ASSESSMENT OF CORRECTIVE MEASURES REPORT

Plant McManus Former Ash Pond 1, Brunswick, Georgia

December 4, 2020

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ACRONYMS AND ABBREVIATIONS

ACM	Assessment of Corrective Measures
AP	Ash Pond
Arcadis	Arcadis U.S. Inc.
ASD	Alternate Source Demonstration
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
cm/s	centimeters per second
GAEPD	Georgia Environmental Protection Division
Georgia Power	Georgia Power Company
GWPS	Groundwater Protection Standard
ISS	in situ stabilization/solidification
ITRC	Interstate Technology and Regulatory Council
mg/L	milligram(s) per liter
MNA	monitored natural attenuation
O&M	operations and maintenance
ORP	oxidation reduction potential
P&T	pump and treat
PRB	permeable reactive barrier
Site	Former Ash Pond 1
SSL	Statistically Significant Level
USEPA	United States Environmental Protection Agency
ZVI	zero valent iron

1 INTRODUCTION

In accordance with the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) Rule (40 Code of Federal Regulations [CFR] Part 257 Subpart D) and the Georgia Environmental Protection Division (GAEPD) Rules of Solid Waste Management 391-3-4-.10, Arcadis U.S. Inc. (Arcadis) has prepared this assessment of corrective measures (ACM) report for Georgia Power Company's (Georgia Power's) Plant McManus Ash Pond (AP)-1 (the Site). As required by 40 CFR § 257.96 and GAEPD Rule 391-3-4-.10(6)(a), this ACM evaluates potential corrective measures to address a statistically significant level (SSL) of arsenic in one monitoring well (MCM-06) associated with the groundwater monitoring network at AP-1. Although an SSL of lithium was also identified as an SSL at the former CCR Unit, an alternate source demonstration (ASD) was completed for lithium and submitted under a separate cover (Arcadis, 2020). Therefore, lithium was not considered in this ACM.

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 filed on October 7, 2020. This ACM is the first step in identifying viable corrective measures to address an SSL in groundwater at the former CCR Unit. Based on the evaluation in the ACM, further evaluation may be performed, additional studies may be completed specific to the former CCR Unit, and a remedy will be selected and implemented pursuant to § 257.97 and § 257.98 and 391-3-4-.10(6). Delineation well, DPZ-02, installed to assess the extent of arsenic in groundwater at former AP-1, shows that arsenic is vertically delineated at MCM-06. Due to the presence of a surface water feature downgradient direction of MCM-06, installation of wells to horizontally characterize this area is infeasible. Georgia Power proactively collected surface water samples from along four transects in the tidal marsh adjacent to wells MCM-05, MCM-06, MCM-07, and MCM-14 of former AP-1 in February 2020. The surface water sample results from the transects are well below the Georgia instream water quality standard chronic standard for dissolved arsenic for marine estuary environments. Surface water data will be collected semi-annually with routine groundwater sampling and reported in semi-annual and annual groundwater monitoring reports. Based on arsenic results for data collected to date, no arsenic impacts to surface water have been detected and horizontal delineation is complete.

Georgia Power conducted a human health and ecological risk evaluation to evaluate constituents that exhibit SSLs in groundwater, arsenic and lithium, at former AP-1. The ASD demonstrates that concentrations of lithium in groundwater are naturally occurring. However, for completeness, lithium was carried forward into the refined risk evaluation. The risk evaluation used a conservative, health-protective approach that is consistent with USEPA risk assessment guidance, GAEPD 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 former AP-1 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 2015 through March 2020 in compliance with the federal and state CCR rules. Based upon this risk evaluation, which included multiple conservative assumptions, concentrations of arsenic and lithium detected in groundwater at former AP-1 are not expected to pose a risk to human health or the environment. The *Risk Evaluation Report* (Wood, 2020) and associated well survey are provided as **Appendix A**.

1.1 Purpose

The purpose of this ACM for Plant McManus former AP-1 is to begin the process of selecting technically feasible groundwater corrective measure(s) to address SSLs of arsenic at the site. 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 former AP-1.

Per § 257.96(c), the remedy evaluation in this ACM considers the following criteria:

- Performance
- Reliability
- Ease of implementation
- Potential impacts of the remedy
- Time required to begin and complete the remedy
- Institutional requirements.

Based on the outcome of the ACM, further evaluations may be performed, site-specific studies completed, and progress documented in semi-annual remedy selection reports. The results of the ACM will be presented in a public meeting at least 30 days prior to the selection of a final remedy.

1.2 Site Location and Description

Plant McManus is an electrical power generation plant located on Crispen Island in Glynn County, near Brunswick, Georgia (**Figure 1**). The physical address of the plant is 1 Crispen Island Drive, Brunswick, GA 31523. Crispen Island originally consisted of several smaller islands that were joined to construct Plant McManus. It was separated from the mainland to the northeast by tidal marsh and bound to the west and southwest by the Turtle River.

The plant was originally constructed in 1952 and consisted of two boilers and nine diesel-fired combustion turbines. Use of coal for production ceased in 1972, and Georgia Power retired all coal power generating assets at Plant McManus prior to April 16, 2015. During operation of the coal-fired units from 1959 until 1972, CCR was disposed in an approximately 80-acre surface impoundment (AP-1) on the Plant McManus Site northeast of the plant.

AP-1 was formed by the construction of a dike from the northeast corner of Crispen Island to the mainland. This dike formed the northwest side of AP-1, while Crispen Island, the mainland, and a southern roadway and dike (Crispen Boulevard) formed the other sides of AP-1.

1.3 Pond Closure

Georgia Power completed closure of AP-1 between 2016 and 2019 by dewatering and removing the CCR material. A notification of intent to close the former CCR Unit was placed in the operating record on December 7, 2015 and posted to the Plant McManus CCR Rule Compliance website within 30 days. The initial Closure Plan was submitted to GAEPD on April 17, 2018 as part of the permit application package describing the closure activities and requirements in accordance with 40 CFR § 257.102. The Closure

Plan and notification of closure completion are posted on the Plant McManus CCR Rule Compliance website, available to the public.

CCR material removal was conducted within the Plant McManus Surface Impoundment in accordance with 40 CFR § 257.100(b)(5) and GAEPD Rule 391-3-4-.10(9)(c)6. All visible CCR within the surface impoundment, as well as an additional six inches of native soil below the limits of ash, was removed, stockpiled, and loaded into trucks for transportation and disposal at an approved solid waste management facility.

The closure of the former AP-1 as described above provides a long-term source control measure by eliminating the source CCR material.

2 CONCEPTUAL SITE MODEL

The following section summarizes the geologic and hydrogeologic conditions at Plant McManus as described in the June 2020 Hydrogeologic Assessment Report submitted to GAEPD (Resolute 2020b). The Site plan is provided on **Figure 2A**. The monitoring well network and piezometers are shown on this figure, as well as the locations of the dewatering wells used to dewater AP-1 during its excavation. Cross-section alignments are shown on **Figures 2B, 2C,** and **2D** and are based on boring logs compiled in the September 2020 Well Installation Addendum (Resolute 2020c).

2.1 Geology

Plant McManus is located within the Coastal Plain Province of Georgia. This area is underlain by three regional aquifer systems which extend to depths exceeding 1,100 feet. The uppermost regional aquifer is the surficial aquifer, which in this area extends to approximately 185 feet bgs (Resolute 2020b). The surficial aquifer is made up of three formations: the Satilla Formation, the Cypresshead Formation, and the Ebenezer Formation (Resolute 2020b).

The soils underlying the Site are comprised of fine sands containing varying amounts of silt and clay interspersed with discontinuous clay/silty clay layers down to between 33 and 43 feet bgs (Resolute 2020a). This unit is interpreted to be the Upper Satilla Formation (ATC Associates, Inc. 1997) and is where most of the onsite monitoring wells, dewatering wells, and piezometers are screened. It is also the portion of the surficial aquifer that is depicted on cross-section **Figures 2B, 2C, and 2D**. In the aquifer under the northern dike, the monitoring wells are screened predominantly in sands with a relatively lower percentage of fines with lower permeability layers interspersed, as shown on cross-section AA' (**Figure 2B**). Additional deposits of finer grained materials are found in the groundwater underlying the island, cross-section BB' (**Figure 2C**), and mainland, cross-section CC' (**Figure 2D**).

At greater depths, the Upper Satilla Formation fines downward to a silty fine sand. These siltier sands were interpreted to be Lower Satilla (ATC Associates, Inc. 1997) but may also correspond to be the Cypresshead Formation (Huddleston 1988). The underlying Ebenezer Formation begins at approximately 50 feet bgs and is comprised of a confining zone approximately 25 feet thick, then a water-bearing zone about 35 feet thick, which is followed by another pair of confining and water-bearing zones down to approximately 185 feet bgs (Weems and Edwards 2001).

Gamma log data and vertical permeability tests performed from Shelby tubes in onsite borings indicate a lower permeability layer starting generally between 35 and 50 feet bgs (Resolute 2020a, 2020b). Representative samples were collected from deeper intervals of the surficial aquifer (Lower Satilla, Cypresshead, or potentially the Ebenezer Formation) and identified a potential aquitard.

The surface of the tidal marsh is covered by silt and vegetation, except where scoured by tidal creeks with fine sands in their channels. The surficial aquifer formed in a similar depositional environment, with paleo tidal channels likely present throughout, and discontinuous layers/channels of fine sand or clay. The surficial aquifer is generally unconfined, but there may be localized layers of lower permeability soils, resulting in a semi-confined condition at some locations.

2.2 Hydrology and Groundwater Flow

A groundwater monitoring network has been established within the uppermost aquifer around former AP-1 pursuant to § 257.91 (**Tables 1A** and **1B**; **Figure 1**). This monitoring well network includes upgradient and downgradient monitoring points and serves to monitor groundwater passing the boundary of the former AP-1 within the Upper Satilla section of the surficial aquifer. Potentiometric surface maps that were developed from data collected at low and high tide in March 2020 and at high tide in October 2020 are provided in **Appendix B**.

The potentiometric surface maps in **Appendix B** show that there are two components of groundwater flow at the Site, within the Upper Satilla Formation. The first is toward former AP-1 from the mainland (on the northeast side), and from Crispen Island (on the southwest side). The groundwater elevations in the monitoring wells and piezometer on both the mainland (MCM-01, -02, -15, and -16) and Crispen Island (MCM-08 and -11) are consistently higher than the surface water elevation in AP-1 and the monitoring wells along both dikes at both high and low tide. This indicates that groundwater flows consistently toward AP-1 from Crispen Island and the mainland.

The second component of groundwater flow is between AP-1 and the tidal marsh, to the northwest and southeast. Under the present conditions, the gradient changes direction with the tides. Based on the March 2020 high and low tide potentiometric surface maps presented in **Appendix B**, at low tide the gradient is toward the marsh, and at high tide the gradient is inward toward former AP-1.

According to the Hydrogeologic Assessment Report (Resolute 2020b), the tides have a six-hour cycle, and the amount of time available for groundwater movement at each tide is approximately three hours. During the remainder of time in each cycle, there is minimal hydraulic gradient (and correspondingly minimal flow) as the flow directions reverse, likely resulting in minimal net groundwater flow toward the marsh (Resolute 2020b).

Slug tests have also been conducted at wells and piezometers screened in the Upper Satilla Formation, around the former AP-1. Results from these tests identified a range of average hydraulic conductivity values from 8.67×10^{-5} centimeters per second (cm/s) to 2.90×10^{-3} cm/s, with a geometric mean of 7.39×10^{-4} cm/s and an overall average hydraulic conductivity for the Site of 1.18×10^{-3} cm/s (**Table 3**; Resolute 2020b). The range of hydraulic conductivity is consistent with sand to silty-sand aquifer materials. The magnitude of the range observed is consistent with the variable nature of the interspersed sands, silty sands, and clays underlying the Site. The highest hydraulic conductivities were observed in monitoring wells along the dike and mainland. The lowest hydraulic conductivities were observed in wells located on the island. The higher hydraulic conductivity in wells along the northern dike correspond to relatively lower levels of fines in the “MCM” monitoring wells along the dike and mainland, as shown on cross-sections AA’ and CC’ (**Figure 2B** and **2D**), in comparison to the greater amount of fines in the island wells, shown on cross-section BB’ (**Figure 2C**), which correspond to relatively lower hydraulic conductivities.

Gamma log data and Shelby tube samples were collected at six stratigraphic borings drilled through the Satilla, Cypresshead, and Ebenezer Formations in March 2020 **(Appendix C**). Vertical hydraulic conductivity of the Upper Satilla and Lower Satilla/Cypresshead Formations was determined by hydraulic conductivity testing of Shelby tube samples collected while the borings were being drilled. The average vertical hydraulic conductivity measured in the interval screened in the compliance well network (1.18×10^{-3} cm/s) is two orders of magnitude greater than the average vertical hydraulic conductivity measured in the Lower Satilla Formation (3.25×10^{-5} cm/s), indicating that the formation limits downward vertical flow at the Site (Resolute 2020a). Note that the gamma log data and vertical hydraulic conductivity measurements extended past the depth of the logged borings shown on the cross-sections.

3 NATURE AND EXTENT OF APPENDIX IV CONSTITUENTS

Monitoring-related field assessment activities performed in support of delineating the nature and extent of the SSL in groundwater and evaluating potential corrective measures are described below.

3.1 Groundwater Monitoring & Constituents of Concern

3.1.1 Groundwater Monitoring Program

A groundwater monitoring network has been established for the Site in accordance with 40 CFR § 257.91 and certified by a Professional Engineer on April 17, 2019. The certified compliance monitoring well network for AP-1 consists of a total of 15 monitoring wells: eight upgradient wells and seven downgradient wells. As part of the assessment program, piezometer DPZ-02 was converted to a vertical delineation well to vertically delineate the groundwater quality at MCM-06. The locations of the compliance monitoring wells are shown on **Figure 1**; well construction details are listed in **Tables 1A and 1B**. Additionally, there are 20 non-network wells and/or piezometers, five deep piezometers, and 10 former dewatering wells used for the assessment of groundwater conditions at the Site (**Figure 3**). A summary of analytical data since the initiation of assessment monitoring is presented in **Appendix D**.

3.1.2 Appendix IV Constituent SSL

Groundwater monitoring data collected from August 2019 through August 2020 are provided in **Appendix D**. A statistical evaluation was completed on data collected through the March 2020 sampling event in accordance with the Professional Engineer-certified statistical method (Resolute 2020b). Results from these monitoring events were compared to the Groundwater Protection Standards (GWPSs) for each parameter established under § 257.95(h) and GAEPD Rule 391-3-4-.10(6)(a) (**Table 2**). Based on this evaluation, the following SSLs were identified at AP-1:

- Lithium at monitoring well MCM-06.
- Arsenic at monitoring well MCM-06.

An ASD indicated that lithium observed at AP-1 is attributable to a natural source (i.e., influx of brackish surface water) and not the CCR unit. The ASD was submitted to the GAEPD on November 17, 2020.

An isoconcentration map for arsenic from the most recent assessment monitoring event (March 2020) is presented on **Figure 4**.

3.2 Field Investigation Activities

Following the identification of the arsenic SSL, additional field investigation activities were completed to delineate the vertical and lateral extent of arsenic concentrations above the GWPS and characterize geochemical conditions at the Site.

Six deep piezometers (DPZ-01 through DPZ-06) were installed in March 2020 (**Figure 3**) to provide vertical characterization of groundwater conditions. Supplemental sampling of these piezometers was performed after installation in March 2020. Arsenic was not detected in the samples collected from deep piezometer DPZ-02, screened between 28.84 and 33.84 feet of elevation and located adjacent to MCM-06. This indicates that that the elevated arsenic concentrations present in groundwater at MCM-06 do not extend to the deeper portion of the aquifer and that DPZ-02 provides vertical delineation of arsenic at MCM-06. DPZ-02 is now incorporated into the monitoring well network and will be sampled in the future to monitor deeper arsenic concentrations. Analytical data from DPZ-02 is provided in **Appendix E**.

Due to space limitations on the dikes, additional monitoring wells could not be installed between the existing detection monitoring network wells (MCM-04, MCM-05, MCM-06, MCM-07, MCM-08, and MCM-14) and the tidal marsh to evaluate the nature and extent of arsenic. Georgia Power proactively completed additional sampling to assess concentrations of arsenic in surface water in the tidal salt marsh in February 2020. A memorandum detailing the study and results is provided in **Appendix F**. Surface water samples were collected along four transects (T1 through T4) adjacent to wells MCM-05, MCM-06, MCM-07, and MCM-14 (**Figures 1 through 3 in Appendix F**). Samples from two upstream surface water sample locations were collected to establish background conditions. In addition, water samples in the former AP-1 were collected. Dissolved arsenic concentrations in surface water samples ranged from not detected at 0.0012 milligram per liter (mg/L) to 0.0023 mg/L. These results are well below the Georgia instream water quality chronic standard for dissolved arsenic (0.036 mg/L) for marine estuary environments. Arsenic concentrations in background surface water sample locations ranged from 0.0014 mg/L (estimated) to 0.0016 mg/L (estimated). Based on the data collected, no impacts to surface water have been detected and horizontal delineation is complete.

Supplemental sampling was completed in June 2020 to assist in the development of this ACM and the lithium ASD. One of the goals of this investigation was to identify the geochemical conditions along the northern portion of dike, specifically in the area adjacent to MCM-06. Groundwater samples were collected at three locations: MCM-06, vertical delineation well DPZ-02, and MCM-07 (a well installed on the northern dike that does not present an SSL for arsenic). Groundwater collected at these wells was analyzed for major cations and anions, select total and dissolved metals, sulfide, total organic carbon, and biological oxygen demand (**Table 4**). Field parameters (pH, dissolved oxygen, oxidation reduction potential [ORP], salinity, temperature, specific conductance, and depth to water) were also recorded.

Results of this sampling event indicate highly reducing conditions present in groundwater at MCM-06, demonstrated by low ORP values (-310.5 millivolts) and elevated biological oxygen demand (77.6 mg/L). These results indicate more strongly-reducing conditions present at MCM-06 than represented by other monitoring wells, including MCM-07, which yielded -198.9 millivolts ORP and a biological oxygen demand of 3.2 mg/L. The results of the two wells suggest that conditions are sulfate and iron reducing, with sulfur and iron cycling between mineral and groundwater phases to variable extents. Sulfate is relatively lower at MCM-06 (663 mg/L) than MCM-07 (961 mg/L) and DPZ-02 (970 mg/L), indicating sulfate reduction is occurring. Lower sulfide concentrations at MCM-06 (0.41 mg/L) indicate potential precipitation at that location, compared to the elevated sulfide concentration at MCM-07 (33.9 mg/L). Low iron concentrations are present at both MCM-06 (0.046 mg/L) and MCM-07 (0.088 mg/L), while manganese is an order of magnitude higher at MCM-06 (0.29 mg/L) and MCM-07 (0.20 mg/L). These results indicate that metal reducing conditions are present, but there may also be precipitation of soluble reduced-phase minerals such as ferrous sulfides (e.g., pyrite ferrous disulfide [FeS_2]). The presence of reducing conditions is a factor in evaluating potential remedy options, particularly geochemical manipulation, as discussed in Section 4.2 below. In addition to the reducing conditions, groundwater quality at MCM-06 is influenced by brackish surface water as represented by elevated salinity (17,800 mg/L total dissolved solids) and alkalinity (725 mg/L). These conditions can influence the effectiveness of several remedial options through altering reaction chemistry or through formation of fouling precipitates, such as carbonates.

In addition to the surface water evaluation, sampling of dewatering wells (RW-1 through RW-10) and a subset of deep piezometers and monitoring wells was performed in October 2020 concurrently with the semi-annual sampling event. This sampling evaluated the lateral extent of arsenic and provided further understanding of the geochemical conditions near MCM-06. Groundwater locations to be evaluated include the following: RW-1 through RW-10, MCM-07, MCM-05, MCM-14, and MCM-06 and its paired deep vertical delineation well, DPZ-02. Analytical data collected during this sampling event included total and dissolved arsenic, iron, manganese, major ions, alkalinity, total organic carbon, biological oxygen demand, and arsenic speciation. Results will be reported in a February 2021 supplemental remedy selection progress report.

4 GROUNDWATER CORRECTIVE MEASURES ALTERNATIVES

4.1 Objectives of the Corrective Measures

The effectiveness of potential corrective measures were evaluated 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 selected corrective measure:

- Be protective of human health and the environment.
- Attain applicable GWPSs.
- Control the sources of releases to reduce or eliminate, to the maximum extent feasible, further releases of Appendix IV constituents 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.
- Comply with standards for management of wastes as specified in § 257.98(d).

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

4.2 Summary of Potential Corrective Measures

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

This section presents potential corrective measures capable of remediating arsenic in groundwater at AP-1. Each corrective measure is evaluated relative to criteria specified in 40 CFR §§ 257.96(c) and 257.97(b). **Table 5** provides a comparative screening of the corrective measures discussed in this section.

The following potential corrective measures are considered in this ACM:

- Geochemical Approaches (In Situ Injection)
- In Situ Stabilization/Solidification (ISS)
- Hydraulic Containment (Pump and Treat, or P&T)
- Monitored Natural Attenuation (MNA)
- Permeable Reactive Barrier (PRB)
- Phytoremediation
- Subsurface Vertical Barrier Walls.

4.2.1 Geochemical Approaches (In Situ Injection)

Subsurface in situ injections of reagents are a remediation technology for inorganic constituents. In situ injections for inorganic constituents may be applied in three modes that influence solubility, mobility, and/or toxicity of inorganic constituents: (i) ORP (redox) manipulation; (ii) adsorption onto or co-precipitation with iron oxyhydroxides, other metal oxyhydroxides, or various sulfate compounds under oxidizing groundwater conditions; and (iii) adsorption to, or coprecipitation with, iron or other metal sulfides under reducing conditions. This technology requires an understanding of Site subsurface transport and (geo)chemical characteristics and a thorough understanding of the reaction kinetics to facilitate that appropriate reagent dosing is applied to the subsurface. Often this technology is field evaluated in a relatively small area (i.e., a pilot test) to bolster the understanding of these factors prior to remedial selection, design, and/or implementation.

Geochemical immobilization of arsenic can occur through a wide variety of mechanisms and under a variety of geochemical conditions. Potential geochemical immobilization approaches for arsenic may incorporate biological processes, chemical oxidants or reductants, and/or the introduction of sorbent.

Under oxic conditions, mechanisms for immobilization include oxidation of arsenite to arsenate, enhanced sorption, and co-precipitation. Potential sorbents include iron and aluminum (oxy)hydroxide mineral species, which have a high affinity for arsenic, in particular arsenate, limiting mobility. Sorbents can be introduced directly or generated in the subsurface. For example, iron could be introduced through placement of zero valent iron (ZVI) or injection of ferric salts (e.g., ferric chloride [$FeCl_3$]) to promote the formation of ferric hydroxides in situ and result in precipitation and sorption of arsenic (Vu et al. 2003). Ferric iron adsorbents and precipitates can also be formed through the oxidation of ferrous iron introduced by injection or already present in groundwater. Potential oxidants include oxygen via sparging, or chemical oxidants such as persulfate. These oxic approaches are likely challenging under the ambient geochemical conditions at MCM-06, given the strongly reducing conditions present (see Section 3.2).

