (pCi/L, g, F);	1.050	1.018	MSD Percent Recovery:
Numerical Performance Indicator:	-0.04	-0.25	MS Status vs Numerical Indicator:
Percent Recovery:	99.48%	97.06%	MSD Status vs Numerical Indicator:
Status vs Numerical Indicator:	N/A	N/A	MS Status vs Recovery:
Status vs Recovery:	Pass	Pass	MSD Status vs Recovery:
Upper % Recovery Limits:	135%	135%	MS/MSD Upper % Recovery Limits:
Lower % Recovery Limits:	60%	60%	MS/MSD Lower % Recovery Limits:
			-
plicate Sample Assessment			Matrix Spike/Matrix Spike Duplicate Sample Assessment
-	-		-

Lower % Recovery Limits:	60%	60%	MS/MSD Lower % Recovery Limits:
Dupficate Sample Assessment			Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D.:	LCS56592	Enter Duplicate	Sample I.D.
Duplicate Sample I.D.	LCSD56592	sample IDs if	Sample MS I.D.
Sample Result (pCi/L, g, F):	4.645	other than	Sample MSD I.D.
Sample Result 2 Sigma CSU (pCi/L., g, F):	1.050	LCS/LCSD in	Sample Matrix Spike Result:
Sample Duplicate Result (pCi/L, g, F):	4.409	the space below.	Matrix Spike Result 2 Sigma CSU (pCi/l., g, F);
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.018		Sample Matrix Spike Duplicate Result:
Are sample and/or duplicate results below RL?	NO		Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):
Duplicate Numerical Performance Indicator:	0.317		Duplicate Numerical Performance Indicator:
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	2.46%		(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:
Duplicate Status vs Numerical Indicator:	Pass		MS/ MSD Duplicate Status vs Numerical Indicator:
Duplicate Status vs RPD:	Pass		MS/ MSD Duplicate Status vs RPD:
% RPD Limit	36%		% RPD Limit:
## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.	ample or duplicate	results are below th	e MDC.

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Comments:

Allow to 20

Ra-228 NELAC DWZ Printed: 10/20/2020 8:27 AM

Pace Analytical

## **Quality Control Sample Performance Assessment**

Face Analytical Test Analyst Date: 1	Ra-228 VAL 10/13/2020		Analyst Must Manually Enter All Fields Highlighted in Yellow Sample Matrix Spike Control Assessment Sample Collection Date:	<b>/elfow.</b> MS/MSD 1	MS/MSD 2
Worklist: Matrix:	56592 WT		Sample I.D. Sample MS I.D. Sample MSD I.D.		
Method Blank Assessment MB Sample ID	2016818		Spike I.D.: MS/MSD Decay Corrected Spike Concentration (pCi/mL):		
MB concentration: M/B 2 Signan CSU: MAP MD MCC:	0.291 0.291		Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MS Alienter (i = F F):		
MB Numerical Performance Indicator:	1.85		MS Target Conc.(pCl/L, g, F):		
MB Status vs Numerical Indicator: MB Status vs. MDC:	Pass Pass		MSD Aliquot (L, g, F): MSD Target Conc. (pCi/L, g, F):		
1	PD (V or MO	À	MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
	LCS56592	LCSD56592	Sample Result		
Count Date:	10/15/2020	10/15/2020	Sample Result 2 Sigma CSU (pCi/l., g, F):		
Spike I.D.: Derev Comented Soits Connentration (ACI/m) V	20-030 38 018	20-030	Sample Matrix Spike Result Matrix Spike Decisit 2 Sinma CSU (n.Ci/l _n_D)-		
Volume Used (mL):	0.10	0.10	Sample Matrix Spike Duplicate Result:		
Aliquot Volume (L, g, F):	0.813	0.836	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/l, g, F): MS Numerical Performance Indicator		
uncertainty (Calculated):	0.229	4.040 D.223	MSD Numerical Performance Indicator:		
Result (pCi/L, g, F):	2.226	2.963	MS Percent Recovery:		
LCS/LCSD 2 Sigma CSU (pCi/L, g, F): Numerical Performance Indicator:	0.629 -7.18	0.764 -3.91	MSD Percent Recovery: MS Status vs Numerical Indicator:		
Percent Recovery:	47.60%	65.14%	MSD Status vs Numerical Indicator:		
Status vs Numerical Indicator:		N/A 2220	MS Status vs Recovery: MSD Status vs Passurans		
Upper % Recovery Limits:	135%	135%	MS/MSD Upper % Recovery Limits:		
Lower % Recovery Limits:	60%	60%	MS/MSD Lower % Recovery Limits:		
Dunifrate Samula Accasement			Matrix Snike/Matrix Snike Dunlicate Samnle Assessment		
Dupitoare Satifyte Assessinent					
Sample LD.: Dunlicate Sample I.D.	LCS56592 I CSD56592	Enter Duplicate samole IDs if	Sample I.D. Sample MS I.D.		
	2.226	other than	Sample MSD 1.D.		
Sample Result 2 Sigma CSU (pCI/L, g, F):	0.629	LCS/LCSD in	Sample Matrix Spike Result:		
Sample Duplicate Result (pCi/L, g, F):	2.963	the space below.	Mathix Spike Result 2 Sigma CSU (pCi/l., g, F):		
Sample Duplicate Result 2 Sigma CSU (PUIL, g, F); Are sample and/or duplicate results below RL?	NO 4		Matrix Spike Duplicate Result 2 Sigma CSU (pCi/l, g, F):		
Duplicate Numerical Performance Indicator:	-1.460		Duplicate Numerical Performance Indicator:		
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	31.10%		(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:		
Duplicate Status vs Numerical Indicator	Pass		MS/ MSD Duplicate Status vs Numerical Indicator:		
Duplicate Status vs RPD: % RPD Limit:	Pass 36%		MS/ MSU UUPIICATE STATUS WS/ MSU UUPIICATE STATUS VS XFUU: WS/ MSU LIMIT:		
## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.	ple or duplicate r	esults are below th	-	۰D)	
Comments:			mar ar lar	2	
**Batch must be re-prepped due to LCS failure.					