Under reducing conditions, arsenic can be immobilized through the formation of reduced arsenic, iron, and sulfur minerals such as arsenopyrite (FeAsS), orpiment (As_2S_3), and realgar (AsS). Cycling of iron under reducing conditions or at anaerobic/aerobic interfaces can promote co-precipitation. In the case of ZVI, sorption can be promoted under reducing conditions through oxidation of arsenite to arsenate by the ZVI and sorption onto generated iron oxide surfaces. Precipitation of reduced iron and sulfide minerals can be promoted through introduction of organic carbon reagents and/or ZVI to stimulate sulfate reduction and precipitation of arsenic/iron/sulfur minerals, through direct injection of sulfide reagents such as calcium polysulfide, or through the direct placement of iron and sulfide minerals such as ZVI and ferrous sulfide. Reduced-phase minerals have a smaller stability field compared to oxidized mineral species, which can make it difficult to balance the formation of solid phases of arsenic with soluble phases of arsenic.

In situ injections can be used in isolation but are also compatible with other groundwater corrective actions that are potentially viable for the former AP-1. For example, in situ injections can be implemented in smaller, isolated areas, where performance can be readily monitored and additional treatment applied, if needed; MNA, hydraulic containment, or another technology can be used broadly downgradient of the former AP-1.

In order to evaluate the applicability of this technology for former AP-1, Site-specific bench-scale and pilot-scale testing would be necessary. These tests would evaluate the ratios of different additives and their effect on arsenic mobilization, the potential for undesirable co-reactions (e.g., precipitation of non-arsenic containing minerals), and the potential for mobilization of other naturally occurring constituents (e.g., iron and manganese).

Criteria Evaluation

Performance: The performance of in situ injections is considered moderate. Effective immobilization of arsenic has been shown under aerobic and anaerobic conditions; however, the effectiveness of both aerobic and anaerobic approaches is uncertain under site specific conditions and would require additional data and testing. Due to the highly-reducing conditions observed on the Site, generating oxic conditions with an oxidant and maintaining the long-term stability of immobilized arsenic generated via oxidant may not be achievable. Approaches that rely on reducing conditions are more compatible with groundwater geochemistry and, therefore, are more viable.

Reliability: Reliability for arsenic attenuation via in situ injections is considered moderate because: (i) amendment distribution is dependent on the properties (reactivity, particle size, etc.) of the selected reagents and the permeability and heterogeneity of the subsurface; and (ii) effectiveness of reagent chemistries for arsenic immobilization varies with site-specific conditions. This would be considered a reliable technology if injected reagents can be evenly and sufficiently distributed throughout the selected treatment zone and reagents are effective for site-specific conditions. Bench-scale treatability studies and/or field-scale pilot testing programs are needed to understand the biogeochemical processes that would effectively treat arsenic in Site groundwater as well as the achievable Site-specific reagent distribution. Stability of the precipitated phase may vary based on conditions of precipitation versus ambient conditions. Immobilization under similar conditions to ambient, reducing in this case, would promote long-term stability of the immobilized arsenic. Potential rebound under ambient conditions should be evaluated during the testing program referenced above. Ongoing monitoring after implementation would be needed.

Ease of Implementation: The ease of implementation for in situ injection is moderate. The installation of an injection well network or placement of reagents via other injection methods would be required. Injection of reagents along the existing northern dike is likely feasible, although the workspace is narrow. The ability and scale over which reagents can be distributed depends on reagent properties, such as reactivity and, in the case of solid reagents, particle size. The feasibility of implementation will vary with scale. The injection wells and/or the aquifer matrix (especially where there is low permeability) have a potential for clogging, particularly with solid phase reagents. Evaluation of the amendment distribution during injections (i.e., radius of influence) is needed to support full-scale design.

Potential Impacts: Low impacts are expected if the remedy works as designed based on a thorough pre-design investigation, geochemical modeling, and bench/pilot study results. Consideration of groundwater flow to nearby sensitive environments may be needed. This remedial alternative may unintentionally alter the geochemistry within the aquifer, which may result in the mobilization of other constituents that require treatment. Short-term risks during remedial activities such as drilling and operating pressurized injection equipment can be mitigated through appropriate planning and health and safety (H&S) measures.

Duration: A thorough pre-design investigation, geochemical modeling, and/or bench scale treatability study and/or field-scale pilot testing may take up to 24 months to obtain design parameters prior to design and construction of the corrective measure. Once designed, installation of the injection network can be accomplished relatively quickly (in 1 to 2 months; potentially longer depending on the scale of the remedy). Once installed, the time for an injection event and distribution of the injected materials throughout the treatment area can be variable. Following injections, the time required to achieve GWPS for arsenic is dependent on the attenuation process kinetics of the constituent as well as amendment longevity, injection layout, and arsenic transport properties. Additional injection events may be needed to maintain redox conditions and/or address additional flux of impacted groundwater into the treatment area.

Institutional Requirements: Deed restrictions may be necessary until in situ treatment has achieved the GWPS. An Underground Injection Control Permit would be required to implement this corrective measure. No other institutional requirements are expected at this time.

4.2.2 In Situ Stabilization/Solidification

ISS uses amendments such as cement to reduce the bioavailability and mobility of contaminants through either physical encapsulation (solidification) or a reduction in solubility/mobility (stabilization). It is a mature technology and has been in used to address both organic and inorganic contaminants including arsenic and other CCR constituents (Carillo-Sheridan et al. 2017).

Common additives for ISS include Portland cement, cement kiln dust, lime, and lime kiln dust (Interstate Technology and Regulatory Council [ITRC] 2011). These additives are incorporated in soil or CCR by mixing with rotary mixers, excavators, augers, or jet grouting. Selection of mixing strategy and additive is dependent on physical factors (e.g., particle size, hydraulic conductivity), chemical factors (e.g., redox potential, pH, sorption, leachability), Site conditions, leachate considerations, and environmental attack and cracking (ITRC 2011).

ISS can be implemented at sites within a discrete source area, or along the boundaries of a CCR impoundment to reduce the contact between the groundwater and any impacted coal/ash. Treatable depth depends on the chosen mixing strategy. Prior to implementation, treatability studies would need to be completed to design a proper stabilization mixture and application methodology.

Criteria Evaluation

Performance: ISS is a proven technology for reducing the leachability and mobility of both organic and inorganic constituents and can be used above and below the water table. Treatability depth limitations vary with application method. Within the context of former AP-1, ISS may be used either as a spot-treatment or as an impermeable barrier along the boundary of the former impoundment. Due to the size of the potential treatment area, and anticipated diffuse nature of residual arsenic, the performance of ISS is expected to be moderate. It may be used in conjunction with other treatment methods to achieve standards.

Reliability: ISS, if properly implemented, has a moderate to high degree of stability, especially if implemented within a source zone. However, monitoring is typically needed to confirm effectiveness. Reagents such as Portland cement can cause pH changes, which may cause a release of secondary contaminants and, therefore, should be monitored during implementation.

Ease of Implementation: The implementation is considered difficult, and the difficulty of implementation increases with scale. If ISS is applied over a small area in the vicinity of MCM-06, the technology could be viable, whereas application over a greater scale would become difficult and impractical. Implementation along the narrow dike would be difficult and likely require widening. Implementation beyond the dike would be difficult due to the presence of surface water.

Potential Impacts: Overall, potential impacts related to this remedial option are considered low. Short-term impacts during remedy construction can be mitigated through appropriate planning and health and safety measures. Changes to groundwater flow patterns due to stabilized media can occur, which can affect other aspects of the groundwater corrective action. Application of ISS mixture can also alter the geochemistry and may result in the mobilization of other constituents that require treatment. In addition, bulk mixing with reagents can occur.

Duration: Design phase and additional compatibility testing may be required, which may take up to 18 months. Completion of ISS may take an additional 12 to 18 months, depending on the final design and mixing method. Since this approach would likely not be applied to all of the impacted groundwater but rather applied to a specific source area to prevent migration, it may take an extended period of time to complete the remedy.

Institutional Requirements: Deed restrictions may be necessary until groundwater concentrations are below the GWPS. No other institutional requirements that may limit application of this technology are expected at this time.

4.2.3 Hydraulic Containment (Pump and Treat)

Hydraulic control/containment (P&T) uses groundwater extraction to establish a hydraulic gradient to capture and control the migration of groundwater that is impacted by a constituent of concern. P&T uses extraction wells or trenches to capture groundwater, and typically requires a degree of above-ground treatment before water can discharge to a receiving water body or sewer system. Groundwater P&T can often take an extended period of continuous operations to restore groundwater quality.

P&T can be used as a stand-alone remedy, although it is also compatible with the other groundwater corrective actions that are potentially viable for the former AP-1. The fact that treatment occurs ex-situ allows for a wider control on design components including mixing and contact time with reagents. Space for a treatment building and conveyance need to be considered.

Criteria Evaluation

Performance: P&T is an effective, demonstrated technology for hydraulic control. The design of the P&T system requires groundwater modeling for the well network and potentially, design of an above-ground treatment system. P&T performance is anticipated to be high with effective implementation. However, this remedy typically is not immediately effective for the treatment of trace level metals. There is also a possibility of rebounding when operations cease.

Reliability: Hydraulic containment technologies are moderate to highly reliable. Reliability may also depend on the operation and performance of an ex-situ treatment system, if needed. System downtime for maintenance may impact reliability.

Ease of Implementation: P&T is a longstanding, proven approach that requires installation of extraction wells/trenches, which is relatively straightforward. A variety of treatment technologies exist for ex-situ treatment of arsenic. However, the level of effort for construction and operations and maintenance (O&M) is relatively high compared to other options and the ease of implementation is anticipated to be difficult. 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.

Potential Impacts: Potential impacts are anticipated to be low. Short-term impacts during the construction of the remedy and long-term impacts during O&M can be mitigated through appropriate planning and H&S measures. Groundwater extraction may unintentionally alter the geochemistry within the hydraulic capture zone.

Duration: A thorough pre-design investigation, flow modeling, bench-scale treatability studies, and/or field-scale pilot testing (e.g., for update of the ex-situ treatment system, if needed) would be required. These activities may take 12 to 24 months prior to design, permitting, and construction of the corrective measure. Once designed, installation of extraction wells and/or trenches can be accomplished relatively quickly. The initiation of the approach would be contingent on the startup of the ex-situ treatment infrastructure. Hydraulic containment can be achieved relatively quickly after startup of the extraction system. However, uncertainty exists with respect to the time to achieve and maintain the GWPS and to complete operations; additional data collection is needed to better understand the mobility and attenuation mechanisms for arsenic.

Institutional Requirements: A revision to the current permit may be required to withdraw water (e.g., water or consumptive use permit). Depending on the effluent management strategy, modifications to the existing National Pollutant Discharge Elimination System permit may be required for surface water discharge. In addition, deed restrictions may be necessary until groundwater concentrations are below the GWPS.

4.2.4 Monitored Natural Attenuation

MNA is defined 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 timeframe that is reasonable compared to that offered by other more active methods (USEPA 2007). The processes by which MNA can occur include physical, chemical, or biological processes that can act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. Examples of in situ MNA processes for inorganics such as arsenic include sorption, dispersion, dilution, redox transformation, and precipitation (USEPA 2015). MNA can be applied both as a stand-alone strategy or as a polishing step coupled with other technologies.

According to USEPA guidance (2015), a four-tiered approach should be used to establish whether MNA can be successfully implemented at a given site. The tiers include the following (USEPA 1999, 2007):

1. Demonstrate that the extent of groundwater impacts is stable.
2. Determine the mechanisms and rates of attenuation.
3. Determine whether the capacity of the aquifer is sufficient to attenuate the mass of constituents in groundwater such that the immobilized constituents are stable and will not remobilize.
4. Design a performance monitoring program based on the mechanisms of attenuation and establish contingency remedies (tailored to site-specific conditions) should MNA not perform adequately.

Criteria Evaluation

Performance: Moderate. Under the conditions of Site groundwater, potential arsenic attenuation mechanisms include sorption, precipitation, oxidation-reduction reactions, dilution and dispersion. Under the reducing conditions present at MCM-06, sorption of arsenic species, including arsenite, are likely occurring, as well as potential precipitation in reduced iron and sulfide minerals. Downgradient of MCM-06, there are likely redox gradients where anaerobic conditions promote oxidation of arsenic, enhanced sorption, and potential for co-precipitation with iron oxides. The slow groundwater velocity and tidal gradient fluctuations further promote attenuation of arsenic concentrations with distance from MCM-06. Additional characterization would be needed to fully understand the attenuation processes and performance.

Reliability: The reliability of MNA is moderate to high as long as aquifer attenuation capacity is present and aquifer conditions that result in attenuation remain favorable and/or are being enhanced. Monitoring well rehabilitation, replacement, or repair may be needed long-term. Due to its location along the coast, large weather events such as hurricanes may cause fluctuations in groundwater conditions that affect attenuation processes (Northrup et al. 2017).

Ease of Implementation: Implementation of MNA at the former AP-1 is relatively easy with respect to infrastructure since the well network for MNA is already in place, although additional wells are typically needed to monitor progress in select areas. Additional data would be needed to show that the existing aquifer attenuation capacity is sufficient to meet to achieve the GWPS within a reasonable timeframe.

Potential Impacts: Potential impacts of the remedy will be negligible because MNA relies on natural processes active in the aquifer matrix without significant disturbance to the surface or subsurface.

Duration: Implementation of the MNA remedy would require time for additional data collection and documentation, even though an existing monitoring network is already in place. The additional data collection activities may take up to 24 months to complete. The additional data would be needed for statistical analysis and to evaluate whether additional monitoring wells need to be installed to supplement the existing monitoring network.

Institutional Requirements: Deed restrictions may be necessary until natural attenuation processes have achieved the GWPS. No other institutional requirements that may limit application of MNA are expected at this time.

4.2.5 Permeable Reactive Barriers

PRBs are defined as in situ permeable treatment zones, designed to intercept and remediate a contaminant plume (ITRC 2011). These permeable zones contain reactive media that can address contaminants through manipulating redox conditions (e.g. zero-valent iron, organic substrates) or promoting ionic exchange/sorption (e.g. clays, zeolites, peat moss). One major advantage with PRBs is that they can be a passive strategy. It has been used successfully in the past to treat arsenic-containing water and other constituents associated with CCR sites (ITRC 2011; Ludwig et al. 2006). Depending on water chemistry and hydrogeologic conditions at the Site, early breakthrough of constituents can occur. Thorough Site geochemistry characterization, in addition to bench-scale and pilot testing, is required to confirm that effective media are identified prior to implementation.

PRB installation can be completed using either conventional excavation methods, one-pass trenching method, or trenchless injected emplacement. For trenching methods, the trench must be deep enough in order to intercept the water table and dissolved-plume contaminants and is typically keyed into a deeper low permeable unit such as clay or bedrock. Depth of implementation varies with construction method. After excavation, the trenches are then filled with the specified reactive media mixture. Replaceable media cartridges may be considered if replacements are anticipated to be frequent due to fouling. Contaminated water is treated by passively flowing through the reactive media based on the natural hydraulic gradient. PRBs can be combined with impermeable slurry walls to direct groundwater through permeable treatment zones, which can save on construction and long-term maintenance. Subsurface investigations, reactive media, and compatibility testing would be needed prior to implementation.

Criteria Evaluation

PRBs can serve as stand-alone technologies but are also compatible with the other groundwater corrective actions that are potentially viable for the former CCR Unit.

Performance: The performance of a PRB is anticipated to be moderate to high. PRBs have been shown to effectively address arsenic in groundwater. Due to the elevated salts and alkalinity in groundwater at MCM-06, there is a risk for scaling and fouling of the reactive media, which will need to be considered during design. Performance may be affected by tidal cycles. Finally, delineation data will need to be collected to design an effective placement of a PRB.

Reliability: Moderate to high. A PRB is a reliable groundwater corrective measure with proper implementation and has been demonstrated effective for arsenic. However, loss of reactivity over time may require media replacement depending on the duration of the remedy. The brackish nature of Site groundwater may exacerbate this issue. Additional data collection, including conducting a laboratory treatability test and/or field pilot study, would be needed to better characterize current attenuation mechanisms and/or select the appropriate reactive media mix for a PRB wall.

Ease of Implementation: Implementation of a PRB is considered moderate to difficult. The practical location for the PRB is along the northern dike. Construction using trenching methods would be difficult on the narrow dike and would potentially require widening the dike. A relatively low permeability unit at 37 to 45 feet bgs in the vicinity of MCM-06 is present to key the PRB into (see **Appendix C**), but continuity must be confirmed. The presence of flowing sands may complicate the trenching process. Injection-style emplacements would likely be more feasible along the dike. Once installed, treatment would be passive and O&M requirements would be minimal, with the exception of media replacement.

Potential Impacts: Low impacts are expected if the remedy works as designed, based on a thorough pre-design investigation, geochemical modeling, and geophysical testing. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and H&S measures. Consideration of groundwater flow to nearby sensitive environments may be needed. This remedial alternative may unintentionally alter the geochemistry within the wall, which may result in the mobilization of other constituents that require treatment.

Duration: Installation of a PRB can be accomplished relatively quickly (in 6 to 12 months), depending on the final location and configuration. However, bench-scale treatability studies and/or compatibility testing would be required to obtain design parameters prior to design and construction of the remedy. These processes may take up to 24 months. Media may need to be replaced periodically to maintain reactive conditions and/or address additional flux of impacted groundwater into the PRB.

Institutional Requirements: Deed restrictions may be necessary until groundwater concentrations are below GWPS. No other institutional requirements that may limit installation of a PRB are expected at this time.

4.2.6 Phytoremediation

Phytoremediation is a remedial alternative that uses plants to remove, transfer, or immobilize inorganic contaminants in environmental media. This technique is often more effective when contaminants are at relatively low to moderate concentrations over a large area and at shallow depths that are accessible by plant roots. However, the TreeWell® system, which is a proprietary system developed by Applied Natural Science, allows implementation at depth by utilizing a specialized lined planting unit constructed with optimum planting media to promote downward growth to focus extraction on the target depth interval. For arsenic, phytoremediation can work through both phytosequestration of arsenic as well as through hydraulic control through the ability of the plants to capture and evaporate water. The effectiveness of groundwater remediation using traditional phytoremediation approaches can be limited by the soil conditions on Site, the target depth of treatment, the climate and ambient water quality, and the availability of appropriate vegetation for remediation. Effectiveness may also be limited to the growing season.

Phytoremediation has the advantages of minimal long-term O&M requirements and no above-ground water management infrastructure. It also has relatively low capital costs. Phytoremediation requires space and time to reach remediation goals. Because of the limitations, a thorough site assessment and pilot testing must be completed to confirm that such a treatment will reach remedial goals and objectives (Hettiarachchi et al. 2012).

Criteria Evaluation

Performance: The performance of a phytoremediation is anticipated to be low. While phytoremediation has been shown to have a degree of success treating deep contamination, the site features may prove challenging for implementation of these deeper phytoremediation technologies. Additionally, the brackish groundwater quality may limit the types of hyper-accumulative plants that are able to grow. In addition, although the occurrence of tropical storms and hurricanes is infrequent, a phytoremediation system would be susceptible to damage and disruption by high winds.

Reliability: Phytoremediation is anticipated to have low to moderate reliability as a groundwater corrective measure due to the depth of the contamination and challenges for implementation at depth at the site. The well where SSLs for arsenic were identified (MCM-06) is screened approximately 25 feet bgs, which is outside of the typical rooting depth for common arsenic hyperaccumulators.

Ease of Implementation: Implementation of phytoremediation is considered difficult. The practical location for use of phytoremediation to capture arsenic and reduce concentrations at the compliance boundary is along the northern dike. Given the depths of the impacts, a TreeWell® system would be required. TreeWells® are installed in 3- to 5-foot-diameter boreholes extending to the target depth. Drilling borings within the narrow width of the dike may be challenging and require widening the dike. Depending on the number of TreeWells® and borings required, the construction could impact the stability of the dike. The presence of flowing sands and brackish water chemistry may complicate the installation process and viability of plants.

Potential Impacts: Phytoremediation typically has low expected impacts. Depending on the phytoremediation strategy, disposal methods for vegetation with bioaccumulated arsenic may need to be considered. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and H&S measures.

Duration: Installation of a phytoremediation system can be accomplished relatively quickly (in 6 to 12 months), depending on the final location and configuration. However, treatability studies and pilot testing would be required to design an effective treatment. These studies may take up to 24 months. Once installed, the time to achieve the GWPS downgradient of the phytoremediation system is anticipated to be long and can take multiple years before system is treating at design capacity.

Institutional Requirements: Deed restrictions may be necessary until groundwater concentrations are below the GWPS. No other institutional requirements that may limit installation of a phytoremediation are expected at this time.

4.2.7 Subsurface Vertical Barrier Walls

Subsurface vertical barrier 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 are typically keyed into a lower confining unit. Barrier walls can also be used in downgradient applications to limit discharge to surface water or to reduce aquifer recharge from adjacent surface water features when groundwater extraction wells are placed near a surface water feature. Barrier walls can also be used to direct flow toward remedial components such as PRBs through what is called a “funnel and gate” system.

A variety of barrier materials can be used, including cement and/or bentonite slurries or various mixtures of soil with cement or bentonite, geomembrane composite materials, or driven materials such as steel or vinyl sheet pile. Slurry walls are typically constructed with a soil, bentonite, and water mixture which forms a low permeability and high chemical resistant barrier. Other wall compositions can exist (e.g., cement/bentonite, slurry/geomembrane composites), depending on chemical compatibilities with Site contaminants (ITRC 2011).

The installation of these low-permeability walls is similar to the methods described for PRBs in Section 4.2.5. In general, the applicability of slurry walls is limited by the depth of installation, which is approximately 90 feet bgs. However, Site-specific geologic and technology-specific considerations may limit this depth to shallower installations. Groundwater pumping is required upgradient of the barrier wall to maintain an inward hydraulic gradient. The extracted groundwater would likely require treatment in an above-ground treatment system.

Criteria Evaluation

Performance: Moderate. Barrier walls are a proven technology for seepage control and/or groundwater cutoff at impoundments. Sheet pile walls are limited by the depth of installation, which is typically approximately 60 to 65 feet bgs with a single sheet. Within the context of former AP-1, a barrier wall as the sole remedial measure would likely be moderately effective. An alternative use of this strategy is in a “funnel and gate” system with a PRB. As such, groundwater with arsenic above the GWPS could be directed to “treatment gates” for passive treatment (in a PRB). Additional subsurface investigations and compatibility testing with groundwater from former AP-1 would be needed prior to selection and implementation. Performance may be affected by the fluctuating groundwater flow directions during tidal cycles.

Reliability: Subsurface barrier walls are highly reliable as a barrier to groundwater flow with proper installation. O&M requirements can range significantly, depending on whether groundwater extraction and subsequent treatment from inside the wall is required.

Ease of Implementation: The implementation is considered moderate to difficult due to the limited space for construction activities along the dike. Widening of the dike would likely be necessary prior to implementation. A relatively low permeability unit at 37 to 45 feet bgs in the vicinity of MCM-06 is present to key the barrier into, but continuity needs to be confirmed. The presence of flowing sands may complicate the trenching process. Jet-grouting is another alternative but is typically more difficult as compared to other barrier wall installation methods. Depending on design, groundwater extraction may be needed, because of the inflow of water from the mainland and island.

Potential Impacts: Low impacts are expected following the construction of the remedy. Short-term impacts during remedy construction 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 and may require dewatering.

Duration: Design phase and additional compatibility testing may be required, which may take up to 24 months. Installation of a barrier wall can be accomplished relatively quickly (in 6 to 12 months), depending on the final location and configuration. Once installed, preventing migration of constituents in groundwater is anticipated to be similar to a companion technology (e.g., PRBs or P&T). Since this approach does not treat the downgradient area of impacted groundwater but rather prevents migration from a source area, it will likely have to be maintained long-term and coupled with other approaches.

Institutional Requirements: Deed restrictions may be necessary until groundwater concentrations are below the GWPS. No other institutional requirements that may limit application of this technology are expected at this time.

5 REMEDY SELECTION PROCESS

The purpose of this ACM is to begin the process of selecting corrective measure(s) for groundwater using the criteria outlined in § 257.96 and Georgia Rule 391-3-4-.10(6)(a). The below 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

Pond closure at Plant McManus is considered complete because Georgia Power closed former AP-1 at Plant McManus in 2019 via CCR removal and disposal at an offsite permitted landfill (Section 1.3). The current conceptual model may need to be refined and/or updated as more data are collected and analyzed.

Georgia Power plans to proactively utilize adaptive management for Plant McManus to support the remedial strategy and to address changes in former CCR Unit 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 semi-annually.
- The conceptual model will be updated as more data are collected.
- Adjustments and augmentations will be made to the corrective measure(s), as needed, to promote meeting performance criteria and remedial goals.

5.2 Additional Data Gathering

Additional data collection, analysis and Site-specific evaluations are necessary to refine the conceptual site model and to evaluate the feasibility of each corrective measure presented within this ACM with the goal of selecting an appropriate groundwater corrective measure. 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.

Corrective Action Groundwater Monitoring Program

Concurrent with design of a groundwater remedy, a corrective action groundwater monitoring program will be developed in accordance with 40 CFR § 257.98(a)(1). The design of the monitoring program will consider the following: (i) meeting the assessment monitoring requirements of the CCR rules; (ii) documenting the effectiveness of the corrective action remedy; and (iii) demonstrating compliance with the GWPS established for the former AP-1. In addition, the groundwater monitoring program will include adaptive monitoring thresholds that will be used to evaluate whether changes to the remedy system should be considered based on changing conditions.

5.3 Schedule, Reporting, and Next Steps

Georgia Power is preparing semi-annual progress reports to document groundwater conditions at Plant McManus, results associated with additional data collection, and the progress in selecting and designing the remedy in accordance with 40 CFR § 257.97(a). An addendum to this report will be submitted in February 2021 with the semi-annual report to align schedules and will be reported semi-annually thereafter.

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

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TABLES

Table 1A
Monitoring Well Network
Assessment of Corrective Measures Report
Georgia Power Company
Plant McManus Former Ash Pond 1
Brunswick, Georgia

ARCADIS Design & Consultancy for natural and built assets

Well ID	Well Function	Northing (ft)[1]	Easting (ft)[1]	Top of Casing Elevation[2] (ft NAVD 88)	Ground Surface Elevation[2,3]	Total Depth[4] (ft BTOC)	Top of Screen Elevation[2] (ft NAVD 88)	Bottom of Screen Elevation[2] (ft NAVD 88)
Monitoring Well Network								
MCM-01	Upgradient Monitoring	443727.31	852732.08	8.63	5.70	27.32	-7.93	-17.93
MCM-02	Upgradient Monitoring	444496.53	852663.64	11.25	8.25	27.35	-5.22	-15.22
MCM-04	Downgradient Monitoring	444804.73	851695.27	12.39	9.50	28.57	-5.18	-15.18
MCM-05	Downgradient Monitoring	444716.63	851309.91	10.04	7.80	28.05	-7.25	-17.25
MCM-06	Downgradient Monitoring	444407.22	850782.11	10.15	7.87	27.20	-6.27	-16.27
MCM-07	Downgradient Monitoring	444059.38	850195.96	10.20	7.52	23.75	-2.76	-12.76
MCM-11	Upgradient Monitoring	442429.80	851072.91	10.23	7.52	24.00	-3.34	-13.34
MCM-12	Downgradient Monitoring	442821.17	851312.45	11.87	8.99	29.00	-6.12	-16.12
MCM-14	Downgradient Monitoring	443358.82	852317.59	11.50	8.66	28.11	-6.23	-16.23
MCM-15	Upgradient Monitoring	444825.53	851949.02	12.84	10.18	26.60	-4.53	-14.53
MCM-16	Upgradient Monitoring	444551.32	852716.60	16.02	13.04	28.39	-1.72	-11.72
MCM-17	Downgradient Monitoring	443074.41	851899.68	11.49	9.09	27.44	-4.81	-14.81
MCM-18	Upgradient Monitoring	442067.07	851698.41	9.00	6.01	27.86	-8.76	-18.76
MCM-19	Upgradient Monitoring	441157.82	852338.86	8.71	5.77	28.32	-9.53	-19.53
MCM-20	Upgradient Monitoring	440944.40	852185.15	10.07	7.07	23.05	-2.98	-12.98
DPZ-02	Vertical Delineation	444391.02	850757.94	9.54	7.34	43.46	-28.84	-33.84

Notes:
1. Georgia State Plane - East Coordinates.
2. NAVD 88 - North American Vertical Datum of 1988
3. Ground Surface measured at the mag nail in the concrete pad
4. ft BTOC - feet below top of casing
Data source: Resolute 2020a

Table 1B
Piezometers and Dewatering Wells
Assessment of Corrective Measures Report
Georgia Power Company
Plant McManus Former Ash Pond 1
Brunswick, Georgia

ARCADIS Design & Consultancy for natural and built assets

Well ID	Well Function	Northing (ft)[1]	Easting (ft)[1]	Top of Casing Elevation[2] (ft NAVD 88)	Ground Surface Elevation[2,3]	Total Depth[4] (ft BTOC)	Top of Screen Elevation[2] (ft NAVD 88)	Bottom of Screen Elevation[2] (ft NAVD 88)
Monitoring Well Network								
MW-01R	Piezometer	443632.5586	852715.1308	12.61	NA	27.44	0.17	-14.83
MW-02	Piezometer	443354.3859	852304.1959	11.10	NA	26.80	-0.70	-15.70
MW-03	Piezometer	443081.3356	851904.8549	11.26	NA	27.00	-0.60	-15.60
MW-04	Piezometer	442854.6307	851408.1446	9.20	NA	27.40	-3.00	-18.00
MW-05	Piezometer	442578.1982	850752.3477	13.24	NA	27.60	0.90	-14.10
MW-06R	Piezometer	442378.5335	850499.0375	13.25	NA	20.00	3.25	-6.75
MW-07	Piezometer	442792.9894	850224.3520	9.94	NA	21.50	3.40	-11.60
MW-08	Piezometer	443310.0596	849977.9965	8.95	NA	27.70	-3.70	-18.70
MW-09	Piezometer	443736.7716	849920.8976	10.10	NA	24.20	0.80	-14.20
MW-10	Piezometer	444045.1224	850181.4059	10.24	NA	27.10	-2.80	-17.80
MW-11	Piezometer	444359.5263	850709.3205	10.42	NA	32.20	-8.20	-23.20
MW-12	Piezometer	444667.3620	851186.9003	10.08	NA	32.30	-8.60	-23.60
MCM-03	Piezometer	444414.88	851984.67	9.97	7.10	27.70	-7.73	-17.73
MCM-08	Piezometer	443758.80	849716.96	9.42	6.55	28.29	-8.39	-18.39
MCM-09	Piezometer	443252.16	850147.75	Abandoned				
MCM-10	Piezometer	442791.88	850453.05	11.75	8.61	23.96	-1.25	-11.25
MCM-13	Piezometer	443030.23	851826.19	12.56	9.79	27.46	-4.90	-14.90
PZ-01	Piezometer for Dewatering	444127.6813	850308.3200	Abandoned				
PZ-02	Piezometer for Dewatering	444196.6588	850423.4598	Abandoned				
PZ-03	Piezometer for Dewatering	444264.8108	850540.0935	Abandoned				
PZ-04	Piezometer for Dewatering	444335.4506	850656.4801	Abandoned				
PZ-05	Piezometer for Dewatering	444471.1060	850888.7994	Abandoned				
PZ-06	Piezometer for Dewatering	444538.4862	851005.4620	Abandoned				
PZ-07	Piezometer for Dewatering	444605.9569	851121.6527	Abandoned				
PZ-08	Piezometer for Dewatering	444674.4265	851238.6722	Abandoned				
PZ-09	Piezometer	444082.13	849471.64	9.41	6.57	24.05	-4.56	-14.56
PZ-10	Piezometer	444949.09	851673.98	12.17	9.74	22.91	-0.66	-10.66
PZ-11	Piezometer	443222.86	849280.51	9.37	6.57	19.08	-4.63	-9.63
PZ-12	Piezometer	443593.34	849396.87	7.90	5.02	18.70	-5.72	-10.72

Table 1B
Piezometers and Dewatering Wells
Assessment of Corrective Measures Report
Georgia Power Company
Plant McManus Former Ash Pond 1
Brunswick, Georgia

ARCADIS Design & Consultancy for natural and built assets

Well ID	Well Function	Northing (ft)[1]	Easting (ft)[1]	Top of Casing Elevation[2] (ft NAVD 88)	Ground Surface Elevation[2,3]	Total Depth[4] (ft BTOC)	Top of Screen Elevation[2] (ft NAVD 88)	Bottom of Screen Elevation[2] (ft NAVD 88)
Deep Piezometers								
DPZ-01	Piezometer	444695.71	851277.40	9.71	7.36	40.78	-25.99	-30.99
DPZ-03	Piezometer	444073.16	850218.83	9.46	7.34	47.57	-33.03	-38.03
DPZ-04	Piezometer	443062.60	851881.94	11.45	7.04	51.23	-34.70	-39.70
DPZ-05	Piezometer	443376.32	852342.11	11.00	8.96	51.20	-35.12	-40.12
DPZ-06	Piezometer	444614.79	851846.27	12.04	8.60	40.50	-23.38	-28.38
Dewatering Wells								
RW-1	Dewatering for Construction	444094.0012	850251.1636	9.39	9.59	26.42	-2.61	-12.61
RW-2	Dewatering for Construction	444161.8377	850367.2034	9.96	NA	27.27	-2.83	-12.83
RW-3	Dewatering for Construction	444228.4307	850479.7659	9.89	NA	32.29	-3.07	-13.07
RW-4	Dewatering for Construction	444299.3305	850599.2604	9.49	NA	26.88	-2.97	-12.97
RW-5	Dewatering for Construction	444369.6765	850714.2378	10.11	NA	37.22	-2.92	-22.92
RW-6	Dewatering for Construction	444436.3732	850831.7225	10.25	NA	36.58	-2.67	-22.67
RW-7	Dewatering for Construction	444504.5857	850949.3512	10.19	NA	38.17	-7.69	-22.69
RW-8	Dewatering for Construction	444572.9068	851064.4671	10.22	NA	31.62	-2.80	-17.80
RW-9	Dewatering for Construction	444641.6045	851181.2956	10.26	NA	37.71	-7.66	-22.66
RW-10	Dewatering for Construction	444706.8701	851295.5011	10.56	NA	37.80	-7.54	-22.54

Notes:
1. Georgia State Plane - East Coordinates.
2. NAVD 88 - North American Vertical Datum of 1988
3. Ground Surface measured at the mag nail in the concrete pad
4. ft BTOC - feet below top of casing
PZ-01 through PZ-09 abandoned 2019, MCM-09 abandoned 2020
Data source: Resolute 2020a

Table 2
Groundwater Protection Standards
Georgia Power Company
Plant McManus Former Ash Pond 1
Brunswick, Georgia

Constituent Name	Units	Background Limit	Federal GWPS	State GWPS
Antimony	mg/L	0.003	0.006	0.006
Arsenic	mg/L	0.031	0.031	0.031
Barium	mg/L	0.22	2	2
Beryllium	mg/L	0.021	0.021	0.021
Cadmium	mg/L	0.0025	0.005	0.005
Chromium	mg/L	0.011	0.1	0.1
Cobalt	mg/L	0.036	0.036	0.036
Combined Radium - 226/228	pCi/L	55.8	55.8	55.8
Fluoride	mg/L	1.5	4	4
Lead	mg/L	0.005	0.015	0.005
Lithium	mg/L	0.03	0.04	0.03
Mercury	mg/L	0.0007	0.002	0.002
Molybdenum	mg/L	0.01	0.1	0.01
Selenium	mg/L	0.15	0.15	0.15
Thallium	mg/L	0.001	0.002	0.002

Notes:
GWPS = Groundwater Protection Standard
mg/L = milligrams per liter
pCi/L = picoCuries per liter

Table 3
Single Well Hydraulic Conductivity Test Results
Georgia Power Company
Plant McManus Former Ash Pond 1
Brunswick, Georgia

Well ID	Slug In (cm/sec)	Slug Out (cm/sec)	Average K (cm/sec)
MCM-01	not reported	1.82E-03	1.82E-03
MCM-02	9.82E-04	1.08E-03	1.03E-03
MCM-04	4.65E-04	5.89E-04	5.27E-04
MCM-05	2.47E-03	2.92E-03	2.70E-03
MCM-06	not reported	1.86E-03	1.86E-03
MCM-07	not reported	1.85E-04	1.85E-04
MCM-08	2.44E-04	2.55E-04	2.49E-04
MCM-09	9.31E-05	8.04E-05	8.67E-05
MCM-10	1.89E-04	1.51E-04	1.70E-04
MCM-12	9.19E-05	9.89E-05	9.54E-05
MCM-13	not reported	9.59E-04	9.59E-04
MCM-14	not reported	2.88E-03	2.88E-03
MCM-15	1.61E-03	1.81E-03	1.71E-03
MCM-16	2.35E-03	2.56E-03	2.46E-03
MCM-17	2.35E-03	3.45E-03	2.90E-03
MCM-18	1.12E-03	1.07E-03	1.09E-03
MCM-19	9.73E-04	1.07E-03	1.02E-03
MCM-20	4.45E-04	2.81E-04	3.63E-04

Notes:

Hydraulic conductivity (K) is shown in units of centimeter per second (cm/sec).

Slug tests conducted in July and August of 2018.

Source:

Resolute Environmental & Water Resources Consulting. 2020. Hydrogeologic Assessment Report - Plant McManus Former Ash Pond 1. Prepared for Georgia Power. April 2020.

Table 4
June 2020 Supplemental Sample Results
Georgia Power Company
Plant McManus Former Ash Pond 1
Brunswick, Georgia

Analyte	Units	DPZ-2 6/16/2020	MCM-06 6/16/2020	MCM-07 6/16/2020
Boron	mg/L	2.1	2	1.7
Calcium	mg/L	245	234	254
Chloride	mg/L	7780	7760	7580
Sulfate	mg/L	970	663	961
Sulfide	mg/L	37.9	0.41	33.9
Total Dissolved Solids (TDS)	mg/L	20100	17800	17900
Lithium	mg/L	0.096	0.12	0.047
Arsenic	mg/L	--	0.51	--
Total Organic Carbon (TOC)	mg/L	6.7	9.6	14.5
Biological Oxygen Demand (BOD)	mg/L	13.4	77.6	3.2
Iron (total)	mg/L	<0.042	0.046	0.088
Iron (dissolved)	mg/L	< 0.05	< 0.05	< 0.05
Ferrous Iron	mg/L	<0.084	<0.084	<0.084
Ferric Iron	mg/L	<0.25	<0.25	<0.25
Magnesium (total)	mg/L	578	624	640
Manganese (total)	mg/L	0.28	0.29	0.20
Manganese (dissolved)	mg/L	0.26	0.26	0.19
Potassium (total)	mg/L	162	157	156
Sodium (total)	mg/L	4840	4840	4680
Alkalinity (bicarbonate)	mg/L	391	725	276
Alkalinity (carbonate)	mg/L	<5.0	<5.0	<5.0
Alkalinity (total as calcium carbonate [$CaCO_3$])	mg/L	391	725	276
Field Parameters				
pH	SU	7.22	6.87	6.33
Temperature	°C	22.11	22.19	22.29
Specific conductivity	µS/cm	20150	25679	21850
Dissolved Oxygen	mg/L	0.11	0.14	0.17
Turbidity	NTU	0.58	0.88	1.73
Oxygen Reduction Potential (ORP)	mV	-163.2	-310.5	-198.9
Depth to water	feet	7.38	8.03	8.82
Salinity	PSU	12.18	15.87	13.31

Notes:
-- = not sampled
< = analyte not detected in sample. Laboratory reporting limit provided.
Abbreviations:
°C = degrees Celsius
mg/L = milligram per liter
mV = millivolt
PSU = practical salinity unit
µS/cm = microSiemens per centimeter
NTU = nephelometric turbidity unit
SU = standard unit

Technology	Description	Evaluation Criteria		
		Performance 40 CFR 257.96(c)(1)	**Reliability 40 CFR 257.96(c)(1)**	**Ease of Implementation 40 CFR 257.96(c)(1)**
Geochemical Manipulation (In Situ Injection)	Injection of a chemical or organic substrate to alter geochemical conditions to those more favorable for immobilization of arsenic.	*Moderate:* Effective immobilization of arsenic has been demonstrated under aerobic and anaerobic conditions; however, the effectiveness of both aerobic and anaerobic approaches is uncertain under site-specific conditions and would require additional data and testing. Remedial approaches to reducing constituents are typically more compatible with groundwater geochemistry and, therefore, are more viable than oxic remedial approaches.	*Moderate:* Reliability depends on: (i) the amendment distribution as a function of properties (reactivity, particle size, etc.) of the selected reagents and the permeability and heterogeneity of the subsurface; and (ii) the effectiveness of reagent chemistries for arsenic immobilization, which vary according to site-specific conditions. The approach has not been extensively used in field applications, and the most applicable methodology would require bench- and/or pilot-scale treatability testing. Stability of the precipitated phase may vary based on conditions of precipitation versus ambient conditions. Immobilization under similar conditions to ambient, reducing in this case, would promote long-term stability of the immobilized arsenic.	*Moderate:* The installation of an injection well network or placement of reagents via other injection methods would be required. Injection of reagents along the existing northern dike is likely feasible, although the workspace is narrow. The ability and scale over which reagents can be distributed depends on reagent properties, such as reactivity and, in the case of solid reagents, particle size. The feasibility of implementation will vary with scale. There is potential for clogging. An evaluation of the amendment distribution during injections (i.e., radius of influence) is needed to support full-scale design.
In Situ Stabilization/ Solidification (ISS)	Use of amendments such as cement to reduce the bioavailability and mobility of contaminants through either physical encapsulation (solidification) or a reduction in solubility/mobility (stabilization).	*Moderate:* ISS is a proven technology for reducing the leachability and mobility of inorganic constituents above and below the water table but may be limited due to the potential size of the treatment area. Treatability depth limitations vary with application method. Within the context of former AP-1, ISS may be used either as a spot-treatment or as an impermeable barrier along the boundary of the former impoundment. Due to the size of the potential treatment area, and anticipated diffuse nature of residual arsenic, the performance of ISS is expected to be moderate. It may be used in conjunction with other treatment methods to achieve standards	*Moderate to High:* Monitoring is typically needed to confirm ISS effectiveness. Reagents such as Portland cement can cause pH changes, which may cause a release of secondary contaminants, which should also be monitored during implementation.	*Difficult:* The difficulty of ISS implementation increases with scale. If ISS is applied over a small area in the vicinity of MCM-06, the technology could be viable, whereas application over a greater scale would become difficult and impractical. ISS implementation along the narrow dike would be difficult and likely require widening.
Hydraulic Containment	Use of a groundwater extraction system with a surface treatment system to remove target analytes from the subsurface and/or to control/prevent constituent migration.	*High:* Pump and treat (P&T) is an effective, demonstrated technology for hydraulic control. The design of the P&T system requires groundwater modeling for the well network and, potentially, design of an above-ground treatment system. However, this remedy typically is not immediately effective for the treatment of trace level metals. There is also a possibility of rebounding when operations cease.	*Moderate to High:* Reliability may also depend on the operation and performance of an ex-situ treatment system, if needed. System downtime for maintenance may impact reliability.	*Difficult:* P&T is a longstanding, proven approach that requires installation of extraction wells/trenches. A variety of treatment technologies exist for ex-situ treatment of arsenic. The level of effort for construction and operations and maintenance (O&M) is relatively high compared to other options and requires onsite staff.
Monitored Natural Attenuation (MNA)	A remedial solution that takes advantage of natural attenuation processes to reduce constituents in soil and groundwater.	*Moderate:* Under the conditions of site groundwater, potential arsenic attenuation mechanisms include sorption, precipitation, oxidation-reduction reactions, dilution, and dispersion. Under the reducing conditions present at MCM-06, sorption of arsenic species, including arsenite, are likely occurring, as well as potential precipitation in reduced iron and sulfide minerals. Downgradient of MCM-06, there are likely redox gradients where aerobic conditions promote oxidation of arsenic, enhanced sorption, and potential for co-precipitation with iron oxides. The slow groundwater velocity and tidal gradient fluctuations further promote attenuation of arsenic concentrations with distance from MCM-06. Additional characterization would be needed to fully understand the attenuation processes and performance.	*Moderate to High:* The reliability of MNA is moderate to high as long as aquifer attenuation capacity is present and aquifer conditions that result in attenuation remain favorable and/or are being enhanced. Long-term monitoring well rehabilitation, replacement, or repair may be needed. Due to its location along the coast, large weather events such as hurricanes may cause fluctuations in groundwater conditions that affect attenuation processes (Northrup et al. 2017).[1]	*Easy:* A well network for MNA is already in place. Additional wells may be needed to monitor progress in select areas. Additional data would be needed to show that the existing aquifer attenuation capacity is sufficient to achieve the Groundwater Protection Standard (GWPS) within a reasonable timeframe.
Permeable Reactive Barrier (PRB)	Use of reactive material that extends below the water table to intercept and treat groundwater.	*Moderate to High:* PRBs have been shown to effectively address arsenic in groundwater. Performance may be affected by tidal cycles. Due to the elevated salts and alkalinity in groundwater at MCM-06, there is a risk for scaling and fouling of the reactive media, which will need to be considered during design. Delineation data will need to be collected to design an effective placement of a PRB.	*Moderate to High:* A PRB has been demonstrated effective for arsenic. Loss of reactivity over time, potentially exacerbated by brackish groundwater at the site, may require media replacement depending on the duration of the remedy. Additional data collection, including conducting a laboratory treatability test and/or field pilot study, would be needed to select the appropriate reactive media for a PRB.	*Moderate to difficult:* The practical location for the PRB is along the northern dike. Construction using trenching methods would be difficult on the narrow dike and would potentially require widening the dike. The PRB can be keyed into a relatively low permeability unit at 37 to 45 feet below ground surface (bgs) in the vicinity of MCM-06 (*refer to Appendix B*), but continuity must be confirmed. The presence of flowing sands may complicate the trenching process. Injection-style emplacements would likely be more feasible along the dike. Once installed, treatment would be passive and O&M requirements would be minimal, with the exception of media replacement.