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### Ra-228_56592_W.xls Ra-228 (R086-8 04Sep2019).xls

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## **Quality Control Sample Performance Assessment**

Matter         Task         Back         Matter         Same billion         Monton in the matter splite Carried Assessment         Monton in the matter splite Carried Assessontin the matter splite Carried Assessenter         Monton	MANY, DECENTER, CON				Analyst Must Manually Enter All Fields Highlighted in Yellow.	Yellow.	
Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission         Mission <t< th=""><th></th><th>Test</th><th>Ra-228</th><th>-</th><th></th><th></th><th></th></t<>		Test	Ra-228	-			
Worklist:     5594 Matrix:       Walk     Matrix:     5594 Matrix:       Main     Sample ID     2016821 Mills concentration:     0.339 0.373 Mills Status vs. Mills       Mills     Signa concentration:     0.337 0.373 Mills     Mills concentration:     0.337 0.373 Mills       Mills     Signa vs. Numerical Indicator:     1.44 0.010     Mills       Mills     Signa vs. Numerical Indicator:     1.44 0.010     Unstatus vs. Numerical Indicator:       Mills     Signa vs. Numerical Indicator:     1.45 0.010     0.10       Mills     Signa vs. Numerical Indicator:     1.45 0.010     0.10       Mills     Count Date:     20.303 0.013     3.018       Mills     Count Date:     2.030 0.010     0.10       Mills     Count Date:     2.030 0.013     3.018       Mills     Count Date:     2.030 0.013     3.018       Mills     Mills     0.10     0.10       Mills     Mills		Analyst: Dafe:	VAL 10/13/2020		Sample Matrix Spike Control Assessment Sample Collection Date:	MS/MSD 1	WSM
MB Sample ID     2016821       MB concentration:     0.359       MB Starus vs. Numerical Performance indicator:     0.373       MB Numerical Performance indicator:     0.373       MB Numerical Performance indicator:     194       MB Status vs. Numerical Indicator:     194       MB Status vs. Numerical Indicator:     194       MB Status vs. Numerical Indicator:     194       MB Status vs. Numerical Indicator:     194       MB Status vs. Numerical Indicator:     194       MB Status vs. Numerical Indicator:     194       Numerical Performance Indicator:     2030       Target Conc.     0.10       Volume Used (mL);     0.10       Volume Used (mL);     0.10       Mumerical Indicator:     2.952       Numerical Indicator:     0.13       Anguer Volume Lised (mL);     0.10       Numerical Indicator:     0.13       Numerical Indicator:     0.13       Status vs. Numerical Indicator:     0.13       Numerical Resolut (pCUL, g. F):     0.35%       Numerical Result (pCUL, g. F):     0.35%       Numerical Result (pCUL, g. F):     0.35%       Numerical Result (pCUL, g. F):     0.35%       Duplicate Result (pCUL, g. F):     0.35%       Duplicate Result (pCUL, g. F):     0.35%       Duplicate		Worklist: Matrix:	56594 WT		Sample I.D. Sample MS I.D.		
MB Sample ID     2016821       MB Concentration:     0.353       MB Numerical Performance Indicator:     0.373       MB Numerical Performance Indicator:     0.378       MB Status vs. MDC:     0.376       MB Status vs. MDC:     0.369       MB Status vs. MDC:     0.378       MB Status vs. MDC:     0.379       MB Status vs. MDC:     0.369       Alguot Volume Used (mL):     0.10       Spike ID:     20-030       Mencial Performance Indicator:     20-13       Numerical Performance Indicator:     0.010       Numerical Performance Indicator:     0.313       Numerical Performance Indicator:     0.316       Numerical Performance Indicator:     0.322       Numerical Performance Indicator:     0.316       Numerical Performance Indicator:     0.316       Numerical Performance Indicator:     0.316       Numerical Performance Indicator:     0.315%       Noberer K Recovery Limits:					Sample MSD I.D.		
MB concentration: 0.359 MB concentration: 0.359 MB MDC: 0.778 MB Numerical Performance Indicator: 1.94 MB Status vs. MDC: 7.85 MB Numerical Performance Indicator: 1.94 MB Status vs. MDC: 7.95 MB Numerical Performance Indicator: 1.94 MB Status vs. MDC: 7.0010 Decay Corrected Splee Concentration (pc/m): 20.030 20.030 Decay Corrected Splee Concentration (pc/m): 20.030 Niguot Volume Lise of (m): 0.10 Aliquot Volume Lise of (m): 0.11 Aliquot Volume Lise of (m): 0.10 Aliquot Volume Lise Colume Liber Aliantor Aliquot Volume Lise Filling Aliantor Aliquot Aliantor Aliquot Aliantor Duplicate Result (pCU, g, F) Aliante Result (pCU, g, F) Aliante Result (pCU, g, F) Aliante Duplicate Result (pCU, g, F) Aliante Result (pCU, g, F) Ali	Method Blank Assessment	MB Sample ID	2016821		Spike Concentration (pCi/mL): MS/MSD Decay Corrected Spike Concentration (pCi/mL):		