[1] Northrup, K., M. Capooci, and A. Seyfferth. 2017. Effects of Extreme Events on Arsenic Cycling in Salt Marshes. *Journal of Geophysical Research: Biogeosciences*. 123, 1086-1100. https://doi.org/10.1002/2017JG004259.

Technology	Description	Evaluation Criteria		
		Performance 40 CFR 257.96(c)(1)	Reliability 40 CFR 257.96(c)(1)	Ease of Implementation 40 CFR 257.96(c)(1)
Phytoremediation	Use of plants to remove, transfer, or stabilize constituents in soil or groundwater.	*Low:* While phytoremediation has been shown to have a degree of success treating deep contamination, site features may prove challenging for implementation of these deeper phytoremediation technologies. Brackish groundwater quality may limit the types of hyper-accumulative plants that are able to grow. A phytoremediation system may also be susceptible to damage and disruption by high winds associated with hurricanes.	*Low to Moderate:* The depth of the contamination and challenges for implementation at depth at the site make this option low to moderate in reliability. The well where Statistically Significant Levels for arsenic were identified (MCM-06) is screened at approximately 25 feet bgs, which is outside the typical rooting depth for common arsenic hyperaccumulators.	*Difficult:* The practical location for use of phytoremediation to capture arsenic and reduce concentrations at the compliance boundary is along the northern dike. Given the depths of the impacts, a TreeWell® system would be required. TreeWells® are installed in 3- to 5-foot-diameter boreholes extending to the target depth. Drilling borings within the narrow width of the dike may be challenging and require widening the dike. Depending on the number of TreeWells® and borings required, the construction could impact the stability of the dike. The presence of flowing sands and brackish water chemistry may complicate the installation process and viability of plants.
Subsurface Barrier Walls	Use of barriers to physically control the migration of impacted groundwater either directly or through manipulation of groundwater flow.	*Moderate:* Barrier walls are a proven technology for seepage control and/or groundwater cutoff at impoundments. Sheet pile walls are limited by the depth of installation, which is typically approximately 60 to 65 feet bgs with a single sheet. Within the context of former AP-1, a barrier wall as the sole remedial measure would likely be moderately effective. An alternative use of this strategy is in a "funnel and gate" system with a PRB. As such, groundwater with arsenic above the GWPS could be directed to "treatment gates" for passive treatment (in a PRB). Additional subsurface investigations and compatibility testing with groundwater from former AP-1 would be needed prior to selection and implementation. Performance may be affected by the fluctuating groundwater flow directions during tidal cycles.	*High – With proper installation*: O&M requirements can range significantly, depending on whether groundwater extraction and subsequent treatment from inside the wall is required.	*Moderate to difficult:* Limited space for construction activities along the dike makes implementation moderate to difficult. Widening the dike would likely be necessary prior to implementation. A relatively low permeability unit at 37 to 45 feet bgs in the vicinity of MCM-06 is present to key the barrier into (*refer to Appendix B*), but continuity needs to be confirmed. The presence of flowing sands may complicate the trenching process. Jet-grouting is another alternative, but is typically more difficult compared to other barrier wall installation methods. Depending on design, groundwater extraction may be needed because of the inflow of water from the mainland and island.

Technology	Evaluation Criteria			
	Potential Impact 40 CFR 257.96(c)(1)	Estimated Time to Begin/Complete Remedy 40 CFR 257.96(c)(2)	Institutional Requirements 40 CFR 257.96(c)(3)	Relative Costs
Geochemical Manipulation (In Situ Injection)	*Low:* Low impacts are expected if the remedy works as designed, based on a thorough pre-design investigation, geochemical modeling, and bench/pilot study results. Consideration of groundwater flow to nearby sensitive environments may be needed. This remedial alternative may unintentionally alter the geochemistry within the aquifer, which may result in the mobilization of other constituents that require treatment. Short-term risks during remedial activities such as drilling and operating pressurized injection equipment can be mitigated through appropriate planning and health and safety (H&S) measures.	A thorough pre-design investigation, geochemical modeling, and/or bench scale treatability study and/or field-scale pilot testing may take up to 24 months to obtain the design parameters needed for design and construction of the corrective measure. Well construction is relatively quick (i.e., 1 to 2 months; potentially longer depending on the scale of the remedy) and time for an injection event is variable. Time to achieve the GWPS for arsenic is dependent on the attenuation process kinetics of the constituent as well as amendment longevity, injection layout, and arsenic transport properties. Additional injection events may be needed to maintain redox conditions and/or address additional flux of impacted groundwater into the treatment area.	Deed restrictions may be necessary until in situ treatment has achieved the GWPS. An Underground Injection Control Permit would be required to implement this corrective measure. No other institutional expected.	Medium
In Situ Stabilization/ Solidification (ISS)	*Low:* Short-term impacts during remedy construction can be mitigated through appropriate planning and H&S measures. Changes to groundwater flow patterns due to stabilized media can occur, which can affect other aspects of the groundwater corrective action. Application of ISS mixture can also alter the geochemistry and may result in the mobilization of other constituents that require treatment. In addition, bulk mixing with reagents can occur.	Design phase and additional compatibility testing may be required, which may take up to 18 months. Completion of ISS may take an additional 12 to 18 months, depending on the final design, mixing method, and scale. Since this approach would likely not be applied to all of the impacted groundwater but rather applied to a specific source area to prevent migration, it may take an extended period of time to complete the remedy.	Deed restrictions may be necessary until groundwater concentrations are below the GWPS. No other institutional requirements expected.	Medium to high (depending on area stabilized)
Hydraulic Containment	*Low:* Potential impacts are anticipated to be low. Short-term impacts during the construction of the remedy and long-term impacts during O&M can be mitigated through appropriate planning and H&S measures. Groundwater extraction may unintentionally alter the geochemistry within the hydraulic capture zone.	A thorough pre-design investigation, flow modeling, bench-scale treatability studies, and/or field-scale pilot testing may be needed. These activities may take 12 to 24 months prior to design, permitting, and construction of the corrective measure. Installation of extraction wells and/or trenches can be accomplished relatively quickly, while the time until startup is contingent on ex-situ treatment infrastructure. Hydraulic containment can be achieved relatively quickly after startup of the extraction system. However, uncertainty exists with respect to the time to achieve and maintain the GWPS and complete operations; additional data collection may be needed to better understand site mobility and attenuation mechanisms for arsenic.	A revision to the current permit may be required to withdraw water (e.g., water or consumptive use permit). Depending on the effluent management strategy, modifications to the existing National Pollutant Discharge Elimination System permit may be required for surface water discharge. In addition, deed restrictions may be necessary until groundwater concentrations are below the GWPS.	Medium to high (depending on remedy duration and complexity of above-ground treatment system)
Monitored Natural Attenuation (MNA)	*Negligible:* Potential impacts of the remedy will be negligible because MNA relies on natural processes active in the aquifer matrix without significant disturbance to the surface or subsurface.	Implementation of the MNA remedy would require time for additional data collection and documentation, even though an existing monitoring network is already in place. Additional data collection activities may take up to 24 months to complete. The additional data would be needed for statistical analysis and to evaluate whether additional monitoring wells need to be installed to supplement the existing monitoring network. MNA timeframes range from a few years to a few decades.	Deed restrictions may be necessary until natural attenuation processes have achieved the GWPS. No other institutional requirements expected.	Low
Permeable Reactive Barrier (PRB)	*Low:* Impacts are expected to be low if the remedy works as designed, based on a thorough pre-design investigation, geochemical modeling, and geophysical testing. Short-term impacts during construction of the remedy can be mitigated through appropriate planning and H&S measures. Consideration of groundwater flow to nearby sensitive environments may be needed. This remedial alternative may unintentionally alter the geochemistry within the wall, which may result in the mobilization of other constituents that require treatment.	Installation of a PRB can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, bench-scale treatability studies and/or compatibility testing would be required to obtain design parameters prior to design and construction of the remedy. These processes may take up to 24 months. Media may need to be replaced periodically to maintain reactive conditions and/or address additional flux of impacted groundwater into the PRB.	Deed restrictions may be necessary until groundwater concentrations are below the GWPS. No other institutional requirements expected.	Medium (for installation) with minimal O&M requirements
Phytoremediation	*Low:* Phytoremediation typically has low expected impacts. Depending on the phytoremediation strategy, disposal methods for vegetation with bioaccumulated arsenic may need to be considered. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and H&S measures.	Installation of a phytoremediation system can be accomplished relatively quickly (within 6 to 12 months), depending on the final location and configuration. However, treatability studies and pilot testing would be required to ensure effective treatment. These studies may take up to 24 months. Once installed, the time to achieve the GWPS downgradient of the phytoremediation system is anticipated to be long and can take multiple years before system is treating at design capacity	Deed restrictions may be necessary until groundwater concentrations are below the GWPS. No other institutional requirements expected.	Medium (for installation) with minimal O&M requirements
Subsurface Barrier Walls	*Low:* Impacts are expected to be low following construction of the remedy. Short-term impacts during remedy construction can be mitigated through appropriate planning and H&S measures. Changes to	Design phase and additional compatibility testing may be required, which may take up to 24 months. Installation of a barrier wall can be accomplished relatively quickly (i.e., 6 to 12 months), depending on the final location and configuration. Once installed, preventing migration of constituents in groundwater is anticipated to be similar to a companion technology	Deed restrictions may be necessary until groundwater concentrations are below the GWPS. No other institutional requirements expected.	Medium (for installation) with minimal O&M requirements

Technology	Evaluation Criteria			
	Potential Impact 40 CFR 257.96(c)(1)	**Estimated Time to Begin/Complete Remedy 40 CFR 257.96(c)(2)**	**Institutional Requirements 40 CFR 257.96(c)(3)**	**Relative Costs**
	groundwater flow patterns due to installation of the barrier wall are expected and may require dewatering.	(e.g., PRBs or P&T). Since this approach does not treat the downgradient area of impacted groundwater but rather prevents migration from a source area, it will likely have to be maintained long-term and coupled with other approaches.		

Acronyms and Abbreviations:

CFR = Code of Federal Regulations

bgs = below ground surface

GWPS = Groundwater Protection Standard

H&S = health and safety

ISS = in situ stabilization/solidification

MNA = monitored natural attenuation

O&M = operation and maintenance

P&T = pump and treat

PRB = permeable reactive barrier

FIGURES

Legend

- PERMITTED CCR BOUNDARY
- PROPERTY BOUNDARY
- COMPLIANCE MONITORING WELL
- DELINEATION WELL

0 600 1,200
Feet
1 inch = 600 feet

GEORGIA POWER
ASSESSMENT OF CORRECTIVE MEASURES REPORT
PLANT MCMANUS FORMER ASH POND 1
BRUNSWICK, GEORGIA

SITE MAP AND COMPLIANCE MONITORING WELL NETWORK

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

User: KGPeters Location: On-Site Citrix
Path: F:\Brunswick_Crispin_Island_GA\Figure 1_ Site Map and Compliance Monitoring Well Network.mxd

Legend

PERMITTED CCR BOUNDARY
COMPLIANCE MONITORING WELL
DEEP PIEZOMETER
PIEZOMETER
DELINEATION WELL
DEWATERING WELLS

NOTE:
PZ-01 THROUGH PZ-08, MW-08, AND MCM-09 WERE ABANDONED IN 2019

0 400 800
Feet
1 inch = 400 feet

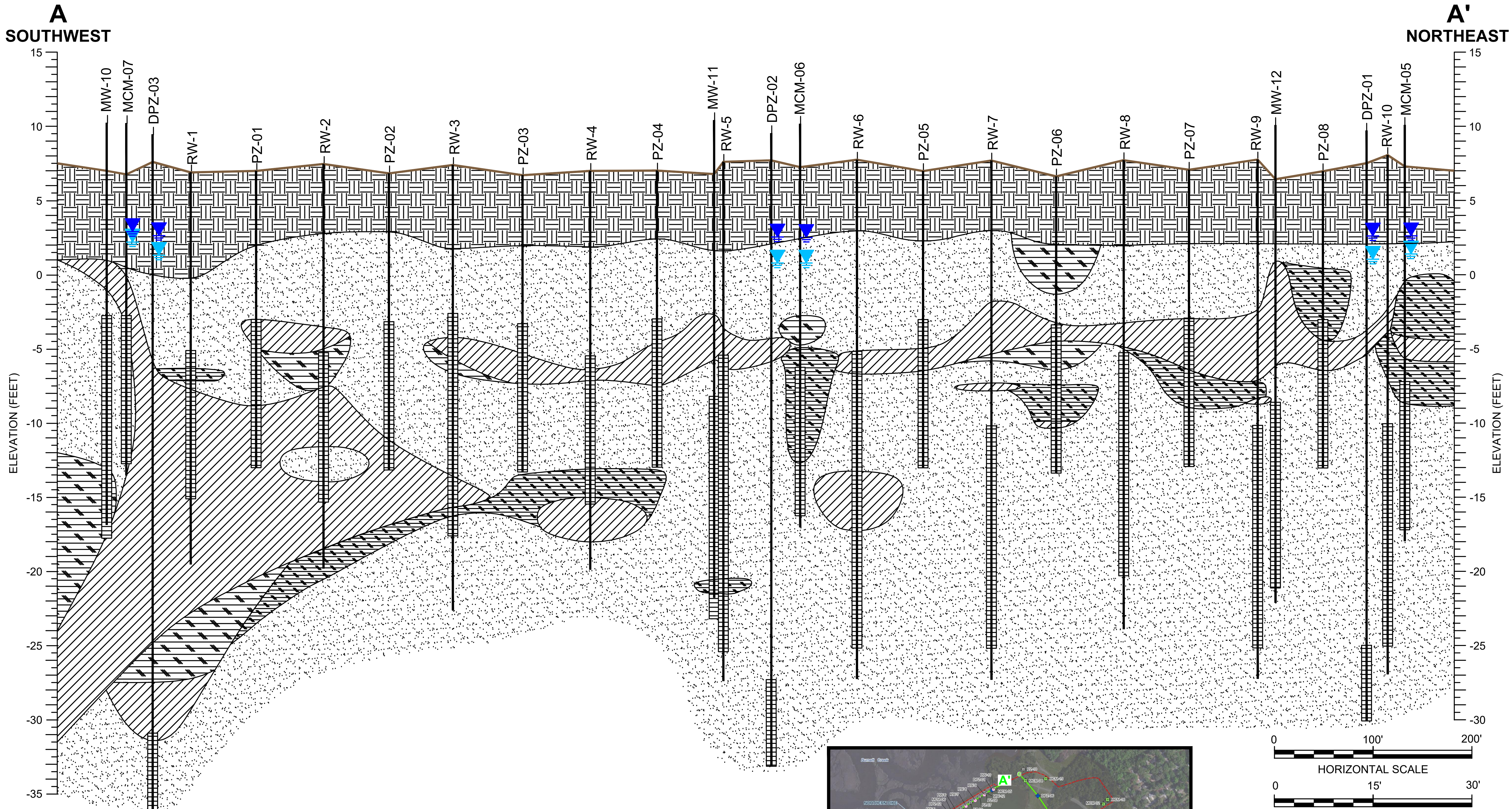
GEORGIA POWER
ASSESSMENT OF CORRECTIVE MEASURES REPORT
PLANT MCMANUS FORMER ASH POND 1
BRUNSWICK, GEORGIA

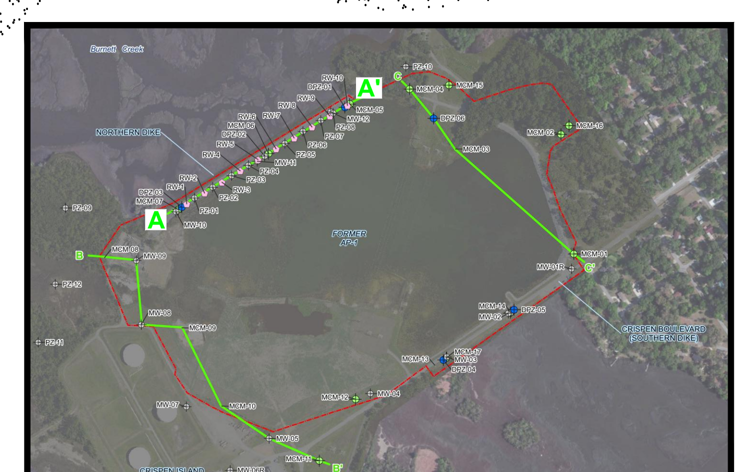
SITE PLAN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2A

User: KGPeters Location: On-Site Citrix
Path: F:\Brunswick_Crispin_Island_GA\Figure 2A_ Site Plan.mxd





0 100' 200'

HORIZONTAL SCALE

0 15' 30'

VERTICAL SCALE

LEGEND

MW-10	BORING ID
	GROUND SURFACE
	BORING
	SCREEN INTERVAL
	FINE GRAINED SANDS WITH <5% FINES (SP, SW)
	FINE GRAINED SANDS WITH 5% TO 12% FINES (SP-SC, SP-SM)
	FINE GRAINED SANDS WITH 12% TO 50% FINES (SM, SC)
	FINE GRAINED SOILS WITH >50% FINES (CL, CH, OL)
	DIKE FILL
	MARCH 26, 2020 HIGH TIDE GROUNDWATER ELEVATION (FT NAVD 88)
	MARCH 19, 2020 LOW TIDE GROUNDWATER ELEVATION (FT NAVD 88)

GEORGIA POWER
ASSESSMENT OF CORRECTIVE MEASURES REPORT
PLANT McMANUS FORMER ASH POND 1
BRUNSWICK, GEORGIA

CROSS SECTION A-A'

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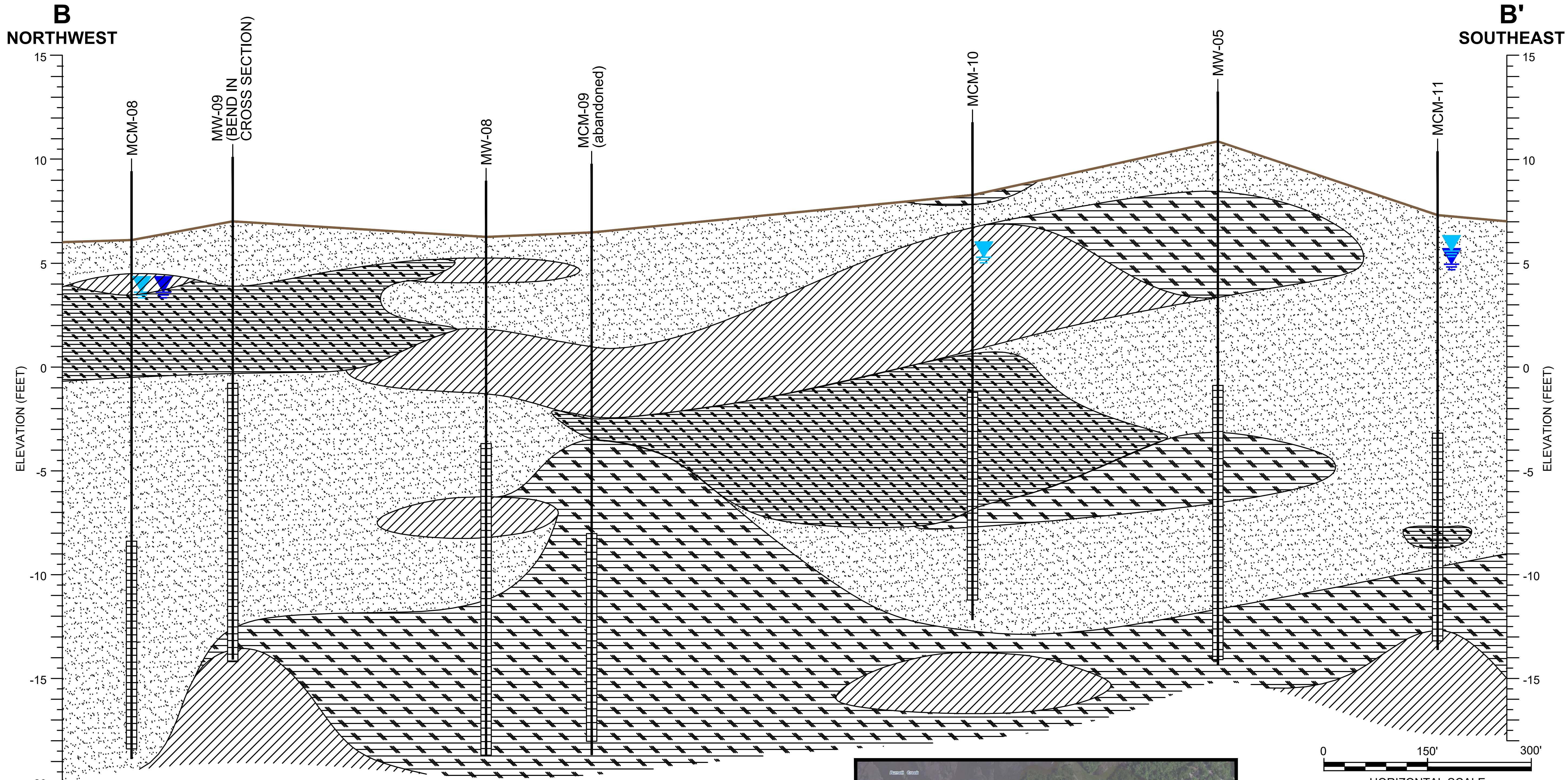
FIGURE
2B



0 150' 300'
HORIZONTAL SCALE

0 5' 10'
VERTICAL SCALE

LEGEND

MW-09 BORING ID

GROUND SURFACE

BORING

SCREEN INTERVAL

FINE GRAINED SANDS WITH <5% FINES (SP, SW)

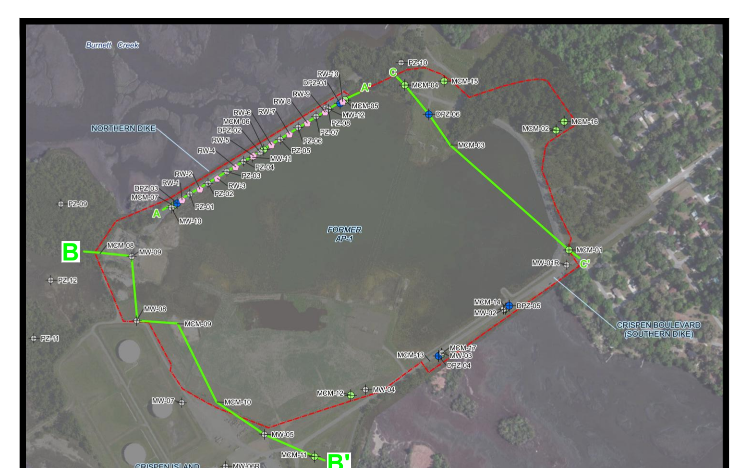
FINE GRAINED SANDS WITH 5% TO 12% FINES (SP-SC, SP-SM)

FINE GRAINED SANDS WITH 12% TO 50% FINES (SM, SC)

FINE GRAINED SOILS WITH >50% FINES (CL, CH, OL)

MARCH 26, 2020 HIGH TIDE GROUNDWATER ELEVATION (FT NAVD 88)

MARCH 19, 2020 LOW TIDE GROUNDWATER ELEVATION (FT NAVD 88)



GEORGIA POWER
ASSESSMENT OF CORRECTIVE MEASURES REPORT
PLANT McMANUS FORMER ASH POND 1
BRUNSWICK, GEORGIA

CROSS SECTION B-B'

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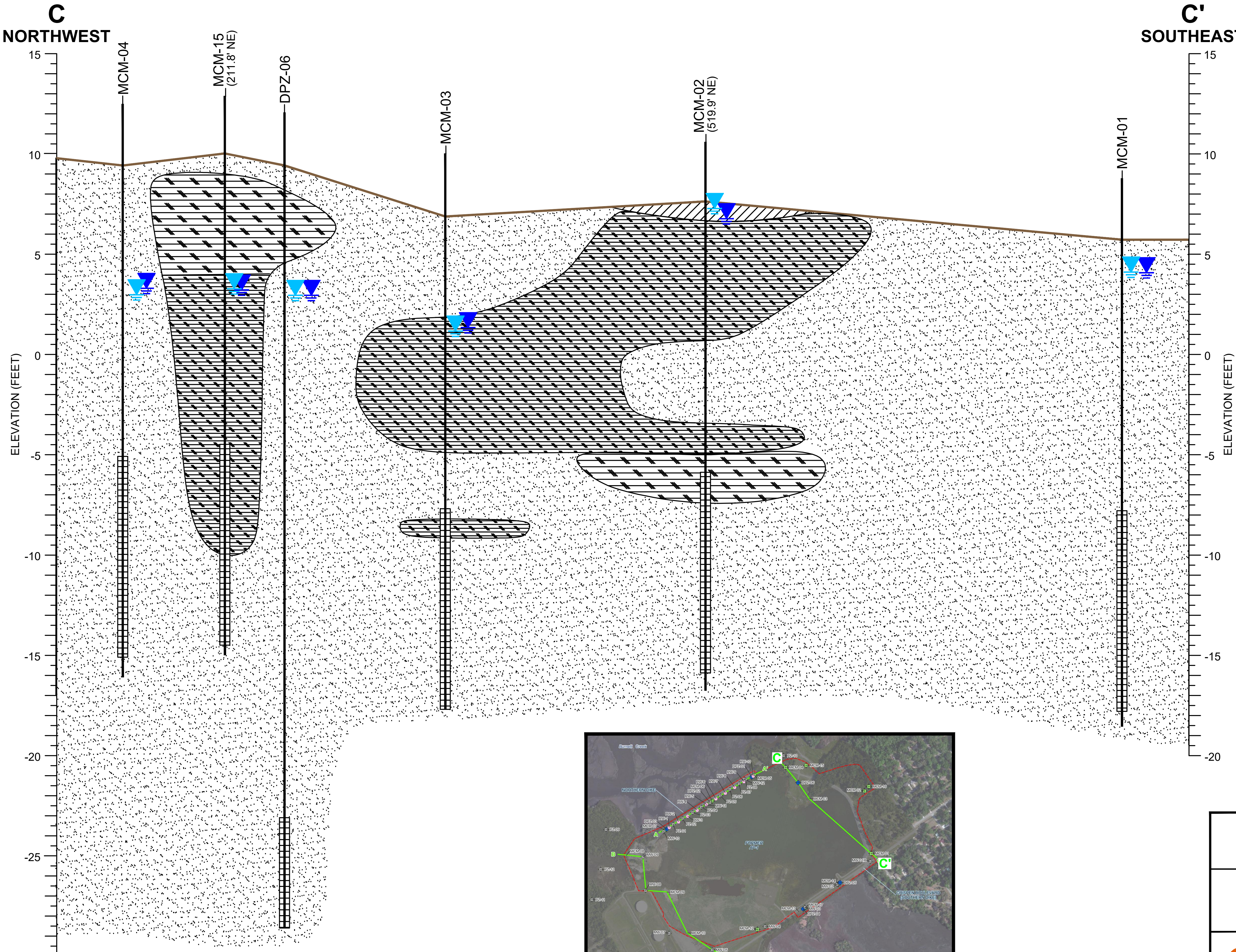
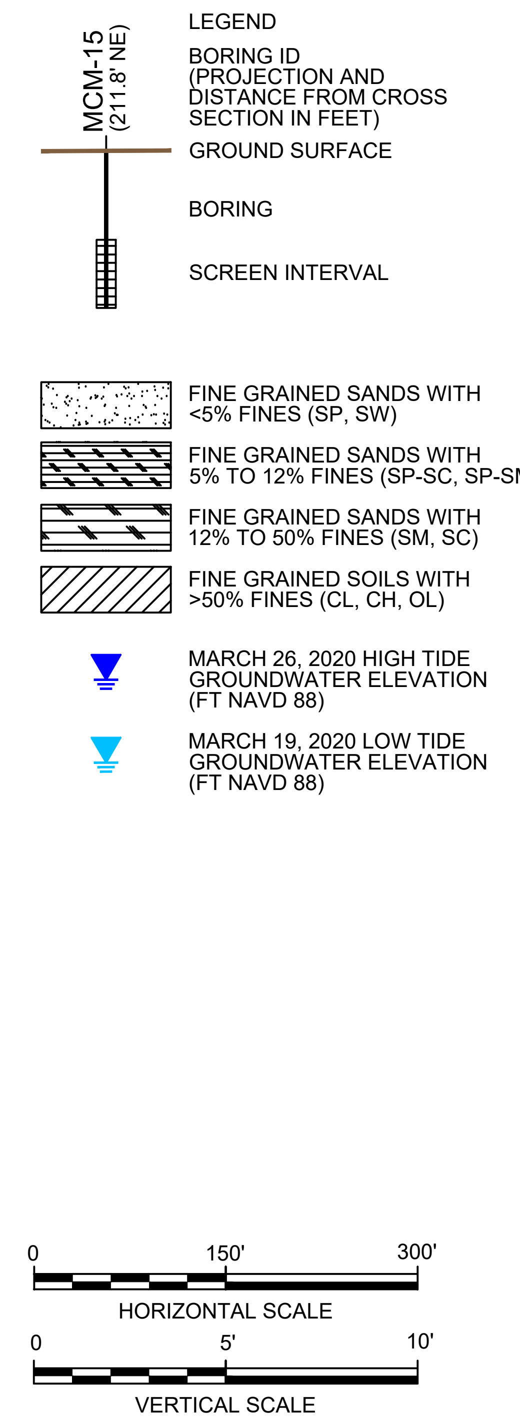
FIGURE
2C

DIV/GROUP: ENVCAD C:\Users\jlharris\BIM 360\Arcadis\ANA - Georgia Power\Project Files\2020\30050105\01-DWG\McManus SS - Cross Sections.dwg LAYOUT: 4 SAVED: 11/10/2020 12:59 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/10/2020 1:12 PM BY: HARRIS, JESS
XREFS: McManus SS - Title Block IMAGES: PROJECTNAME: ----





GEORGIA POWER
ASSESSMENT OF CORRECTIVE MEASURES REPORT
PLANT McMANUS FORMER ASH POND 1
BRUNSWICK, GEORGIA

CROSS SECTION C-C'

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FIGURE
2D

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- PERMITTED CCR BOUNDARY
- COMPLIANCE MONITORING WELL
- PIEZOMETER
- DEEP PIEZOMETER
- DELINEATION WELL
- DEWATERING WELL

0 600 1,200
Feet
1 inch = 600 feet

GEORGIA POWER
ASSESSMENT OF CORRECTIVE MEASURES REPORT
PLANT MCMANUS FORMER ASH POND 1
BRUNSWICK, GEORGIA

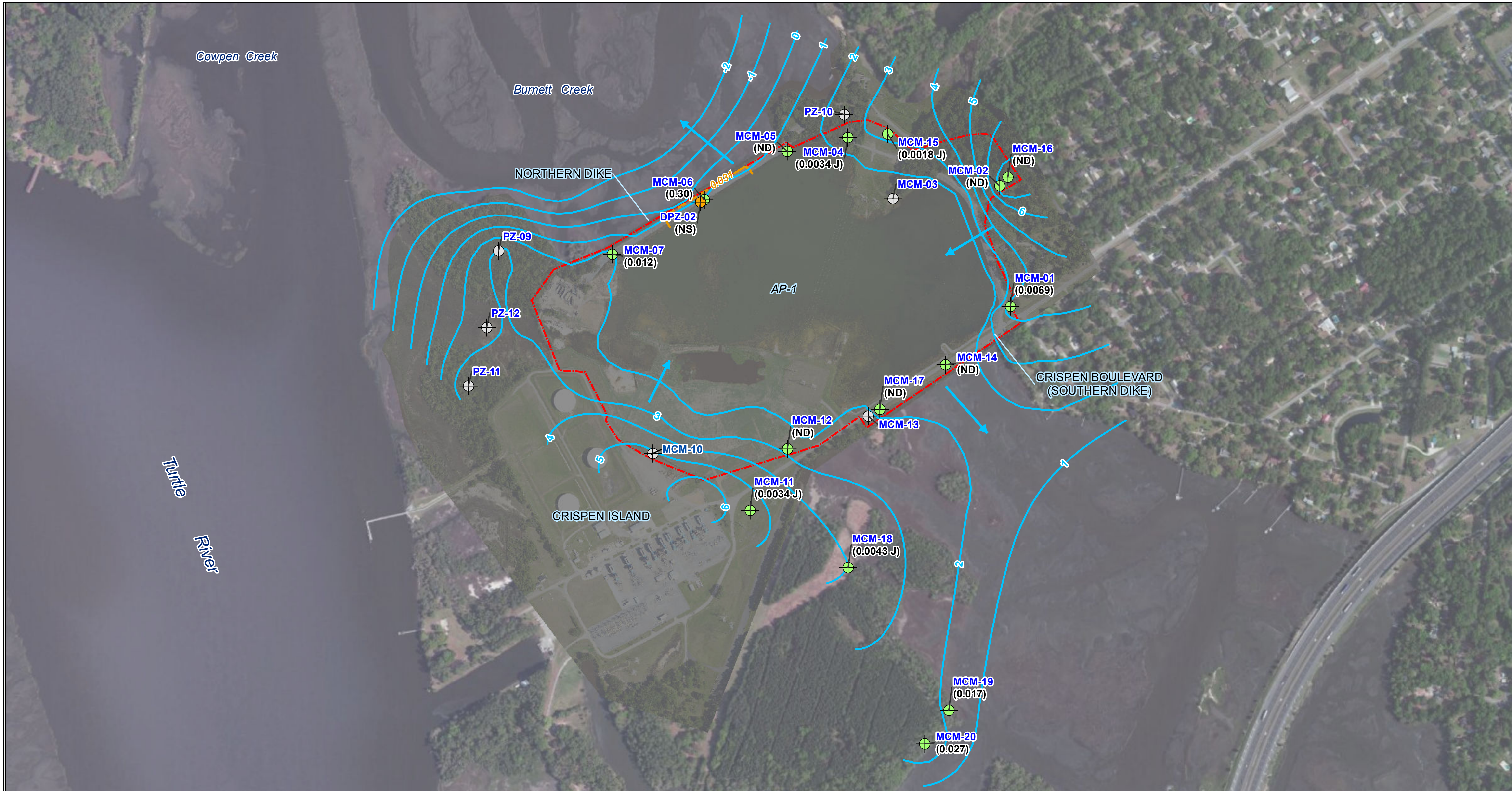
SUPPLEMENTAL INVESTIGATION AND DEWATERING WELLS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3

User: KGPeters Location: On-Site Citrix
Path: F:\Brunswick_Crispin_Island_GA\Figure 3_ Supplemental Investigation and Dewatering Wells.mxd

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend
- PERMITTED CCR BOUNDARY
- COMPLIANCE MONITORING WELL
- PIEZOMETER
- DELINEATION WELL
- ARSENIC ISOCONCENTRATION LINE DASHED WHERE INFERRED
- MARCH 2020 LOW TIDE GROUNDWATER CONTOURS
- DIRECTION OF GROUNDWATER FLOW

NOTES:
BLUE LABELS INDICATE WELL WAS USED FOR GROUNDWATER ELEVATION MODELING.
BLACK LABELS ARE ARSENIC CONCENTRATIONS.
DATA SHOWN FROM GROUNDWATER SAMPLING EVENT CONDUCTED MARCH 26-28, 2020.
ISOCONTOUR DASHED WHERE APPROXIMATE.
CONCENTRATIONS REPORTED IN MILLIGRAMS PER LITER (mg/L).
NS = NOT SAMPLED.
ND = NOT DETECTED.
GREYED LOCATIONS WERE NOT SAMPLED DURING MARCH 2020 SAMPLING EVENT.
ARSENIC GROUNDWATER PROTECTION STANDARD = 0.031 MILLIGRAMS PER LITER.
PZ-01 THROUGH PZ-08, MW-08, AND MCM-09 WERE ABANDONED IN 2019.

0 600 1,200
Feet
1 inch = 600 feet

GEORGIA POWER
ASSESSMENT OF CORRECTIVE MEASURES REPORT
PLANT MCMANUS FORMER ASH POND 1
BRUNSWICK, GEORGIA

Isoconcentration Map Arsenic
March 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4

User: KGPeters Location: On-Site Citrix
Path: F:\Brunswick_Crispin_Island_GA\Figure4_Isoconcentration Map Arsenic - March 2020.mxd

APPENDIX A

Risk Evaluation Report

RISK EVALUATION REPORT
PLANT MCMANUS
FORMER ASH POND 1
GLYNN COUNTY, GEORGIA

Prepared for

Georgia Power
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Atlanta, Georgia 30308

Prepared by

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1075 Big Shanty Road NW, #100
Kennesaw, Georgia 30144

Project Number 6123-20-1474

December 2020

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LIST OF ACRONYMS AND ABBREVIATIONS

AP	Ash Pond
ASD	Alternate Source Demonstration
bgs	below ground surface
CCR	Coal Combustion Residual
CEM	Conceptual Exposure Model
CFR	Code of Federal Regulations
COI	Constituent of Interest
COPI	Constituent of Potential Interest
EPC	Exposure Point Concentration
EPD	[Georgia] Environmental Protection Division
GWPS	Groundwater Protection Standard
HSRA	Hazardous Site Response Act
HUC	Hydrologic Unit Code
ISWQC	Instream Water Quality Criteria
MCL	Maximum Contaminant Level
mg/L	Milligrams per liter
PQL	practical quantitation limit
ProUCL	ProUCL software version 5.1
RME	Reasonable Maximum Exposure
RRS	Risk Reduction Standards
RSL	Regional Screening Level
SSL	Statistically Significant Level
UCL	95 Percent Upper Confidence Limit of the Arithmetic Mean
USEPA	United States Environmental Protection Agency
VRP	Voluntary Remediation Program

EXECUTIVE SUMMARY

Georgia Power's Plant McManus (site) is an electric-generating facility approximately 5.37 miles northwest of Brunswick, Georgia in Glynn County that began operations in 1952. The two former steam units were retired and demolished as of 2017, and the facility currently has nine oil-fired combustion turbines on site. In compliance with applicable regulations, coal combustion residual (CCR) material resulting from historical power generation were transferred and stored at the site in the form of a surface impoundment: Ash Pond 1 (AP-1). AP-1 has not received ash since the early 1970's.

Georgia Power is currently in the permitting process for AP-1. Closure of AP-1 commenced in 2016. During closure, Georgia Power removed all CCR material in the inactive surface impoundment and transported it to an off-site permitted landfill. The CCR excavation and removal were completed in October 2019. AP-1 is subject to the Federal CCR Rule, 40 Code of Federal Regulations (CFR) Part 257 Subpart D - Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments[1] and the State CCR Rule, Georgia Environmental Protection Division (EPD) Coal Combustion Residuals, Rule 391-3-4-.10. Per CCR rules, semi-annual groundwater monitoring and reporting is required to conclude the closure process for at least 5 years following removal completion.

This report presents the results of a human health and ecological risk evaluation for CCR constituents[2] that exhibit statistically significant levels (SSLs) in groundwater at the site (arsenic and lithium) and the supporting human health and ecological risk evaluation for the adjacent downgradient surface water body, Burnett Creek. A conservative, health-protective approach for groundwater and surface water concentrations with consideration for background was used that is consistent with United States Environmental Protection Agency (USEPA) risk assessment guidance, Georgia EPD regulations and guidance, and standard practice for risk assessment in the State of Georgia. Using the groundwater protection standards (GWPS) established for AP-1 in accordance with the Federal and State CCR Rules, arsenic and lithium were previously defined as both federal and state SSL-related constituents (Resolute, 2020a). The risk evaluation relies on groundwater

[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).

[2] The constituents included in the risk evaluation also occur naturally in the site geologic setting.

data collected by Georgia Power from 2015 through March 2020 in compliance with the Federal and State CCR Rules.

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 former AP-1.
2. Initial groundwater risk screening: Comparison of groundwater concentrations for SSL-related constituents to conservative, health-protective criteria and/or background concentrations to assess whether constituents pose a risk to human health.
3. Refined groundwater risk evaluation: Performance of a more refined analysis for Constituents of Potential Interest (COPIs) that were retained in the initial risk screening in order to evaluate the potential risks to human health due to groundwater exposure.
4. Surface water screening: Comparison of surface water concentrations for those constituents identified as groundwater constituents of interest (COIs) to conservative, health-protective criteria to assess whether those constituents pose a risk to human health and/or the environment as an additional line of evidence.
5. Refined surface water risk evaluation: Performance of a more refined surface water analysis for those constituents that were retained in the initial surface water risk screening in order to further evaluate the potential risks to human health and the environment as an additional line of evidence.
6. Development of risk conclusions and identification of associated uncertainties.

Using this approach that includes multiple conservative assumptions, concentrations of the only two SSL-related constituents, arsenic and lithium, are not expected to pose a risk to human health or the environment. In addition, all CCR has been removed from the pond and an alternative source demonstration (ASD) has been submitted for lithium as this constituent is naturally occurring at the site and in the brackish water.

Therefore, no further risk evaluation of groundwater and surface water is warranted. Compliance monitoring for the former AP-1 under the Federal and State CCR Rules will continue. Georgia Power will proactively evaluate the data and update this evaluation, if necessary.

1 INTRODUCTION

This report summarizes a risk evaluation of the former AP-1, located at the Georgia Power Plant McManus located in Glynn County, Georgia (**Figure 1**). Georgia Power is currently in the permitting process for AP-1 in accordance with the Federal CCR Rule (USEPA, 2020a) and the State CCR Rule (EPD, 2018a). CCR excavation and removal at AP-1 were completed in October 2019 (Arcadis, 2019) and acknowledged as complete by EPD in a letter dated January 10, 2020.

This risk evaluation provides additional technical review of the human health and environmental protectiveness associated with the closure of AP-1 with respect to CCR constituent concentrations in groundwater identified as SSLs above GWPS. The evaluation relies on a conservative, health-protective approach that is consistent with the risk evaluation approaches outlined in Voluntary Remediation Program (VRP) (Georgia Voluntary Remediation Act, OCGA §12-8-100; EPD, 2009) and USEPA Regional Screening Levels (RSLs) User's Guide (USEPA, 2020b). This evaluation also incorporates principles and assumptions consistent with the Federal and State CCR Rules.

The risk evaluation includes the development of a site-specific CEM and a stepwise risk screening process for the identified SSL-related constituents for the former AP-1. Arsenic and lithium were previously identified as both state and federal SSL-related constituents[3] in monitoring well MCM-06 using the GWPS established for AP-1 according to the Federal and State CCR Rules (Resolute, 2020a). Based on the results of the risk evaluation for the SSL-related constituents, 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 SSL-related constituents.

[3] A state SSL-related constituent is determined by comparing the confidence intervals developed to either the constituent's 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.

- ***Section 3, Risk Evaluation Screening*** – Describes the process for the initial risk-based screening of SSL-related constituents to identify COPIs in groundwater.
- ***Section 4, Refined Risk Evaluation*** – Describes the risk screening process for the groundwater COPIs, including calculation of exposure point concentrations (EPCs) and analysis of concentration trends over time for groundwater COPIs, as well as the risk screening process for those constituents evaluated in surface water in the adjacent downgradient surface water body.
- ***Section 5, Uncertainty Assessment*** – Describes the uncertainties associated with the risk screening process.
- ***Section 6, Conclusions*** – Presents the conclusions of the risk evaluation.
- ***Section 7, 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 containing SSL-related constituents and potential exposure to SSL-related constituents has been developed based on a review and compilation of information previously presented in Plant McManus AP-1 documents, including the *Hydrogeologic Assessment Report (rev. 3) – Plant McManus Former Ash Pond 1* (Resolute, 2020b) and the *2020 Annual Groundwater Monitoring & Corrective Action Report* (Resolute, 2020c). The CEM includes a conservative evaluation of potential transport pathways, potential exposure pathways, and potential human and ecological receptors.

2.1 Site Description

Plant McManus is located approximately 5.37 miles northwest of the city of Brunswick. The site occupies approximately 2,400 acres and is bordered by Turtle River on the west, Burnett Creek to the north, and Gibson Creek to the south (**Figure 2**). Plant McManus was once a two-unit power generation facility. Construction of Unit 1 began in 1951 and the initial startup and commercial operation began in November 1952. Unit 1 was originally designed to operate as an oil-fired generator and was converted to coal in 1960. Construction on Unit 2 began in 1957 and was declared commercial in 1959 with coal as the primary fuel. In 1971, both Units 1 and 2 were converted to oil-fired and the use of coal ceased after 1972. In 1972, nine diesel-fired simple cycle combustion turbines were installed and are currently operating. Units 1 and 2 have been retired and demolished as of 2017. AP-1 was designed to receive and store CCR and process water produced by Units 1 and 2 during the electric power generating process at Plant McManus. AP-1 has not received ash since the early 1970's.

In 2016, Georgia Power began closure of the inactive AP-1 by removal of CCR materials. Former AP-1 encompassess approximately 80 acres and is bounded by the mainland to the northeast, Crispen Island to the southwest, an elevated road (Crispen Island Drive) dike to the southeast, and the former AP-1 northern dike to the northwest (Resolute, 2019).

Semi-annual groundwater monitoring and reporting for Plant McManus former AP-1 is performed in accordance with the monitoring program requirements of the Federal and State CCR Rule. In accordance with 40 CFR § 257.91, a groundwater monitoring network was installed to monitor groundwater quality both upgradient and downgradient of the former AP-1. The former AP-1 certified monitoring well network consists of 8 upgradient monitoring wells and 7 downgradient monitoring wells. There are 14 piezometers that may be utilized for water level measurements or assessing groundwater conditions. An additional piezometer, MCM-09, was abandoned in December 2019. The locations of the certified compliance well network and piezometers included in the risk evaluation are provided on **Figure 2**.