MB Status vs. MDC.     0.773       MB Mumerical Performance indicator:     0.373       MB Status vs. MDC.     0.78       MB Status vs. MDC.     1.94       MB Status vs. MDC.     1.015/2020       Decay Corrected Splice Concentration (pc/m):     30.16       Volume Used (mL):     20:030       Noture Used (mL):     20:030       MB Status vs. MDC.     2.223       Uncertainty (Calculated):     0.10       Mumerical Performance Indicator:     9.83       MB Status vs. MDC.     0.33       Mumerical Performance Indicator:     0.33       Mumerical Performance Indicator:     0.10       MDC.     0.10       MDR Status vs. Numerical Indicator:     0.33       MDR Status vs. Numerical Indicator:     0.35       MDP Status vs. Numerical Indicator:     0.36       Sample Assessment     0.33       MDP Status vs. Numerical Indicator:     0.34       MDP Status vs. Numerical Indicator:     0.35       MDP Status vs. Numerical Indicator:     0.35       MDP Status vs. Numerical Indicator:     0.33       MDP Status vs. Numerical Indicator:     0.35       MDP Status VS     0.35 <t< td=""><td></td><td></td><td>0.369</td><td></td><td>Spike Volume Used in MS (mL):</td><td></td><td></td></t<>			0.369		Spike Volume Used in MS (mL):		
MB Numerical Performance indicator:     1.44       MB Status vs Numerical Performance indicator:     1.45       MB Status vs Numerical performance indicator:     1.45       MB Status vs Numerical performance indicator:     1.45       Control Sample Assessment     1.050 0.010       Decay Corrected Spike Concentration (pC/mL);     3.018     3.015       Nale and (pC/mL);     3.013     3.015     3.015       Aliguot Volume (L, g, F);     1.049     0.010       Numerical Performance Indicator:     0.815     1.152200       Numerical Performance Indicator:     0.815     3.015     0.815       Numerical Performance Indicator:     0.813     0.815     0.815       Numerical Performance Indicator:     0.813     0.815     0.815       Numerical Performance Indicator:     0.815     0.452%     0.815       Numerical Performance Indicator:     0.91     0.13     0.33       Status vs Numerical Indicator:     0.91     0.33     0.33       Numerical Performance Indicator:     0.91     0.32     0.36%       Numerical Performance Indicator:     0.91     0.33     0.36%       Numerical Performance Indicator:     0.91     0.33     0.36%       Numerical Performance Indicator:     0.91     0.35%     0.35%       Numerical Performa	_	7 SI	0.373		Spike Volume Used in MSD (mL): MS Alignment (I - o - F):		
MB Status vs Numerical Indicator:     Pass       MB Status vs. Numerical Indicator:     Pass       Control Sample Assessment     Count Date:       Control Concected Splee Conc. (pCiL, g, F):     0.10       Alrador Volume (La (P):     0.10       Numerical Performance     0.313       Sample Assessment     NA       Status vs Numerical Indicator:     0.46       Namerical Performance     0.325       Numerical Performance     0.325       Numerical Performance     0.325       Numerical Performance     0.33       Status vs Numerical Indicator:     0.46       Namerical Performance     0.33       Status vs Recovery:     0.33	MB Numerical F	erformance indicator:	1.94		MS Target Conc. (pCi/L, g, F):		
MB Status vs. MDC:     Pess       Control Sample Assessment     LCSD (Y or N)?       Control Sample Assessment       Control Sample Assessment       Control Bar       Control Bar       Decay Corrected Spike Concentration (pC/m);     20.03       Decay Corrected Spike Concentration (pC/m);     38.018     38.018       Outone Used     Aniquot Volume (L, g, F);     0.10     0.10       Aniquot Volume (L, g, F);     0.10     0.815     4.657       Unmencial Patienty (Calculated);     0.323     3.035     4.857       Nummerical Patienty (Calculated);     0.318     1.142       Nummerical Indicator:     0.318     1.142       Nummerical Indicator:     0.318     1.142       Numerical Indicator:     0.318     1.04.82%       Status vs Numerical Indicator:     0.356     4.87%       Status vs Numerical Indicator:     0.356     4.867       Sample Assessment     0.144     0.48       Sample Assessment     0.148     0.48       Sample Assessment     0.148     0.46       Sample Assessment     0.148     0.46       Sample Assessment     0.148     0.46       Sample Assessment     0.148     0.95	MB Status v	s Numerical Indicator:	Pass		MSD Aliquot (L, g, F):		
Control Sample Assessment         LCSD (Y or N)?         Y           Count bate:         10/15/2020         10/15/2020         10/15/2020           Spike I.D.:         30.03         38.016         20-030         38.016           Decay Corrected Spike Concentration (pc/rm1):         30.010         0.10         0.10         0.10         0.10         0.116         0.10         0.116         0.10         0.116         0.10         0.116         0.10         0.116         0.10         0.116         0.10         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116         0.116		MB Status vs. MDC:	Pass		MSU Target Conc. (pC/L, g, F): MS Saite Horostafish (rain lated):		
Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Count Date:     Coun	If ahoratory Control Sample Assessment	****	CSD (Y or NI?		MSD Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):		