2.1.1 Topography and Surface Hydrology

The site was originally a cluster of one large and several small islands in a tidal marsh between Burnett Creek, Cowpen Creek, Gibson Creek (collectively, the tidal creeks) and Turtle River (**Figure 1**). The River, the salt marsh, and the tidal creeks in the marsh are subject to tidal fluctuations of surface water. A road (Crispen Island Drive) and a railroad were constructed from the mainland to the largest island, and two or more of the islands were joined to the largest island during construction of the plant. The former AP-1 was constructed over the marsh and tidal creek between the largest island and the mainland in the 1950s, with a northern dike and the southern dike formed by Crispen Island Drive. The northeastern extent of the former AP-1 is the mainland, and the southwestern extent is the island.

The site is located within the Turtle River – South Brunswick River hydrologogic unit code (HUC) 12 watershed, which has a total area of 51,891 acres, and, in turn, is part of the larger Cumberland-St. Simons HUC 8 watershed, which has an area of 609,980 acres.

The surface of the marsh is covered by silt and vegetation, except where it is scoured by tidal creek action. In addition to current and historically recent (pre-ash pond construction) tidal channels, the marsh is also likely to have paleo (pre-historic) tidal channels present throughout the upper portion of the aquifer in the marsh area.

The topography, as suggested by the tidal nature of the surroundings, is quite flat and at relatively low elevations compared to sea level. For example, top of casing elevations for monitoring wells and piezometers at the facility have a maximum elevation of 15.81 feet above mean sea level (Resolute, 2019).

2.1.2 Geology and Hydrogeology

The geologic and hydrogeologic characteristics of the site have been extensively evaluated and compiled in previous reports. The following presents a brief summary of this information from the former AP-1 *2020 Annual Groundwater Monitoring & Corrective Action Report* (Resolute, 2020c):

> *Based on information collected during subsurface investigations, Plant McManus is underlain by very fine sands and clays from land surface (or beneath a shallow fill layer) to depths ranging from 33 to 43 feet below land surface. Very fine sands are predominant, but discontinuous clay layers of varying thickness were encountered during drilling activities. The clay layers varied from less than one inch to approximately ten feet in thickness. These very fine sands and discontinuous clay layers are interpreted to be the Upper Satilla Formation (ATC Associates, Inc., 1997).*
>
> *Underlying the Upper Satilla Formation are fine to medium sands with greater silt content that have lower permeabilities than the sands of the Upper Satilla. These siltier sands, which were interpreted to be the Lower Satilla Formation, were encountered at depths greater than 35 feet below ground surface during the Site investigation performed in the 1990s (ATC Associates Inc., 1997). These sands may also correspond to the Cypresshead Formation of Huddleston (1988). Sands and clays below the Cypresshead and above the confining unit of the Brunswick aquifer system have been described by Weems and Edwards (2001) as two pairs of alternating confining units and water-bearing zones of the Ebenezer Formation, extending from approximately 50 feet bgs to 185 feet bgs in the Brunswick area.*

Pertinent hydrogeologic information from the former AP-1 *2020 Annual Groundwater Monitoring & Corrective Action Report* (Resolute, 2020c) is presented below:

> *The regional surficial aquifer that contains the Upper and Lower Satilla Formations is underlain by approximately 90 feet of lower-permeability portions (Miocene Unit A) of the Hawthorn Formation. This stratum forms the upper confining bed for the Brunswick aquifer system.*
>
> *The surficial aquifer underlying the mainland, marsh, and island is composed of the very fine to fine grain sand with discontinuous clay layers of the Upper and Lower Satilla Formation. In the marsh, the groundwater elevation at low*

> *tide is below the top of the marsh surface. The upper portion of the aquifer in the marsh has been cut by tidal creeks, which meander through the marsh. In addition to current and historically recent (pre-ash pond construction) tidal channels, the marsh is also likely to have paleo (pre-historic) tidal channels present throughout the upper portion of the aquifer in the marsh area, which may provide zones of higher hydraulic conductivity or isolated pockets of groundwater. Vertically, the Satilla formation fines downward to a silty fine sand of the Lower Satilla Formation. The aquifer is generally unconfined, with localized clay layers. Groundwater flowing within the surficial aquifer is separated from deeper aquifers by approximately 90 feet of lower-permeability portions of the Hawthorn Formation (Miocene Unit A) that form the upper confining bed for the Brunswick aquifer system (Clarke et al, 1990).*
>
> *Groundwater flows from two directions toward the former AP-1. One groundwater flow component originates on the mainland, northeast of the facility, and flows southwest, while the other flow component originates on Crispen Island and flows north and northeast . . . . Groundwater elevations in the monitoring wells on the mainland (MCM-02, -15, and -16) and on the island (MCM-08, and -11) have consistently exhibited higher groundwater elevations than the monitoring wells and piezometers installed along the dikes, with MCM-01 and -04 exhibiting intermediate elevations between the mainland and dike wells. The potentiometric surface of the surficial aquifer and the resultant groundwater flow direction in the vicinity of the former AP-1 is a reflection of the topography of the mainland, Crispen Island, and the tidal marsh surrounding the area.*

The potentiometric surface elevation contours for March 2020 are presented in **Figure 3** for low tide and **Figure 4** for high tide. The high and low tide potentiometric surface maps indicate that groundwater flow from both the mainland and the island continues to be toward the former AP-1. During high tide (**Figure 4**), groundwater and surface water elevations inside and outside of the dikes illustrate that the potentiometric head is higher in the marsh outside of the dikes and lower in the former AP-1 (based on the staff gauge installed in the former AP-1), indicating an inward flow direction (toward former AP-1) at high tide. During low tide (**Figure 3**), groundwater and surface water elevations inside and outside of the dikes illustrate that the potentiometric head is higher in the former AP-1 (based on the staff gauge installed in the former AP-1) and lower in the marsh outside of the dikes, indicating an outward flow direction (toward the marsh) at low tide.

2.2 Potential Transport Pathways

A variety of geologic, hydrogeologic, and geochemical mechanisms can occur in the subsurface and serve to attenuate constituent concentrations in groundwater such as soil characteristics, the local geology and hydrogeology, and the distance the groundwater must travel before reaching a potential receptor. Previously identified potential transport pathways are summarized in this section. A summary of the potential transport pathways is shown on the CEM in **Figure 5**.

2.2.1 Groundwater

Pertinent information regarding groundwater transport from the *Hydrogeologic Assessment Report (rev. 3) – Plant McManus Former Ash Pond 1* (Resolute, 2020b) is presented below:

> *Groundwater flow directions from the mainland and the island are consistent at both low and high tides. These groundwater elevations and flow patterns make the mainland and the island both hydraulically upgradient of the former AP-1. During the 1996-1997 evaluation and evaluations performed prior to the start of excavation, groundwater flow from inside former AP-1 was toward the north. As dewatering and excavation work progressed, the low area extended from the northern dike into the center of the former AP-1. After the completion of excavation, the former AP-1 began to naturally fill with water. With the natural filling of the former AP-1, the groundwater flow direction at high tide remains inward toward former AP-1, while at low tide the groundwater flow direction appears to reverse away from the former AP-1. The net effect of the reversing flow directions is essentially a stagnant system, with a net combined flow slightly inward toward the former AP-1 based on the higher hydraulic gradient at high tide.*

2.2.2 Surface Water

Burnett Creek, Gibson Creek, and Turtle River border the site (**Figure 2**). Burnett Creek and Gibson Creek are sampled as part of the site monitoring program as the adjacent downgradient surface water bodies. A conservative assumption for this assessment was made that all the groundwater from the site flows to the adjacent surface water bodies (i.e., Burnett Creek to the north and Gibson Creek to the south) under low tide conditions. In further support of this assumption, the tidal creeks and Turtle River represent a regional hydraulic discharge boundary for groundwater flow in the upper aquifer from the area.

2.3 Potential Exposure Pathways and Receptors

The exposure pathways for groundwater assumed to be complete based on site-specific information used to identify potential receptors and estimate potential risk. The CEM (**Figure 5)** 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 complete due to the presence of a single on-site potable well (MCMPW-01/Well #1 Plant). The on-site potable well is located southwest of the plant as shown on **Figure 2**. Water from this well is used for the sanitary facilities and for the central water supply at Plant McManus. The risk evaluation screening conservatively assumed that plant workers may have daily exposure to the maximum concentrations of detected constituents in the on-site potable well through potable water use, including ingestion and dermal contact.

- 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 the on-site resident was considered incomplete because there is no residential use on-site under current site conditions and future residential use of the site is considered unlikely. Land use surrounding the site is zoned for Conservation and Preservation with the exception of an area zoned Single Family Residential to the east and northeast of the site (Glynn County, 2017). West of Turtle River, land use is also predominantly zoned for Conservation and Preservation (Glynn County, 2017).

- 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. Note that there is no downgradient groundwater receptor for industrial/construction worker exposure as the downgradient receptor is the tidal marsh.

- Off-site resident: The groundwater exposure pathway for hypothetical off-site residential receptors was assumed potentially complete. Note that there is no downgradient groundwater receptor for residential exposure as the downgradient receptor is the tidal marsh; however, potential risk for hypothetical off-site residential receptors was quantified as a conservative measure. A well survey of potential groundwater wells within a three-mile radius of the former AP-1 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 well survey is included as **Appendix A**. Results of the survey are presented on **Figure 6**.

  Combining well information from multiple sources with parcel data, 2,361 total parcels likely to be associated with an active or inactive private well within the three-mile radius were identified. Although water lines near the site were constructed in the mid-1990s, there are likely homes near water lines that may still be on wells. Public water is available to many residences in the area; however, a large number of parcels in the immediate vicinity of the site rely on private wells. The survey identified multiple private wells in the vicinity of the site.

  Public water systems are operating wells within a 3-mile radius of the former AP-1. This includes wells for the main water provider in the area, the City of Brunswick, as well as 22 other smaller public water systems. Groundwater flow directions from both the mainland and the island are consistent during both high and low tides, making the mainland and the island both hydraulically upgradient of the former AP-1. Therefore, groundwater is flowing away from the private drinking water wells located to the east of the site, and these private drinking water wells are located upgradient from the former AP-1.

  No surface water intakes have been identified for public water supplies within three miles downgradient of the site. Surface water at the site is brackish, and therefore, is unsuitable for use as a potable water source. Use of surface water as a potable water source downgradient of the site is an incomplete exposure pathway; therefore, drinking water exposure assumptions for surface water do not apply.

  As a conservative measure, potential off-site residential exposure to SSL-related constituents was evaluated using on-site groundwater wells around the perimeter and downgradient of the former AP-1. This comparison makes the conservative assumption that on-site groundwater may potentially migrate to off-site drinking water wells, through advective transport in groundwater without any attenuation within the aquifer media through factors such as dilution, dispersion, or adsorption. The risk evaluation screening conservatively assumed that hypothetical off-site residential receptors could be exposed to the concentrations of SSL-related constituents in groundwater through its use as a potable water supply by ingestion and dermal contact with groundwater.

- Off-site recreational surface water receptors: The surface water exposure pathway for recreational receptors was assumed potentially complete. Routes of exposure include ingestion of aquatic organisms (mainly fish) and potential incidental ingestion and dermal contact with surface water by adult and child recreational receptors.

- Off-site ecological surface water receptors: The surface water exposure pathway for potential off-site ecological receptors was assumed potentially complete. Potential routes of exposure include direct contact to surface water by aquatic receptors as well as ingestion.

3 RISK EVALUATION SCREENING

The CEM developed in Section 2 was used to identify the potentially completed 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 in groundwater to health-protective levels for these pathways. 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. The Georgia EPD allows for site-specific evaluation of risk in programs such as the Voluntary Remediation Program (EPD, 2009).

The initial risk evaluation screening was performed for the potential groundwater exposure pathway by comparing the concentrations of SSL-related constituents in on-site groundwater to appropriate health-protective screening criteria or background. These criteria included the 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 a 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 7** 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.

3.1.1 Groundwater Data

For the initial risk screening evaluation, groundwater data from samples collected between 2015 and March 2020 from the on-site wells that were identified to have constituents with SSLs were used in the risk screening evaluation for hypothetical off-site residential exposure. Arsenic and lithium were previously identified as SSL-related constituents in monitoring well MCM-06 under the State and Federal CCR Rules. Data from MCM-06 for arsenic and lithium were screened against relevant health-protective screening criteria or background. In addition, for potential on-site groundwater exposure, the identified SSL-related constituents were also evaluated in the on-site potable water well.

The well with SSL-related constituents and the potable water well are depicted on **Figure 2**. The groundwater datasets used in the risk evaluation are presented in **Appendix B-1** for the on-site potable water well and in **Appendix B-2** for well MCM-06. 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 is performed at Plant McManus pursuant to §257.93-95 following the professional engineer-certified Statistical Analysis Method Certification (Rev 01, amended January 2020) (Resolute, 2020e) and the Unified Guidance (USEPA, 2009) for the former AP-1; background values are routinely updated under the program. Eight monitoring wells in the certified monitoring well network are designated as upgradient or background locations, including MCM-01, MCM-02, MCM-11, MCM-15, MCM-16, MCM-18, MCM-19, and MCM-20. Statistical analyses were performed on the groundwater data using Sanitas groundwater statistical software, as described in the *2020 Annual Groundwater Monitoring & Corrective Action Report Statistical Summary* (Resolute, 2020c) and text from that document is presented below.

> *Interwell tolerance limits were used to calculate the site-specific background limits from pooled upgradient well data for Appendix IV constituents (Figure F). Parametric tolerance limits are used when data follow a normal or transformed-normal distribution such as for barium and radium. When data contained greater than 50% nondetects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were used. The background limits were then used when determining the groundwater protection standard (GWPS) under 40 CFR §257.95(h) and Georgia EPD Rule 391-3-4-.10(6)(a).*

Naturally occurring or site-specific background concentrations can exceed health-protective screening criteria. Therefore, site-specific background values were used as the groundwater screening levels if background concentrations were identified as greater than the groundwater screening values (i.e., arsenic), as further described in Sections 3.2 and 3.3.

3.2 On-Site Potable Water Screening Evaluation

The process of screening SSL-related constituents in on-site potable water against human health screening levels for groundwater is discussed below and presented in **Figure 7**. The HSRA RRS evaluated under the VRP approach presented herein included Type 3 and Type 4 standards for on-site industrial worker 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 practice and methodologies approved by the Georgia EPD, the screening level hierarchy for the SSL-related constituents is as follows:

- The higher of the Type 3 or Type 4 RRS for on-site industrial worker exposure, which are considered protective of human health for those constituents regulated under HSRA (i.e., arsenic).

- Site-specific screening levels were calculated for those chemical constituents like lithium that do not have RRS under HSRA using industrial worker exposure assumptions consistent with the HSRA rules (EPD, 2018b. The screening level for lithium is essentially a Type 4 RRS calculated at a target hazard quotient of 1, consistent with Georgia EPD guidance, and has been adopted by USEPA as the risk-based level for the Federal CCR rule (USEPA, 2020a). Calculations of site-specific and Type 4 RRS values for SSL-related constituents are presented in **Appendix C**. A site-specific screening level was used for lithium.

- If site-specific background concentrations are greater than the criteria described above, then the site-specific background concentration is used as the screening level in accordance with the CCR methodology for development of groundwater protection standards (USEPA, 2020a). The background concentration for arsenic is greater than the criteria described above. Therefore, the background value was used as a screening level for arsenic in this evaluation.

Table 1 presents the maximum detected concentration of each SSL-related constituent (i.e., arsenic and lithium) in the identified on-site potable water well used for comparison to the selected screening levels for on-site industrial workers. As presented in **Table 1,** no constituents were detected in on-site potable groundwater. The laboratory practical quantitation limit (PQL) for arsenic is one order of magnitude lower than the screening level. Although the maximum laboratory PQL for lithium exceeded the screening criterion, the method detection limit was less than the screening criterion. No COPIs were identified in groundwater from the potable water well. Exposure to on-site potable water is not expected to pose a risk to human health, and therefore, no further evaluation is necessary.

3.3 Groundwater Screening Evaluation

The process of screening SSL-related constituents in downgradient groundwater against human health screening levels for groundwater is discussed below and presented in **Figure 7**. The HSRA RRS evaluated under the VRP approach presented herein included Type 1 and Type 2 standards for off-site residential receptors.

In accordance with standard practice and methodologies approved by the Georgia EPD, the screening level hierarchy for the SSL-related constituents is as follows:

- The higher of the Type 1 or Type 2 RRS for hypothetical off-site residential exposures, which are considered protective of human health for those constituents regulated under HSRA (i.e., arsenic).

- Site-specific screening levels are calculated for those chemical constituents like lithium that do not have RRS under HSRA using residential exposure assumptions consistent with the HSRA rules (EPD, 2018b) and are equivalent to the USEPA tapwater RSLs. The screening level for lithium is essentially a Type 2 RRS calculated at a target hazard quotient of 1, consistent with Georgia EPD guidance, and has been adopted by USEPA as the risk-based level for the Federal CCR Rule (USEPA, 2020a). Calculations of site-specific and Type 2 RRS values for SSL-related constituents are presented in **Appendix D**. A site-specific screening level was used for lithium.

- If site-specific background concentrations are greater than the criteria described above, then the site-specific background concentration is used as the screening level in accordance with the CCR methodology for development of groundwater protection standards (USEPA, 2020a). The background concentration for arsenic is higher at the site than the criteria described above. Therefore, background was used as a screening level for arsenic in this evaluation.

Groundwater data collected from well MCM-06 identified to have SSL-related constituents were compared to residential screening criteria in order to protect hypothetical off-site receptors. Concentrations of arsenic and lithium in MCM-06 were compared to the higher of the HSRA Type 1 RRS, Type 2 RRS (including site-specific screening levels), and background values for groundwater pursuant to standard practice for risk assessment within the State of Georgia.

Table 2 presents the maximum detected concentration of each SSL-related constituent (i.e., arsenic and lithium), which was used to represent potential off-site groundwater quality for comparison to the selected screening levels for hypothetical off-site residential receptors (health- or background-based). As noted in **Table 2**, arsenic and lithium were detected at concentrations (0.50 mg/L for arsenic and 0.13 mg/L for lithium) that exceeded their respective screening levels (0.031 mg/L for arsenic and 0.04 mg/L for lithium) and were retained for further evaluation in the refined risk evaluation. An ASD has been developed for lithium and submitted to Georgia EPD for review and approval (as discussed in more detail in Section 3.4).

3.4 Alternate Source Demonstration

In accordance with 40 CFR §257.95, an ASD was prepared for lithium at the former AP-1 (Arcadis, 2020). There are multiple lines of evidence that support the conclusion that the SSL of lithium present in a compliance monitoring well is attributable to the influx of brackish surface water and is not attributable to CCR storage or a release from the former AP-1. The following lines of evidence support an ASD for concentrations of lithium in groundwater downgradient of the former AP-1:

- Presence of lithium in surface water, with concentrations of 0.1 to 0.2 milligrams per liter (mg/L) common in seawater (Institute of Ocean Energy) and concentrations up to 0.11 mg/L measured in the brackish water at the surface water sampling locations in comparison to groundwater concentrations ranging from 0.064 to 0.13 mg/L at MCM-06 in 2019 and 2020;

- Similarity of geochemical markers in surface water and groundwater wells with elevated concentrations of lithium;

- Variation in hydraulic conductivity and response to tidal fluctuations which demonstrate locations such as MCM-06 are in hydraulic communication with the tidal marsh. The locations which exhibit tidal fluctuations in water levels also exhibit similar geochemistry to surface water; and

- Shifts in groundwater chemistry and an increase in lithium concentrations at MCM-06 that coincided with the establishment of inward gradients during pond dewatering activities.

Review of groundwater quality data since monitoring began at the former AP-1 in 2016 demonstrate a spatial variability in lithium concentrations across the site including upgradient of the former AP-1. The ASD demonstrates that concentrations of lithium in groundwater are naturally occurring. However, for completeness, lithium was carried forward into the refined risk evaluation.

4 REFINED RISK EVALUATION

A refined risk evaluation was conducted for the groundwater COPIs, arsenic and lithium, that were detected in MCM-06 at concentrations that exceeded health-protective screening criteria or background. The ASD for lithium demonstrates that concentrations of lithium in groundwater are naturally occurring downgradient of the former AP-1 and in brackish water. However, for completeness, lithium was still carried forward into the refined risk evaluation. The refined risk evaluation identified EPCs for arsenic and lithium in groundwater for the purposes of characterizing potential risk to human receptors. If the EPC is greater than the respective screening level, then the constituent is identified as having the potential for risk that warrants additional evaluation (e.g., performing a surface water evaluation). Lithium was evaluated in the adjacent downgradient surface water body (i.e., Burnett Creek) because it was identified as a groundwater COI in the refined groundwater risk evaluation.

4.1 Refined Groundwater Risk Evaluation

Potential risk associated with exposure to arsenic and lithium by hypothetical off-site residential receptors was refined using the methodology described in the HSRA and VRP guidance (EPD, 2018b; EPD, 2009) and is presented in the following section and on **Figure 8**.

For the refined risk evaluation, groundwater data from samples collected between 2016 and March 2020 from the only on-site well that was identified to have SSL-related constituents (MCM-06) and the adjacent monitoring well (MCM-05) that represents groundwater flow in the same hydraulically downgradient direction were used for hypothetical off-site residential exposure. The groundwater monitoring wells included in the risk evaluation are depicted with yellow well labels on **Figure 2**.

Groundwater data used in the refined risk 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 refined risk evaluation is presented in **Appendix B-2.**

4.1.1 Groundwater Exposure Point Calculation

The refined risk evaluation of groundwater COPIs (arsenic and lithium) includes the development of EPCs. The EPC is a conservative estimate of potential exposure to a receptor. The EPC is based on the 95 percent upper confidence limit of the arithmetic mean (UCL) and accounts for uncertainty and variability in the dataset (USEPA, 2002). Consistent with USEPA guidance for developing groundwater EPCs (USEPA, 2014), UCLs were calculated using USEPA ProUCL 5.1 software (ProUCL) (USEPA, 2016) and user's guide (USEPA, 2015a). For the refined risk evaluation, the UCLs for the COPIs in groundwater were calculated for the following specific datasets:

- UCL for the individual well with the SSL-related constituent;

- UCL based on combined data from the well with the SS-related constituent and other well(s) in the general vicinity to include adjacent monitoring well(s) that represent groundwater flow in the same hydraulically downgradient direction during low tide conditions; and

- UCL based on the combined data from the farthest downgradient well(s) that are hydraulically downgradient of the well with the SSL-related constituent during low tide conditions.

Other assumptions made in the calculations of the UCLs include:

- Primary samples (no duplicates) were used to calculate EPCs as duplicate samples were analyzed for quality assurance purposes.

- If the calculated UCL exceeded the maximum detected concentration, then the maximum detected concentration was used as the EPC.

ProUCL software calculates multiple UCLs and provides a recommended UCL that was selected as the EPC. If there were multiple UCLs recommended by ProUCL, the maximum UCL value was selected. **Appendix E-1** provides a detailed summary of the UCLs calculated using the methods described above, and **Appendix E-2** presents figures showing the wells used in the calculation of the EPCs for each groundwater COPI. **Appendix E-3** provides the input and output files associated with the ProUCL software.

Table 3 summarizes the groundwater EPCs selected for arsenic and lithium. This table shows the number of samples, the maximum detected concentration, the UCL recommended by ProUCL software, and the selected EPC.