Count Date:       Tori5/2020       Tori5/2020         Spike LD::       20-030       20-030         Spike LD::       20-030       20-030         Decay Corrected Spike Concentration (pc/hL);       5, F):       0,10       0,10         Aliquot Volume (L, g, F):       0,10       0,11       0,10       0,11         Aliquot Volume (L, g, F):       0,10       0,11       0,10       0,11       0,223         Ucoshie       0,01,0       0,11,0       0,12       0,223       4,857         Numerical Performace Indicator:       0,14       8,57%       4,857       4,857         Numerical Performace Indicator:       1,49       0,38       10,4,82%         Numerical Performace Indicator:       1,49       0,36       10,4,82%         Nick       Status vs Recovery Limits:       1,35%       10,4,82%       10,4,82%         Upper       Result (pc/lL, g, F):       735%       10,4,82%       NiA         Assessment       Sample LD::       1,25%       10,4,82%       NiA         Sample Assessment       Sample Result (pc/lL, g, F):       3,5%       Lower's Recovery Limits:       10,4,82%       NiA         Sample Noteiner Resovery:       1,		1	LCS56594	LCSD56594	Sample Result		
Spike ID:       Solution (Joc Crimit):       33.018       38.018       38.018         Decay Corrected Spike Concentration (pc Crimit):       33.018       38.018       38.018       38.018         Target Conc. (pc Cit.l., g, F):       0.10       0.10       0.10       0.10       0.10         Aliquot Volume (L, g, F):       Target Conc. (pc Cit.l., g, F):       0.815       3.018       38.018       0.815         Ucsiling actual conc. (pc Cit.l., g, F):       0.010       0.10       0.10       0.10       0.10         Numerical Performance Indicator       1.145       0.38       1.1452       0.228       4.885         Numerical Indicator       1.148       0.043       0.38       10.4382%       0.38         Nix       Status vs Numerical Indicator       1.143       10.4382%       10.4382%         Dupper % Recovery Limits:       1.35%       10.35%       10.4382%       10.4382%         Status vs Numerical Indicator       Nix       7.48       10.4382%       10.4382%         Status vs Numerical Indicator       Nix       7.48       10.4382%       10.4382%         Status vs Numerical Indicator       Nix       7.48       10.4382%       10.4382%         Status vs Runnerical Indicator       Nix       7.48		Count Date:	10/15/2020	10/15/2020	Sample Result 2 Sigma CSU (pCl/L, g, F):		
Decay Corrected Spike Concentration (pC/mL);     38.018     38.018     38.018       Noturne (Lis, g. F);     0.10     0.10     0.10       Aliguot Volume (Lis, g. F);     0.815     4.657       Uncertainty (Calculated);     0.75     0.223     0.225       Numerical Performance Indicator:     0.714     4.657     0.36       Numerical Performance Indicator:     0.457%     0.38     0.38       Numerical Performance Indicator:     0.743     0.35     4.57%       Numerical Performance Indicator:     0.38     0.38     0.38       Status vs Numerical Performance Indicator:     0.457%     0.36     0.36       NA     Status vs Recovery:     84.57%     104.82%     0.35%       ILCS/LCSD 2 Signa CSU (pC/L, g, F):     0.36     0.36     0.36       Status vs Recovery Imits:     0.35%     104.82%     0.36       Status vs Recovery Imits:     1.45     0.35%     104.82%       Sample Assessment     Sample I.D.     0.918     104.82%       Sample Duplicate Result (pC/L, g, F):     0.36%     104.82%       Sample Duplicate Result (pC/L, g, F):     0.36%     104.82%       Sample Duplicate Result (pC/L, g, F):     0.918     1.152       Are sample Duplicate Result (pC/L, g, F):     0.918     1.152		Spike I.D.:	20-030	20-030	Sample Matrix Spike Result:		
Notume Used (mL);     0.10     0.10     0.10       Target Orvolume (L, g, F);     0.313     0.815       Target Orvolume (L, g, F);     0.325     4.867       Uncertainty (Calculated);     9.75     0.229       Result (pCUL, g, F);     0.313     0.31       Numerical Performance Indicator:     NA     NA       Numerical Performance Indicator:     NA     NA       Status vs Numerical Indicator:     NA     NA       Nample Assessment     84,577%     0.35%       Sample Assessment     535%     0.35%       Sample Assessment     535%     0.95%       Sample Duplicate Result (pCUL, g, F);     0.918     0.90%       Sample Duplicate Result (pCUL, g, F);     0.918     0.916       Sample LD     0.916     0.918     0.916       Sample Duplicate Result (pCUL, g, F);     0.918     0.916       Sample Duplicate Result (pCUL, g, F);     0.918     0.918       Duplic	Decay Corrected Spike C	<pre>&gt;ncentration (pCi/mL):</pre>	38.018	38.018	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):		
Aliguot Volume (L, g, F), 0.813 Target Conc (Cold, g, F), 0.813 Target Conc (Cold, g, F), 0.918 1.152 Unmerical Performance Indicator 1.48 Numerical Performance Indicator 1.48 Numerical Performance Indicator 1.48 Status vs Numerical Indicator 1.48 Status vs Numerical Indicator 1.48 Status vs Numerical Indicator 1.48 Status vs Numerical Indicator 1.48 Status vs Numerical Indicator 1.48 Status vs Numerical Indicator 1.48 Status vs Numerical Indicator 1.55 Upper Resovery: Imits: 60% Duplicate Sample LD. LCS56594 Sample Assessment Sample LD. LCS56594 Sample Result 2 Sigma CSU (pC/L, g, F): 0.918 Sample Duplicate Result (pC/L, g, F): 0.918 Sample Duplicate Result (pC/L, g, F): 0.918 Sample Duplicate Result (pC/L, g, F): 0.918 Matri Sample Duplicate Result (pC/L, g, F): 0.		Volume Used (mL):	0.10	0.10	Sample Matrix Spike Duplicate Result		
arget Conc. (pCuL, g, h):     1-5/4     4-56/4       Uncertainty (Calculated):     0.229     4.892       Uncertainty (Calculated):     0.33     4.892       Numerical Performance Indicator:     -1.49     0.33       Numerical Performance Indicator:     -1.49     0.33       Status vs Numerical Indicator:     -1.49     0.33       Status vs Numerical Indicator:     -1.49     0.33       Upper % Recovery:     84.57%     104.32%       Status vs Numerical Indicator:     -1.49     0.33       Upper % Recovery Limits:     135%     104.32%       Dipper % Recovery Limits:     135%     104.32%       Sample Assessment     Sample I.D:     LCS/LCSD 5       Sample Assessment     0.918     10.432%       Sample Assessment     0.918     10.432%       Sample Assessment     0.918     10.432%       Sample Assessment     0.918     10.432%       Sample Duplicate Result (pC/L, g, F):     0.918     10.432%       Sample Duplicate Result (pC/L, g, F):     0.918     11.152       Are sample Duplicate Result (pC/L, g, F):     0.918     11.152       Are sample Duplicate Result (pC/L, g, F):     0.918     11.152       Are sample Duplicate Result (pC/L, g, F):     0.918     11.152       Are sample Duplicate	× -	quot Volume (L, g, F):	0.813	0.815	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
Insertit (p(c)L, g, F)     3.9522     4.892       ICS/LCSD 2 Sigma CSU (pC(IL, g, F)     3.952     4.892       Numerical Performance Indicator:     -1.49     0.38       Numerical Performance Indicator:     -1.49     0.33       Status vs Numerical Indicator:     -1.49     0.33       Status vs Numerical Indicator:     -1.49     0.33       Nix     Status vs Recovery:     NiA       Status vs Recovery Limits:     135%     104,32%       Upper % Recovery Limits:     135%     135%       Duplicare Sample I.D:     CSD56594     Enter Duplicate       Sample Assessment     Sample Result (pC(IL, g, F):     3.952       Sample Duplicate Result (pC(IL, g, F):     0.918     the space below.       Sample Duplicate Result (pC(IL, g, F):     0.918     1.152       Are sample Duplicate Result (pC(IL, g, F):     0.918     1.152       Are sample Duplicate Result (pC(IL, g, F):     0.918     1.152       Are sample Duplicate Result (pC(IL, g, F):     0.918     1.152       Are sample Duplicate Result 2 Sigma CSU (pC(L, g, F):     0.918     1.152       Are sample Duplicate Result 2 Sigma CSU (pC(L, g, F):     0.918     1.152       Are sample Duplicate Result 2 Sigma CSU (pC(L, g, F):     0.918     1.152       Are sample Duplicate Result 2 Sigma CSU (pC(L, g, F):     0.		let Conc. (pCi/L, g, F): sortninty (Calculated):	4.0.4	4.00/	MSD Numerical Performance Indicator.		
LCS/LCSD 2 Signa CSU (pC/L, g, F);       0.918       1.152         Numerical Performance Indicator       918       1.152         Ratus vs Numerical Recovery:       9.157%       104.82%         Status vs Numerical Indicator       NIA       2.38         Status vs Recovery:       9.157%       104.82%         Status vs Recovery:       9.157%       104.82%         Upper % Recovery Limits:       155%       105%         Lower % Recovery Limits:       155%       105%         Dupticate       5ample I.D:       LCS56594       Enter Dupticate         Sample Assessment       Sample I.D:       LCS56594       sample I.D:         Sample Dupticate Result (pC/L, g, F):       0.918       0.918       infer than         Sample Dupticate Result (pC/L, g, F):       0.918       0.918       infer than         Sample Dupticate Result (pC/L, g, F):       0.918       1.152       infer than         Sample Dupticate Result (pC/L, g, F):       0.918       1.152       infer than         Sample Dupticate Result (pC/L, g, F):       0.918       1.152       infer than         Sample Dupticate Result POLIC, g, F):       0.918       1.152       infer than         Sample Dupticate Result POLIC, g, F):       0.918       1.152		containty (Valculated). Desuit (nCi/) n E)-	9 957	4 892	MS Percent Recovery		
Numerical Performance Indicator:     -1.49     0.38       Percent Recovery:     84.57%     104.82%       Status vs Ruturs (reinding)     NA     25%       Status vs Recovery:     84.57%     104.82%       Doper % Recovery Limits:     135%     135%       Doper % Recovery Limits:     60%     60%       Bow     53mple Loc.     106.256594     Enter Duplicate       Sample Result (pClL, g, F):     3.952     1.152       Sample Duplicate Result (pClL, g, F):     0.918     LCS/LCSD in       Sample Duplicate Result (pClL, g, F):     0.918     LCS/LCSD in       Sample Duplicate Result (pClL, g, F):     0.918     LCS/LCSD in       Sample Duplicate Result (pClL, g, F):     0.918     LCS/LCSD in       Sample Duplicate Result (pClL, g, F):     0.918     LCS/LCSD in       Sample Duplicate Result (pClL, g, F):     0.918     LCS/LCSD in       Sample Duplicate Result (pClL, g, F):     0.918     LCS/LCSD in       Duplicate Result (pClL, g, F):     0.918     LCS/LCSD in       Duplicate Result (pClL, g, F):     1.152	LCS/LCSD 2 Sic	ma CSU (pCi/L, g, F);	0.918	1,152	MSD Percent Recovery:		