4.1.2 COPI Concentration Trend Analysis

Concentration trends over time were evaluated as one line of evidence in the refined risk evaluation for arsenic and lithium. The Mann-Kendall trend test with an alpha value equal to 0.05 and the Theil-Sen line test were conducted on the data from MCM-06 for arsenic and lithium to evaluate the trends in concentrations over time. The tests were conducted using the USEPA ProUCL 5.1 software (USEPA, 2016).

The Mann-Kendall and Theil-Sen test results are presented on time series graphs in **Appendix E-4** and indicated statistically significant increasing trends in arsenic and lithium concentrations over time at MCM-06. However, arsenic and lithium concentrations have decreased in the past two sampling events since dewatering activities ceased on-site (**Appendix E-4**).

4.1.3 Refined Groundwater Risk Evaluation Results

Arsenic and lithium were identified as groundwater COPIs in the initial risk screening. In the refined risk evaluation, comparison of the calculated EPCs to the screening levels was used to identify COIs that may pose a potential risk to hypothetical off-site residential receptors exposed through the use of groundwater as potable water. If the EPC from the farthest downgradient well(s) is greater than the respective screening level, then the constituent is identified as having the potential for risk that warrants additional evaluation (e.g., performing a surface water evaluation).

4.1.3.1 Arsenic

Arsenic was detected in all 15 groundwater samples in well MCM-06 at concentrations that exceeded the groundwater screening level for residential receptors. For the refined risk evaluation, the following EPCs were calculated for arsenic using the monitoring wells shown in **Appendices E-1** and **E-2**:

- Data from MCM-06 were used to determine if the UCL complied with the screening level (EPC Step 1 in **Appendix E-1**).
- Data from MCM-06 and adjacent well MCM-05 were combined to represent groundwater exposure in the same hydraulically downgradient direction of well MCM-06 during low tide conditions (EPC Step 2 in **Appendix E-1**).
- Data from MCM-06 and MCM-05 were combined to represent groundwater exposure using the wells that are the farthest hydraulically downgradient during low tide conditions (EPC Step 3 in **Appendix E-1**).

The UCL for the combined dataset from MCM-06 and MCM-05 (EPC Step3) of 0.41 exceeded the background value of 0.031 mg/L.

Table 4 presents the results of the refined screening comparing the farthest hydraulically downgradient EPC to the screening criterion. Arsenic was identified as a groundwater COI for hypothetical off-site residential receptors to the north, and therefore, arsenic is further evaluated in the surface water risk evaluation (**Section 4.2**).

4.1.3.2 Lithium

Lithium was detected in 10 out of 12 groundwater samples in well MCM-06 at concentrations that exceeded the groundwater screening level for residential receptors. For the refined risk evaluation, the following EPCs were calculated for lithium using the monitoring wells shown in **Appendices E-1** and **E-2**:

- Data from MCM-06 were used to determine if the UCL complied with the screening level (EPC Step 1 in **Appendix E-1**).
- Data from MCM-06 and the adjacent well MCM-05 were combined to represent groundwater exposure in the same hydraulically downgradient direction of well MCM-06 during low tide conditions (EPC Step 2 in **Appendix E-1**).
- Data from MCM-06 and MCM-05 were combined to represent groundwater exposure using the wells that are the farthest hydraulically downgradient during low tide conditions (EPC Step 3 in **Appendix E-1**).

The UCL for the combined dataset for MCM-06 of 0.093 mg/L and the UCL for the combined dataset from MCM-06 and MCM-05 (EPC Steps 2 and 3) of 0.067 exceeded the screening level of 0.04 mg/L.

Table 4 presents the results of the refined screening comparing the farthest hydraulically downgradient EPC to the screening criterion. Lithium was identified as a groundwater COI for hypothetical off-site residential receptors to the north, and therefore, lithium is further evaluated in the surface water risk evaluation (**Section 4.2**).

4.2 Surface Water Risk Evaluation

A surface water screening evaluation was conducted for Burnett Creek, the surface water body bordering the former AP-1 to the north, for the groundwater COIs (arsenic and lithium) identified in the refined groundwater risk evaluation.

Both human and ecological receptors have the potential to come into contact with surface water. Routes of exposure include ingestion of aquatic organisms (mainly fish) and potential incidental ingestion and dermal contact with surface water by adult and child recreational receptors. Surface water in the tidal marsh is brackish, and therefore, is unsuitable as a source of potable drinking water. Potential routes of exposure for ecological exposure include direct contact to surface water by aquatic receptors as well as ingestion.

Surface water screening was performed using surface water data for those constituents identified as groundwater COIs. The surface water screening process for the COIs identified in groundwater (arsenic and lithium) is discussed below and presented in **Figures 9 and 10**.

4.2.1 Surface Water Data

Surface water sampling was conducted in Burnett Creek (north of the former AP-1) and Gibson Creek (south of the former AP-1). Surface water data from Burnett Creek were compiled for the COIs identified in the refined groundwater risk evaluation (arsenic and lithium) as Burnett Creek borders the former AP-1 to the north and is hydraulically downgradient of well MCM-06 during low tide conditions. Surface water data are available from sampling events conducted between 2016 and 2020 for arsenic and lithium. Surface water data used in the evaluation (Resolute, 2020d) were collected during both high tide and low tide conditions and are considered to be representative of surface water conditions.

Two background surface water sampling locations have been sampled in the tidal marsh. The low tide background sample location (BG-1LT[4]) is located in Cowpen Creek, at a point which is hydraulically upgradient of both the junction with Burnett Creek and Crispen Island. At low tide, surface water flow is south from Cowpen Creek, toward the junctions with Burnett Creek and Turtle River. The high tide background sample location (BG-2HT[5]) is located in Turtle River, at a point which is upstream of Crispen Island during the incoming high tide.

The surface water sample locations are shown on **Figure 11**. The surface water datasets, including background, used in the risk evaluation are presented in **Appendix B-3**.

[4] LT refers to "low tide" and HT refers to "high tide".

4.2.2 Human Health Screening

Due to the brackish surface water surrounding the site, surface water human health screening values for the COIs (applicable to both freshwater and saltwater environments) were selected from the following order of hierarchy:

- Georgia Instream Water Quality Criteria (ISWQC) for human health (EPD, 2015), when available. The Georgia ISWQC was used as the screening level for arsenic in this evaluation.

- National ambient water quality criteria (USEPA, 2015b) for human health protective through ingestion of water and organisms. When there is no numerical value for a constituent in surface water, USEPA (2015b) states that USEPA has issued an Maximum Contaminant Level (MCL) which may be more stringent than the national ambient water quality criteria for these constituents suggesting the use of the MCL for surface water screening. This is a conservative approach.

- In accordance with standard practice using methodologies approved by the Georgia EPD, the higher of the residential groundwater screening levels described in Section 3.2.2 for the remaining constituents that lack human health surface water screening levels, which is a conservative approach.

- If site-specific surface water background concentrations are greater than the criteria described above, then the site-specific surface water background concentration is used as the screening level. The maximum background concentration for lithium is higher than the criteria described above. Therefore, background was used as a screening level for lithium in this evaluation.

The surface water human health screening level was compared to the maximum detected surface water concentrations for arsenic and lithium, as shown in **Table 5**. Arsenic was not detected at concentrations above the surface water human health screening level of 0.05 mg/L. Lithium was detected at concentrations slightly above the surface water background concentration of 0.099 mg/L in 3 out of 32 samples at T2-2HT (0.10 mg/L), T2-3HTS (0.11 mg/L), and T1-2HT (0.11 mg/L). Note that these lithium concentrations were all reported under high tide conditions when surface water is upgradient of the former AP-1. The ASD demonstrates that lithium is naturally occurring downgradient of the former AP-1 and in brackish water. However, lithium was retained as a COI for further evaluation in surface water as a conservative measure and for completeness.

4.2.3 Ecological Screening

Due to the brackish surface water surrounding the site, concentrations in surface water were compared to both saltwater and freshwater surface water screening levels.

4.2.3.1 Saltwater

Surface water screening values for aquatic ecological receptors were selected from the following order of hierarchy for the COIs:

- Chronic saltwater Georgia ISWQC (EPD, 2015), when available. The Georgia ISWQC was used as the screening level for arsenic in this evaluation.
- USEPA Region 4 chronic saltwater screening levels (USEPA, 2018).
- USEPA Region 4 chronic freshwater screening levels (USEPA, 2018). The USEPA Region 4 chronic freshwater screening level was used as the screening level for lithium in this evaluation due to the lack of an available chronic saltwater screening level.
- If site-specific surface water background concentrations were greater than the criteria described above, then the site-specific surface water background concentration was used as the screening level.

The ecological surface water screening levels were compared to the maximum detected concentrations for arsenic and lithium in surface water, as shown in **Table 6**. The maximum arsenic and lithium concentrations were below the ecological saltwater screening levels of 0.036 mg/L and 0.44 mg/L, respectively. Therefore, arsenic and lithium were not retained as COIs for further evaluation in surface water and are not expected to pose a risk to ecological receptors.

4.2.3.2 Freshwater

Surface water screening values for aquatic ecological receptors were selected from the following order of hierarchy for the COPIs:

- Chronic freshwater Georgia ISWQC (EPD, 2015), when available. The Georgia ISWQC was used as the screening level for arsenic in this evaluation.

- USEPA Region 4 chronic freshwater screening levels (USEPA, 2018). The USEPA Region 4 chronic freshwater screening level was used as the screening level for lithium in this evaluation.

- If site-specific surface water background concentrations were greater than the criteria described above, then the site-specific surface water background concentration was used as the screening level.

The ecological surface water screening levels were compared to the maximum detected concentrations for arsenic and lithium in surface water, as shown in **Table 7**. The maximum arsenic and lithium concentrations were below the ecological freshwater screening levels of 0.15 mg/L and 0.44 mg/L, respectively. Therefore, arsenic and lithium were not retained as COIs for further evaluation in surface water and are not expected to pose a risk to ecological receptors.

4.2.4 Refined Surface Water Risk Evaluation

Potential risk associated with exposure to lithium in surface water by recreational receptors was refined using the methodology for groundwater, as described in Section 4.1.3 and as presented in the following section and on **Figure 10**.

4.2.4.1 Surface Water Exposure Point Calculation

The refined surface water risk evaluation for lithium included the development of a surface water EPC, using the same methodology that was utilized for the refined groundwater evaluation.

Appendix F-1 provides a detailed summary of the EPC calculation, and **Appendix F-2** presents a figure showing the surface water sampling locations used in the calculation of the EPC for lithium. **Appendix F-3** provides the input and output files associated with the ProUCL software.

Table 8 summarizes the surface water EPC selected for lithium. This table shows the number of samples, the maximum detected concentration, the UCL recommended by ProUCL software, and the selected EPC.

4.2.4.2 Refined Surface Water Risk Evaluation Results

Lithium was identified as a surface water COI in the initial risk screening. In the refined risk evaluation, comparison of the calculated EPC to the screening level was used to identify whether lithium may pose a potential risk to recreational receptors exposed to surface water.

Lithium was detected in only three out of 32 surface water samples at concentrations that exceeded the background concentration. The surface water UCL of 0.082 mg/L is below the background concentration of 0.099 mg/L. **Table 9** presents the results of the refined screening for surface water comparing the EPC to the screening criterion. Lithium was not identified as a surface water COI for recreational receptors and, therefore, is not expected to pose a risk to human health through exposure to surface water.

4.3 Refined Groundwater and Surface Water Risk Evaluation Summary and Conclusions

Detections of arsenic and lithium were reported at concentrations above the corresponding conservative groundwater screening values. The results of the refined groundwater and surface water risk evaluations indicate the following:

Arsenic

- Arsenic was identified as a groundwater COI for hypothetical off-site residential receptors to the north and was further evaluated in the adjacent downgradient surface water body (Burnett Creek) for potential exposure to human and ecological receptors.

- Surface water arsenic concentrations in Burnett Creek were below health-protective surface water screening criteria for human and ecological receptors. Therefore, arsenic was not retained as a COI in surface water for further evaluation and is not expected to pose a risk to human health or ecological receptors.

Lithium

- Lithium was identified as a groundwater COI for hypothetical off-site residential receptors to the north and was further evaluated in the adjacent downgradient surface water body (Burnett Creek) for potential exposure to human and ecological receptors.

- Lithium was detected in Burnett Creek surface water above the background concentration in only three out of 32 samples; however, the surface water EPC for lithium was below background. Therefore, lithium was not identified as a COI in surface water for further evaluation and is not expected to pose a risk to human health.

- Consideration of background lithium levels for brackish/seawater provides an additional line of evidence supporting the conclusion that lithium in surface water does not pose a risk to human health. Lithium in background surface water samples ranged from 0.090 to 0.099 mg/L. Lithium was detected at total concentrations from 0.019 J[5] to 0.11 mg/L in surface water samples collected from Burnett Creek during low and high tide conditions. Observed lithium concentrations in the background and Burnett Creek surface water samples collected during high tide, when surface water is upgradient of the former AP-1, were generally greater than those observed at low tide. As noted in Resolute (2020d), lithium is a naturally-occurring element in seawater, and concentrations of lithium in seawater are documented to range from 0.1 to 0.2 mg/L[6], and "the increased concentrations observed at high tide in surface water are likely attributable to natural variability from the influx of seawater at high tide." The ASD demonstrates that lithium is naturally occurring downgradient of the former AP-1 and in brackish water.

Based on the multiple lines of evidence and the various conservative assumptions, further risk evaluation for groundwater and surface water is not warranted. Compliance monitoring under the Federal and State CCR Rules will continue.

[5] J flag indicates an estimated value less than the reporting limit but greater than the method detection limit.

[6] "Lithium Occurrence", Institute of Ocean Energy, Saga University, Japan.

5 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 practice and methodologies approved by the Georgia EPD, the higher of the Type 1 or Type 2 standard were selected for residential screening criteria and the higher of the Type 3 and Type 4 standards were selected as the industrial worker screening criteria. Selection of the screening criteria per standard practice is considered appropriate for risk quantification for the former AP-1. 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*". Thus, this approach is likely to overestimate risks for on-site and hypothetical off-site receptors.

- Screening criteria based on RRSs represent the reasonable maximum exposure (RME). 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 UCL), and therefore, potential exposures are likely overestimated. This would apply to the site-specific screening levels for lithium as these values were calculated using the same exposure assumptions used to calculate RRSs.

Exposure Uncertainties:

- The maximum detected concentrations of former AP-1 SSL-related constituents were compared to conservative screening criteria to identify the COPIs. 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 constituents included in the risk evaluation 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. Furthermore, the ASD demonstrates that concentrations of lithium in groundwater are attributable to the influx of brackish surface water and are not attributable to CCR storage or a release from the former AP-1. However, for completeness, lithium was carried forward into the refined risk evaluation. Thus, SSL-related exposures were likely overestimated.

- Hypothetical off-site residential exposure was evaluated using on-site groundwater data from wells around the perimeter and downgradient of the former AP-1. 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 may overestimate exposure and risk to hypothetical off-site receptors.

- EPCs for metals in groundwater were assumed to be 100 percent bioavailable by ingestion and dermal contact. This assumption may tend to overestimate risk.

- A well survey of potential groundwater wells within a three-mile radius of Plant McManus was conducted by NewFields in 2020 and consisted of reviewing publicly available federal, state, and county records as well as a windshield survey of the area (**Appendix A)**. Wood relied on the data collected by NewFields.

- As a conservative measure, on-site potable well data were also screened against off-site residential screening criteria. Lithium was non-detect at a method detection limit of 0.15 mg/L, which is above the off-site residential screening criterion (0.04 mg/L). Residential receptors are not present on-site and evaluation of this exposure pathway was a conservative measure. As such, the uncertainty associated with the method detection limit is not expected to affect the risk evaluation conclusions.

- This risk 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 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 appear to change the conclusions of the risk evaluation. Groundwater flow directions from both the mainland and the island are consistent during both high and low tides, making the mainland and the island both hydraulically upgradient of the former AP-1. Therefore, groundwater is flowing away from the private drinking water wells located to the east of the site, and these private drinking water wells are located upgradient from the former AP-1.

Toxicity Uncertainties:

- Toxicity factors used to calculate health-protective criteria are established at conservative levels to account for uncertainties and often result in criteria that are many times lower than the levels observed to cause effects in human or animal studies. Therefore, a screening level exceedance does not necessarily equate to an adverse effect.

6 CONCLUSIONS

This human health and ecological risk evaluation for arsenic and lithium in groundwater at the former AP-1 and the adjacent downgradient surface water body, Burnett Creek, was conducted using methods consistent with Georgia EPD and USEPA guidance and included multiple conservative assumptions. Arsenic and lithium were the only CCR constituents identified as SSL-related constituents during compliance groundwater monitoring. Based on this risk evaluation, arsenic and lithium are not expected to pose a risk to human health or the environment.

Accordingly, no further risk evaluation of groundwater and surface water is warranted. Compliance monitoring for the former AP-1 under the Federal and State CCR Rules will continue. Georgia Power will proactively evaluate the data and update this evaluation, if necessary.

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TABLES

Table 1
On-site Potable Well Groundwater Screening
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

CCR Rule Designation	Constituent	CAS No.	Detection Frequency [1]	Exceedance Frequency[2]	Maximum Concentration (mg/L)	Screening Level (mg/L)	Source	Site-Specific Background (mg/L)	COPI? (Y/N)	Rationale[3]
Appendix IV	Arsenic	7440-38-2	0 / 2	0 / 2	ND (0.005)	0.031	Background[4]	0.031	N	ND/BSL
	Lithium	7439-93-2	0 / 1	0 / 1	ND (0.15)[5]	0.23	Site-Specific	0.03	N	ND/BSL

Notes:
[1] Evaluation includes 2015 and 2020 groundwater analytical data from the on-site potable well MCMPW-01/Well #1 Plant.
[2] Exceedance frequency is for the specific constituent that exceeds the first screening value in the hierarchy of screening values.
[3] Rationale for classification or exclusion of constituent as a COPI:
ASL = Above respective screening level
BSL = Equal to or below respective screening level
ND = Not detected (maximum practical quantitation limit [PQL])
[4] For sites with site-specific background concentrations greater than applicable screening values, the site-specific background value was used as the screening value.
[5] The lithium method detection limit is 0.15 mg/L.

Definitions:
CAS = Chemical Abstract Service
CCR = Coal Combustion Residuals
COPI = Constituent of Potential Interest
mg/L = milligrams per liter

Prepared by/Date: RRP 08/19/20
Checked by/Date: IMR 08/27/20

Table 2
SSL-related Constituent Groundwater Screening
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

CCR Rule Designation	Constituent	CAS No.	Detection Frequency[1]	Exceedance Frequency[2]	Maximum Concentration (mg/L)	Screening Level (mg/L)	Source	Site-Specific Background (mg/L)	COPI? (Y/N)	Rationale[3]
Appendix IV	Arsenic	7440-38-2	15 / 15	15 / 15	0.50	0.031	Background[4]	0.031	Y	ASL
	Lithium	7439-93-2	12 / 12	10 / 12	0.13	0.04	Site-Specific	0.030	Y	ASL; ASD[5]

Notes:
[1] Evaluation includes 2016 through March 2020 groundwater analytical data from well MCM-06.
[2] Exceedance frequency is for the specific constituent that exceeds the first screening value in the hierarchy of screening values.
[3] 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
ND = Not detected (maximum practical quantitation limit [PQL])
ASD = Alternate Source Demonstration
[4] For sites with site-specific background concentrations greater than applicable screening values, the site-specific background value was used as the screening value.
[5] The localized naturally occurring lithium concentrations are attributed to the influx of brackish surface water and is not attributable to CCR storage or a release from the former AP-1 (Alternate Source Demonstration, Arcadis 2020). Although detected concentrations of lithium at the former AP-1 were determined to be unrelated to the CCR unit, lithium was retained as a COPI for further evaluation in the groundwater refined risk evaluation for completeness.

Definitions:
CAS = Chemical Abstract Service
CCR = Coal Combustion Residuals
COPI = Constituent of Potential Interest
mg/L = milligrams per liter

Prepared by/Date: LO 09/10/20
Checked by/Date: IMR 09/16/20

Table 3
Groundwater Exposure Point Concentration Summary
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Ash Pond	CCR Rule Designation	Constituent	Exposure Unit	CAS No.	Detection Frequency	Maximum Concentration (mg/L)	UCL (mg/L)	Recommended UCL Method	Selected EPC[1] (mg/L)
AP-1	Appendix IV	Arsenic	North	7440-38-2	28 / 30	0.50	0.41	97.5% KM (Chebyshev) UCL	0.41
		Lithium	North	7439-93-2	23 / 23	0.13	0.067	95% Adjusted Gamma UCL	0.067

Notes:
[1] EPCs calculated in accordance with USEPA, 2014. Memorandum for Determining Groundwater Exposure Point Concentrations, Supplemental Guidance. OSWER Directive 9283.1-42, February 2014. Located at https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236917.
For further detail on the selected EPC, refer to Appendix E.

Definitions:
CAS = Chemical Abstract Service
CCR = Coal Combustion Residuals
mg/L = milligrams per liter
UCL = upper confidence limit
EPC = Exposure Point Concentration

Prepared by/Date: LO 09/10/20
Checked by/Date: IMR 09/17/20

Table 4
Downgradient Groundwater Refined Screening
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Ash Pond	CCR Rule Designation	Constituent	Exposure Unit	CAS No.	Detection Frequency	Exceedance Frequency[1]	Selected EPC[2] (mg/L)	Screening Level (mg/L)	Source	Site-Specific Background (mg/L)	COI? (Y/N)	Rationale[3]
AP-1	Appendix IV	Arsenic	North	7440-38-2	28 / 30	19 / 30	0.41	0.031	Background[4]	0.031	Y	ASL
		Lithium	North	7439-93-2	23 / 23	10 / 23	0.067	0.04	Site-Specific[5]	0.03	Y	ASL; ASD[6]

Notes:

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

[2] EPCs calculated in accordance with USEPA, 2014. Memorandum for Determining Groundwater Exposure Point Concentrations, Supplemental Guidance. OSWER Directive 9283.1-42, February 2014. Located at https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236917.
For further detail on the selected EPC, refer to Appendix E.

[3] Rationale for classification of constituent as a COI or exclusion as a COI:
- ASL = Above respective screening level
- BSL = Equal to or below respective screening level
- ND = Not detected (maximum practical quantitation limit [PQL])
- ASD = Alternate Source Demonstration

[4] For sites with site-specific background concentrations greater than applicable screening values, the site-specific background value was used as the screening value.

[5] Site-Specific values were calculated by the EPA RSL calculator using residential exposure factor inputs from HSRA Appendix III, Table 3.

[6]The localized naturally occurring lithium concentrations are attributed to the influx of brackish surface water and is not attributable to CCR storage or a release from the former AP-1 (Alternate Source Demonstration, Arcadis 2020). Although detected concentrations of lithium at the former AP-1 were determined to be unrelated to the CCR unit, lithium was retained as a COPI for further evaluation in the groundwater refined risk evaluation for completeness.