Percent Recovery     84.57%     104.82%       Status vs Numerical Indicator:     N/A     N/A       Status vs Recovery Limits:     50%     50%       Upper % Recovery Limits:     60%     135%       Duplicate     Sample LD:     155%     135%       Sample Assessment     Sample LD:     LCS56594     Enter Duplicate       Sample Result (pCUL, g, F):     3.952     contertian       Sample Result 2 Sigma CSU (pC/L, g, F):     3.952     ther than       Sample Duplicate Result (pCUL, g, F):     3.952     ther than       Are sample and/or duplicate Result (pCUL, g, F):     0.918     LCS/LCSD in       Duplicate Result (pCUL, g, F):     0.918     LCS/LCSD in       Duplicate Result (pCUL, g, F):     0.918     the space below.       Duplicate Result proting results below RL:     1.152     the space below.       Duplicate Results Duplicate Results below RL:     1.152     the space below.       Duplicate Results Polon RL:     1.152     the space below.       Duplicate Results Polon RL:     1.152     the space below.       Duplicate Results Polon RL:     21.38%     the results are below.       Duplicate Resorted Recoveries     21.38%     the space below.       Duplicate Resorted Recoveries     21.38%     the space below.       Duplicate Resorted Recov	Numerical	erformance Indicator:	-1.49	0.38	MS Status vs Numerical Indicator:		
Status vs Numerical Indicator:     NA     NA     NA       Status vs Recovery:     Status vs Recovery:     Pass     Pass       Upper % Recovery Limits:     60%     60%     60%       ample Assessment     Sample LD:     LCS56594     Enter Duplicate       Sample Result 2 Sigma CSU (pCi/L, g, F):     3.952     CSA/CSD in       Sample Duplicate Result (pCi/L, g, F):     0.918     ether Puplicate       Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):     0.918     ether Puplicate       On the LCS/LCSD Percent Recoveries) Duplicate Status vs RPD     1.152     the space below.       Duplicate Result 2 Sigma CSU (pci/L, g, F):     0.918     ether than       Sample Duplicate Result 2 Sigma CSU (pci/L, g, F):     0.918     ether than       Matri     0.918     1.152     the space below.       Duplicate Result 2 Sigma CSU (pci/L, g, F):     0.918     ether than       Are sample Duplicate Result 2 Sigma CSU (pci/L, g, F):     0.918     the space below.       Duplicate Result 2 Sigma CSU (pci/L, g, F):     0.918     the space below.       Duplicate Result 2 Sigma CSU (pci/L, g, F):     0.918     the space below.       Duplicate Result Resources (pci/L, g, F):     0.918     the space below.       Duplicate Result 2 Sigma CSU (pci/L, g, F):     0.918     the space below.       Duplicate Status vs Nu		Percent Recovery:	84.57%	104.82%	MSD Status vs Numerical Indicator:		
ample Assessment     Dupper % Recovery Limits:     7455     7455       ample Assessment     Lower % Recovery Limits:     135%     60%       ample Assessment     Sample I.D.:     Duplicate Sample I.D.:     155%     60%       Bample Assessment     Sample I.D.:     LCS56594     Enter Duplicate       Sample Result (pCUL, g, F):     3.952     uther than       Sample Duplicate Result (pCUL, g, F):     3.952     uther than       Sample Duplicate Result (pCUL, g, F):     3.952     uther than       Constrained Result (pCUL, g, F):     0.918     LCSALCSD in       Sample Duplicate Result 2 Sigma CSU (pCIL, g, F):     1.152     the space below.       Duplicate Result 2 Sigma CSU (pCIL, g, F):     1.152     the space below.       Duplicate Result 2 Sigma CSU (pCIL, g, F):     1.152     the space below.       Duplicate Result 2 Sigma CSU (pCIL, g, F):     1.152     the space below.       Duplicate Result 2 Sigma CSU (pCIL, g, F):     1.152     the space below.       Duplicate Results verities below RL?     NO     21.38%     the space below.       Duplicate Results Verities     7.1250     the space below.     the space below.       Duplicate Results Verities     7.138%     the space below.     the space below.       Duplicate Status ve Numerical Indicator:     2.138%     the space below.	Status	s Numerical Indicator	A/N (	AN	MS Status vs Recovery:		
Cupper of recovery Limits     Down       ample Assessment     Cover % Recovery Limits     60%     60%       ample Assessment     Duplicate Sample I.D.:     LCS56594     Enter Duplicate       Sample Result 2 Sigma CSU (pC/L, g, F):     3.952     other than       Sample Result 2 Sigma CSU (pC/L, g, F):     3.952     other than       Sample Duplicate Result 2 Sigma CSU (pC/L, g, F):     3.952     other than       Sample Duplicate Result 2 Sigma CSU (pC/L, g, F):     3.952     other than       Sample Duplicate Result 2 Sigma CSU (pC/L, g, F):     1.152     1.152       Are sample Autor duplicate results below RL2     1.152     1.152       Are sample Duplicate Result S Sigma CSU (pC/L, g, F):     1.250     1.138%       Duplicate Result 2 Sigma CSU (pC/L, g, F):     1.38%     1.152       Are sample Duplicate Status vs RPD:     1.38%     1.38%       Duplicate Status vs RPD:     36%     36%       Duplicate Status vs RPD:     36%     36%		Status vs Recovery:	rass 40ce/	SSEL	MSMSD I have & Decovery inits.		
ample Assessment     Sample I.D.:     LCS56594     Enter Duplicate       Duplicate Sample I.D.:     Duplicate Sample I.D.:     LCS56594     sample Duplicate       Sample Result pic/L, g, F):     3.952     other than       Sample Duplicate Result pic/L, g, F):     3.952     other than       Sample Duplicate Result pic/L, g, F):     3.952     other than       Sample Duplicate Result Diplicate Result pic/L, g, F):     1.152     the space below.       Duplicate Result 2 Sigma CSU (pic/L, g, F):     1.152     1.152       Are sample and/or duplicate Results below RL?     NO     1.152       Duplicate Results Verticate Results below RL?     NO     1.152       Duplicate Results Verticate Results CSU     Pass     Duplicate Results verticate Results and contration:       Duplicate Results Verticate Results Vertication:     Pass     Pass       Duplicate Status vertical Indicator:     Pass     Pass       Duplicate Precision is not applicable if either the sample or duplicate results are below the MDC		er % Recovery Limits: er % Recovery Limits:	135% 60%	60%	MS/MSD Lower % Recovery Limits:		
ample Assessment Sample LD: UCS56594 Enter Duplicate Sample LD: UCS56594 Enter Duplicate Sample LD: UCS56594 Enter Duplicate Sample ZSU (pC/L, g, F): 3.952 other than Sample Duplicate Result (pC/L, g, F): 3.952 other than Sample Duplicate Result 2 Sigma CSU (pC/L, g, F): 1.152 Are sample and/or duplicate results below RL? NO Duplicate Result 2 Sigma CSU (pC/L, g, F): 1.152 Are sample and/or duplicate results below RL? NO Duplicate Result 2 Sigma CSU (pC/L, g, F): 1.152 Are sample and/or duplicate results below RL? NO Duplicate Result 2 Sigma CSU (pC/L, g, F): 1.152 Are sample Duplicate Results below RL? The space below Are sample and/or duplicate results below RL? The space below Are sample or duplicate Results the results below RL? The sample or duplicate results are below RL? The sample or duplicate results are below the MDC Buplicate Pratus vs RPD Limit 36%							
Sample I.D.: LCS56594 Enter Duplicate Duplicate Sample I.D.: LCS56594 Enter Duplicate Sample Duplicate Sample I.D.: LCSD56594 sample IDs if Sample Duplicate Result (pC/L, g, F): 0.918 LCS/LCSD in Sample Duplicate Result (pC/L, g, F): 1.152 Are sample and/or duplicate Result below L? 1.152 Are sample and/or duplicate Result sholow RL? NO Duplicate Numerical Performance Indicator: 21.38% Duplicate Status vs Numerical Indicator: Pass Duplicate Status vs RPD Limit: 36% fiton of duplicate precision is not applicable if either the sample or duplicate results are below the MDC	Duplicate Sample Assessment				Matrix Spike/Matrix Spike Duplicate Sample Assessment		
Sample Result (pC/L, 9, F): 3.952 Sample Result (pC/L, 9, F): 3.952 Sample Duplicate Result (pC/L, 9, F): 0.918 Sample Duplicate Result (pC/L, 9, F): 0.918 Are sample Duplicate Result (pC/L, 9, F): 1.152 Are sample and/or duplicate results below RL? NO Duplicate Numerical Performance Indicator: 1.250 Duplicate Numerical Performance Indicator: 21.38% Duplicate Status vs Numerical Areas Duplicate Status vs RPD Limit: 36% (ind) of duplicate precision is not applicable if either the sample or duplicate results are below the MDC		Sample I.D.:	LCS56594	Enter Duplicate	Sample I.D.		
Sample Result 2 Sigma CSU (pCi/L, g, F): Sample Duplicate Result (pCi/L, g, F): Are sample Duplicate Result (pCi/L, g, F): Are sample and/or duplicate results (pCi/L, g, F): Are sample and/or duplicate results (pCi/L, g, F): Are sample and/or duplicate results (pCi/L, g, F): Are sample and/or duplicate results (pCi/L, g, F): Duplicate Numerical Performance Indicator: Duplicate Numerical Indicator: Duplicate Status vs Numerical Indicator: Duplicate Status vs RPD Limit: 36%	Samo	le Result (pCi/L. a. F);	3.952	other than	Sample MSD I.D.		
Sample Duplicate Result (pCi/L, g, F): 4.892 the space below. Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F): 1.152 N:0 Duplicate Numerical Performance Indicator: 1.152 N:0 Duplicate Numerical Performance Indicator: 21.38% Duplicate Status vs Numerical Andicator: 21.38% Duplicate Status vs RPD: 21.38% Duplicate Status vs RPD: 36%	Sample Result 2 Si	ma CSU (pCi/L, g, F):	0.918	LCS/LCSD in	Sample Matrix Spike Result		
Sample Duplicate Result 2 Sigma CSU (pC/U, g, F): 1.152 Are sample and/or duplicate results below RL? NO Are sample and/or duplicate results below RL? 1.350 Duplicate Recoveries) Duplicate RPD: -1.250 Duplicate Status vs RPD Limit: 36% into of duplicate precision is not applicable if either the sample or duplicate results are below the MDC	Sample Duplice	te Result (pCi/L, g, F):	4.892	the space below.	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):		
Are sample and/or uppricate headlies below KL: Are sample and/or uppricate Numerical Performance Indicator: -1.250 Duplicate Numerical Indicator: -1.38% Duplicate Status vs Numerical Indicator: Pass Duplicate Status vs RPD Limit: 36% inton of duplicate precision is not applicable if either the sample or duplicate results are below the MDC	Sample Duplicate Result 2 Si	Ima CSU (pCi/L, g, F):	1.152		Sample Matrix Spike Duplicate Result: Matrix Spike Tradicate Bosult 2 Simma 2017/2014 - 50-		
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CME IN INOU



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

July 23, 2020

Kelley Sharpe ARCADIS - Atlanta 2839 Paces Ferry Rd STE 900 Atlanta, GA 30339

RE: Project: Plant Hammond-Ash Pond #3 Pace Project No.: 92486806

Dear Kelley Sharpe:

Enclosed are the analytical results for sample(s) received by the laboratory on July 17, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network: • Pace Analytical Services - Peachtree Corners, GA

Client provided updated COC on 7/20/20.

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

Sincerely,

Maiyatacks

Maiya Parks maiya.parks@pacelabs.com (770)734-4200 Project Manager

Enclosures

cc: Jean Brown, Georgia Power David Duncan, Southern Company Warren Johnson, ARCADIS - Atlanta Christine Ridley, Southern Company Erika Yeager, Southern Company





### CERTIFICATIONS

Project: Plant Hammond-Ash Pond #3 Pace Project No.: 92486806

### Pace Analytical Services Peachtree Corners

110 Technology Pkwy, 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-Ash Pond #3

Pace Project No.: 92486806

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92486806001	H-SCC NBR	Water	07/17/20 14:15	07/17/20 17:34
92486806002	H-SCC E41	Water	07/17/20 12:30	07/17/20 17:34
92486806003	H-SCC	Water	07/17/20 12:05	07/17/20 17:34



### SAMPLE ANALYTE COUNT

Project:Plant Hammond-Ash Pond #3Pace Project No.:92486806

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92486806001	H-SCC NBR	EPA 6020B	CW1	1	PASI-GA
92486806002	H-SCC E41	EPA 6020B	CW1	1	PASI-GA
92486806003	H-SCC	EPA 6020B	CW1	1	PASI-GA

PASI-GA = Pace Analytical Services - Peachtree Corners, GA



### ANALYTICAL RESULTS

Project: Plant Hammond-Ash Pond #3

### Pace Project No.: 92486806

Sample: H-SCC NBR	Lab ID: 9248	6806001	Collected: 07/17/2	20 14:15	Received: 07	/17/20 17:34	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Metho	od: EPA 602	20B Preparation Me	ethod: EP	A 3005A			
	Pace Analytical	Services - I	Peachtree Corners,	GA				
Molybdenum	ND	mg/L	0.010	1	07/20/20 17:34	07/21/20 15:16	7439-98-7	



### ANALYTICAL RESULTS

Project: Plant Hammond-Ash Pond #3

### Pace Project No.: 92486806

Sample: H-SCC E41	Lab ID: 924	86806002	Collected: 07/17/2	20 12:30	Received: 07	/17/20 17:34	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS			20B Preparation Me		PA 3005A			
	Face Analylica	ii Services -	Peachtree Corners,	GA				
Molybdenum	ND	mg/L	0.010	1	07/20/20 17:34	07/21/20 15:39	7439-98-7	



### ANALYTICAL RESULTS

Project:	Plant Hammond-Ash Pond #3
1 10/000	

Pace Project No.: 92486806

Sample: H-SCC	Lab ID: 92	486806003	Collected: 07/17/2	20 12:05	Received: 07	/17/20 17:34 N	Aatrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS			20B Preparation Me Peachtree Corners,		PA 3005A			
Molybdenum	ND	mg/L	0.010	1	07/20/20 17:34	07/21/20 15:45	7439-98-7	



### **QUALITY CONTROL DATA**

Project:	Plant Hammond-A	sh Pond #3															
Pace Project No.:	92486806																
QC Batch:	554508		Analy	ysis Metho	od: E	EPA 6020B											
QC Batch Method:	EPA 3005A	Analy	ysis Descr	iption: 6	6020 MET												
			Labo	ratory:	F	Pace Analy	tical Servic	es - Peach	tree Corne	rs, GA							
Associated Lab Sar	nples: 92486806	001, 9248680600	02, 9248680	6003													
METHOD BLANK:	2945842			Matrix: V	/ater												
Associated Lab Sar	nples: 92486806	001, 9248680600	02, 9248680	6003													
			Blar	nk	Reporting												
Paran	neter	Units	Res	ult	Limit	Anal	yzed	Qualifier	s								
Molybdenum		mg/L		ND	0.010	0 07/21/2	0 15:05										
LABORATORY CO	NTROL SAMPLE:	2945843															
			Spike	L	CS	LCS	% R	lec									
Paran	neter	Units	Conc.	Re	sult	% Rec	Lim	its	Qualifiers								
Molybdenum		mg/L	0.	.1	0.098	9	8	80-120		_							
MATRIX SPIKE & M	IATRIX SPIKE DUF	PLICATE: 2945	-	MOD	2945845												
		92486806001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max						
			•	Spike Conc.	Result	Result	% Rec	% Rec	% Rec	RPD	RPD	Qual					
Parameter	r Units	Result	Conc.	Conc.	Result	Result	/01100	70 1100	LIIIIIII		NFD	Quai					

Results presented on 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-Ash Pond #3

Pace Project No.: 92486806

### 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.

TNTC - Too Numerous To Count

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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.



### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:Plant Hammond-Ash Pond #3Pace Project No.:92486806

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92486806001	H-SCC NBR	EPA 3005A	554508	EPA 6020B	554522
92486806002	H-SCC E41	EPA 3005A	554508	EPA 6020B	554522
92486806003	H-SCC	EPA 3005A	554508	EPA 6020B	554522

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W0#:92486806		ADDITIONAL COMMENTS									H-SOC	H-SCC E41	H-SCC NBR	SAMPLE ID One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique		Requested Due Date: 7 Day TAT	678.485.5298 Fax	Email: warren johnson@arcadis.com	2839 Paces Ferry Rd		₽ ₽	
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Custody Seal on Cooler/Box Present:  yes	🗂 no Seais	intact: 🗌 yes [	] no	
Packing Material: Dubble Wrap Dubble	Bags 🔄 None	Other		
Thermometer Used 233	Type of Ice: Wet	) Blue None [	Samples on ice, cooling pr	ocess has begun
Cooler Temperature	25 m	is Frozen: Yes No Comments:	Date and Initials of p contents:	
Chain of Custody Present: Chain of Custody Filled Out:				-
Chain of Custody Relinquished:				
Sampler Name & Signature on COC:				
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Correct Containers Used:				
-Pace Containers Used:				
Containers Intact:			3 ⁴¹	19
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Sample Labels match COC:		12.		1.00
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All containers needing preservation have been checked.		13.		
All containers needing preservation are found to be in compliance with EPA recommendation.			25	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes □No	Initial when completed	Lot # of added preservative	2
Samples checked for dechlorination:		14.		
Headspace in VOA Vials ( >6mm):		15.	~	
Trip Blank Present:	⊡Yes ⊡No ⊡N/	16.	×	
Trip Blank Custody Seals Present				
Pace Trip Blank Lot # (if purchased):				
Client Notification/ Resolution:	·		Field Data Required?	Y / N
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Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)