Definitions:

CAS = Chemical Abstract Service
CCR = Coal Combustion Residuals
COI = Constituent of Interest
mg/L = milligrams per liter
EPC = Exposure Point Concentration

Prepared by/Date: LO 09/10/20
Checked by/Date: IMR 09/17/20

Table 5
Human Health Surface Water Screening - Burnett Creek[1]
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

CCR Rule Designation	Constituents	Exposure Unit	CAS No.	Detection Frequency	Exceedance Frequency[2]	Maximum Concentration (mg/L)	Screening Level (mg/L)	Source	Site-Specific Background[3] (mg/L)	COPI? (Y/N)	Rationale[4]
Appendix IV	Arsenic	North	7440-38-2	67 / 112	0 / 112	0.0097 J	0.05	GA ISWQC	0.0023	N	BSL
	Lithium	North	7439-93-2	32 / 32	3 / 32	0.11	0.099	Background	0.099	Y	ASL; ASD[5]

Notes:

[1] Surface water evaluation for north exposure unit and includes upstream and downstream dewatering data (2016-2019), CCR boundary location SWNW (2018), and samples from transects T1-1 through T1-4, T2-1 through T2-4, and T3-1 through T3-4 (2020).

[2] Exceedance frequency is for the specific constituent that exceeds the first screening value in the hierarchy of screening values.

- The hierarchy of screening values is GA ISWQC > NRWQC > Selected residential groundwater screening level if no surface water screening level is available.
- For sites with site-specific background concentrations greater than all applicable screening values, the site-specific background value was used as the screening value.

[3] Background locations BG-1LT and BG-2HT represent site-specific background.

[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
ND = Not detected (maximum practical quantitation limit [PQL])
ASD = Alternate Source Demonstration

[5] The localized naturally occurring lithium concentrations are attributed to the influx of brackish surface water and is not attributable to CCR storage or a release from the former AP-1 (Alternate Source Demonstration, Arcadis 2020). Although detected concentrations of lithium at the former AP-1 were determined to be unrelated to the CCR unit, lithium was retained as a COPI for further evaluation in the groundwater refined risk evaluation for completeness.
Lithium exceedances were located at T1-2HT (1/1), T2-2HT (1/1), and T2-3HTS(1/1).

Definitions:

CAS = Chemical Abstract Service
CCR = Coal Combustion Residuals
COPI = Constituent of Potential Interest
GA ISWQC = Georgia Instream Water Quality Criteria
NRWQC = National Recommended Water Quality Criteria

Prepared by/Date: RRP 08/20/20
Checked by/Date: IMR 08/25/20

Table 6
Ecological Health Saltwater Surface Water Screening - Burnett Creek[1]
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

CCR Rule Designation	Constituents	Exposure Unit	CAS No.	Detection Frequency	Exceedance Frequency[2]	Maximum Concentration (mg/L)	Screening Value (mg/L) (Total)	Hardness Dependent? (Y/N)	Source	Site-Specific Background[3] (mg/L)	COPI (Y/N)	Rationale[4]
Appendix IV	Arsenic	North	7440-38-2	67 / 112	0 / 112	0.0097 J	0.036	N	GA ISWQC	0.0023	N	BSL
	Lithium	North	7439-93-2	32 / 32	0 / 32	0.11	0.44	N	EPA Reg. 4 (freshwater)	0.099	N	BSL

Notes:

[1] Surface water evaluation for north exposure unit and includes upstream and downstream dewatering data (2016-2019), CCR boundary location SWNW (2018), and samples from transects T1-1 through T1-4, T2-1 through T2-4, and T3-1 through T3-4 (2020).

[2] Exceedance frequency is for the specific constituent that exceeds the first screening value in the hierarchy of screening values.

- The hierarchy of values selected as the screening level is GA ISWQC (Saltwater value)> EPA Region 4 (Saltwater value)> GA ISWQC (Freshwater value)> EPA Region 4 (Freshwater value).
- For sites with site-specific background concentrations greater than all applicable screening values, the site-specific background value was used as the screening value.

[3] Background locations BG-1LT and BG-2HT represents site-specific background.

[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
ND = Not detected (maximum practical quantitation limit [PQL])

Definitions:

J= Estimated value less than the PQL but greater than the method detection limit
CAS = Chemical Abstract Service
CCR = Coal Combustion Residuals
COPI = Constituent of Potential Interest
EPA = United States Environmental Protection Agency
GA ISWQC = Georgia Instream Water Quality Criteria

Prepared by/Date: RRP 08/20/20
Checked by/Date: IMR 08/25/20

Table 7
Ecological Freshwater Surface Water Screening -Burnett Creek[1]
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

CCR Rule Designation	Constituents	Exposure Unit	CAS No.	Detection Frequency	Exceedance Frequency[2]	Maximum Concentration (mg/L)	Screening Value (mg/L) (Total)	Hardness Dependent? (Y/N)	Source	Site-Specific Background[3] (mg/L)	COPI (Y/N)	Rationale[4]
Appendix IV	Arsenic	North	7440-38-2	67 / 112	0 / 112	0.0097 J	0.15	N	GA ISWQC	0.0023	N	BSL
	Lithium	North	7439-93-2	32 / 32	0 / 32	0.11	0.44	N	EPA Reg. 4	0.099	N	BSL

Notes:

[1] Surface water evaluation for north exposure unit and includes upstream and downstream dewatering data (2016-2019), CCR boundary location SWNW (2018), and samples from transects T1-1 through T1-4, T2-1 through T2-4, and T3-1 through T3-4 (2020).

[2] Exceedance frequency is for the specific constituent that exceeds the first screening value in the hierarchy of screening values.

- The hierarchy of screening value sources is GA ISWQC > EPA Region 4
- For sites with site-specific background concentrations greater than all applicable screening values, the site-specific background value was used as the screening value

[4] Background locations BG-1LT and BG-2HT represents site-specific background.

[5] 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
ND = Not detected (maximum practical quantitation limit [PQL])

Definitions:

J= Estimated value less than the reporting limit but greater than the method detection limit
CAS = Chemical Abstract Service
CCR = Coal Combustion Residuals
COPI = Constituent of Potential Interest
EPA = United States Environmental Protection Agency
GA ISWQC = Georgia Instream Water Quality Criteria

Prepared by/Date: RRP 08/21/20
Checked by/Date: IMR 08/25/20

Table 8
Surface Water Exposure Point Concentration Summary - Burnett Creek
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Ash Pond	CCR Rule Designation	Constituent	Exposure Unit	CAS No.	Detection Frequency	Maximum Concentration (mg/L)	95% UCL (mg/L)	Recommended UCL Method	Selected EPC[1] (mg/L)
AP-1	Appendix IV	Lithium	North	7439-93-2	32 / 32	0.11	0.082	95% Student's-t UCL	0.082

Notes:
[1] EPCs calculated in accordance with USEPA, 2014. Memorandum for Determining Groundwater Exposure Point Concentrations, Supplemental Guidance. OSWER Directive 9283.1-42, February 2014. Located at https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236917.
For further detail on the selected EPC, refer to Appendix F.

Definitions:
CAS = Chemical Abstract Service
CCR = Coal Combustion Residuals
mg/L = milligrams per liter
95% UCL = 95 percent upper confidence limit
EPC = Exposure Point Concentration

Prepared by/Date: RRP 08/21/20
Checked by/Date: IMR 08/26/20

Table 9
Surface Water Human Health Refined Evaluation - Burnett Creek
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

CCR Rule Designation	Constituents	Exposure Unit	CAS No.	Detection Frequency	Exceedance Frequency[1]	Selected EPC[2] (mg/L)	Screening Level (mg/L)	Source	Site-Specific Background (mg/L)	COI? (Y/N)	Rationale[3]
Appendix IV	Lithium	North	7439-93-2	32 / 32	3 / 32	0.082	0.099	Background[4]	0.099	N	BSL

Notes:
[1] Exceedance frequency is for the specific constituent that exceeds the first screening value in the hierarchy of screening values.
- The hierarchy of screening values is GA ISWQC > NRWQC > The maximum between the Type 1 and Type 2 RRS
- For sites with site-specific background concentrations greater than all applicable screening values, the site-specific background value was used as the screening value.

[2] EPCs calculated in accordance with USEPA, 2014. Memorandum for Determining Groundwater Exposure Point Concentrations, Supplemental Guidance. OSWER Directive 9283.1-42, February 2014.
Located at https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236917.
For further detail on the selected EPC, refer to Appendix F.

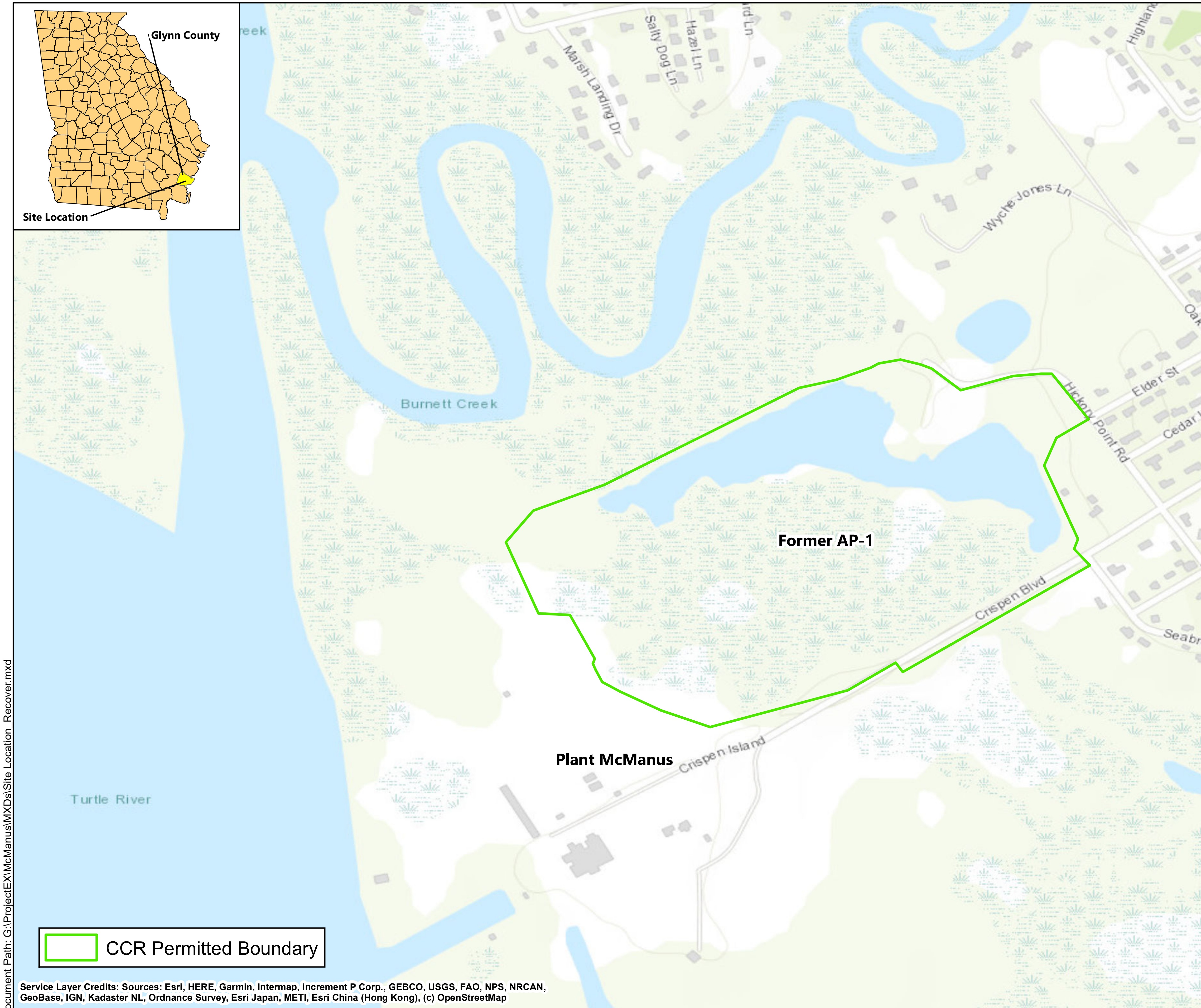
[3] Rationale for classification of constituent as a COI or exclusion as a COI:
ASL = Above respective screening level
BSL = Equal to or below respective screening level

[4] For sites with site-specific background concentrations greater than applicable screening values, the site-specific background value was used as the screening value.

Definitions:
CAS = Chemical Abstract Service
CCR = Coal Combustion Residuals
COI = Constituent of Interest
GA ISWQC = Georgia Instream Water Quality Criteria
NRWQC = National Recommended Water Quality Criteria
RRS = Risk Reduction Standard

Prepared by/Date: RRP 08/21/20
Checked by/Date: IMR 08/26/20

FIGURES



Plant McManus Former AP-1
Site Location

Prepared By-Date: JCD - 11/24/2020	
Checked By-Date: LO - 11/24/2020	wood.
Project Number: 6123201474	

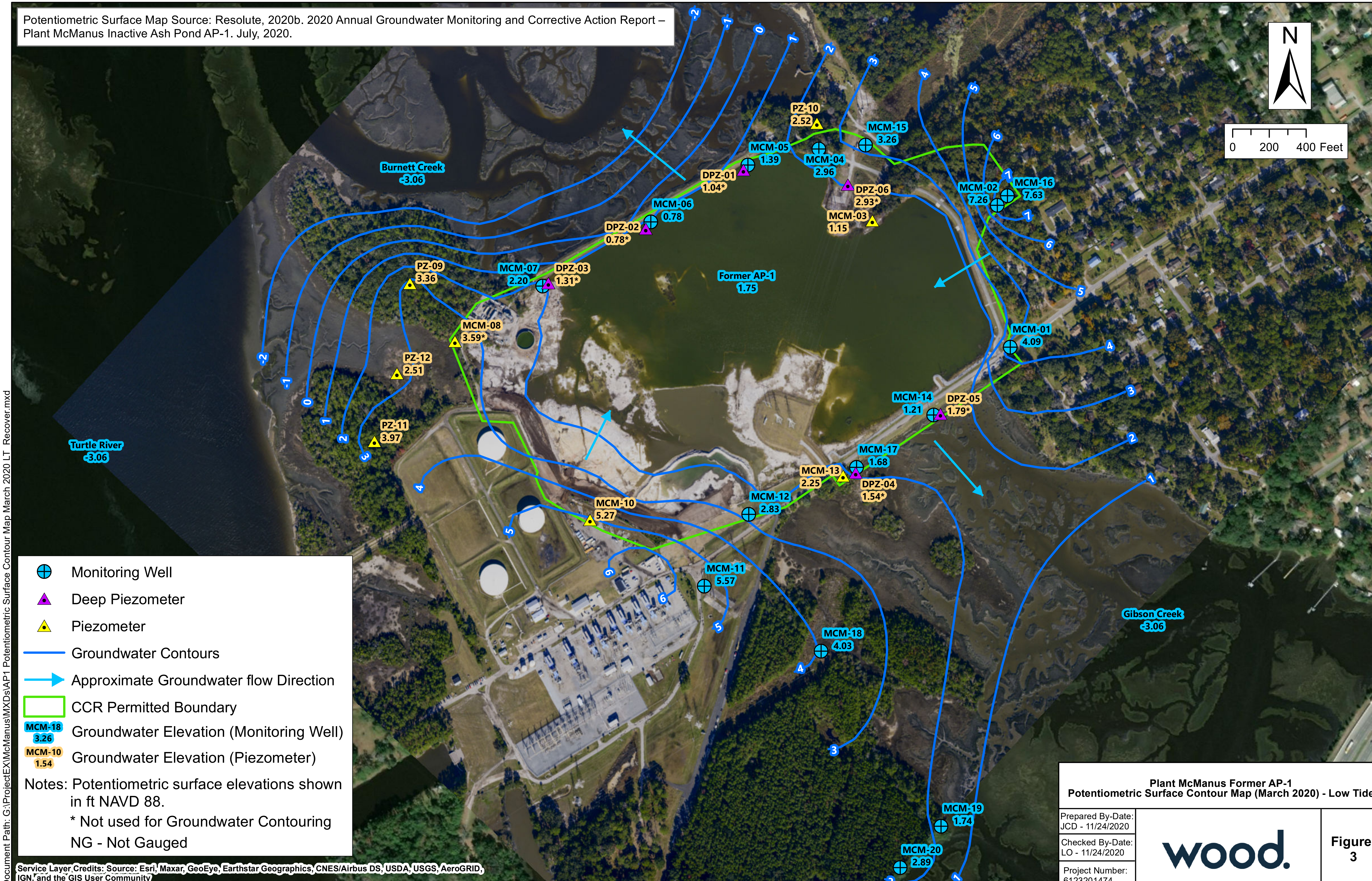
Figure: 1

Document Path: G:\ProjectEX\McManus\MXDs\Site Location_Recover.mxd

Plant McManus Former AP-1
Site Layout and Monitoring Well Network

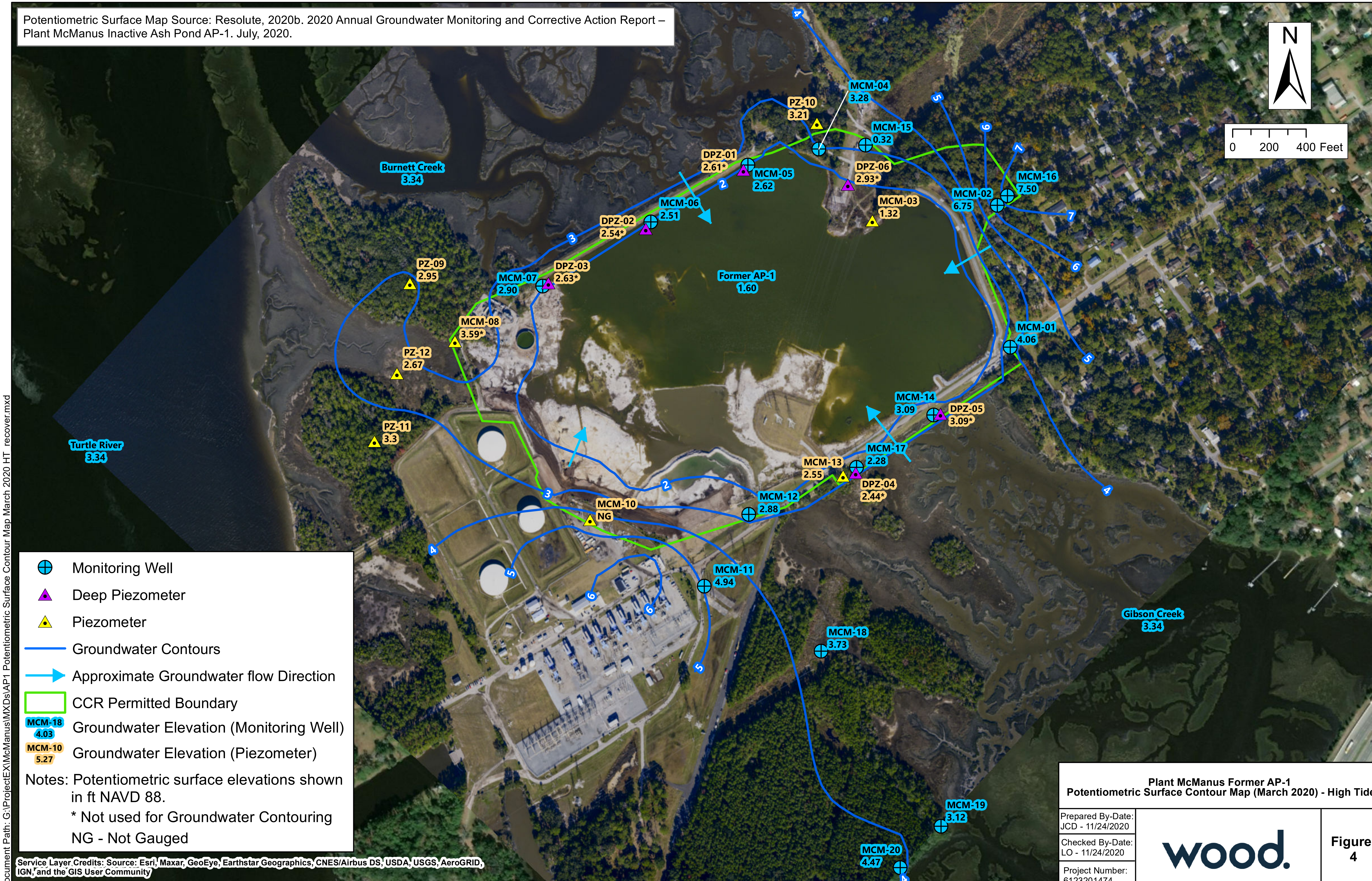
Prepared By-Date: JCD - 11/24/2020	wood.	Figure: 2
Checked By-Date: LO - 11/24/2020		
Project Number: 6123201474		

Document Path: G:\ProjectEX\McManus\MXDs\Site Plan_Recover.mxd



Plant McManus Former AP-1
Potentiometric Surface Contour Map (March 2020) - Low Tide

Prepared By-Date: JCD - 11/24/2020	wood.	Figure: 3
Checked By-Date: LO - 11/24/2020		
Project Number: 6123201474		



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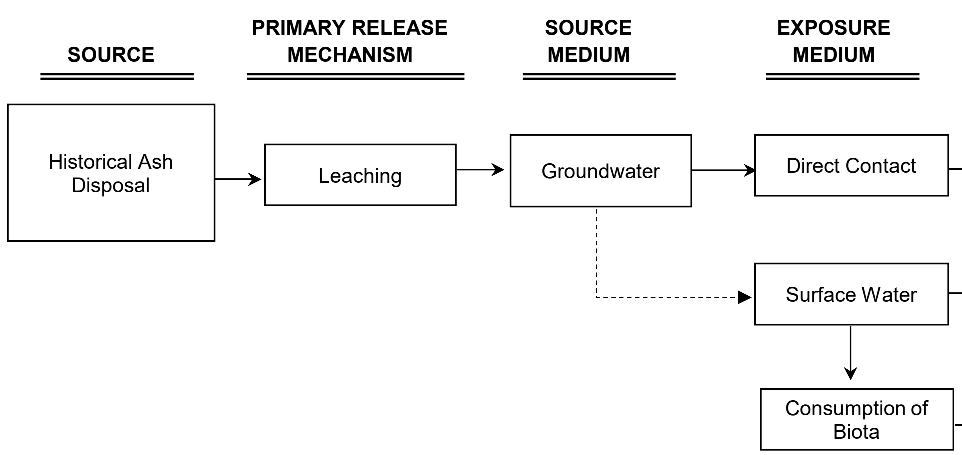


	HUMAN HEALTH AND ECOLOGICAL RISK EVALUATION RECEPTORS									
	HUMAN									ECOLOGICAL
	Current				Future					Current / Future
	On-Site	Off-Site			On-Site		Off-Site			Off-Site
EXPOSURE ROUTE	Worker[1]	Worker[2]	Child and Adult Resident	Child and Adult Recreational	Worker[1]	Child and Adult Resident	Worker [2]	Child and Adult Resident	Child and Adult Recreational	Aquatic Receptors [3]
Ingestion	●	○	●		●		○	●		
Dermal Contact	●	○	●		●		○	●		
Ingestion				●					●	●
Dermal Contact				●					●	●
Ingestion				●					●	

Legend

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

● Indicates potentially complete pathway, which is evaluated quantitatively.

○ Indicates potentially complete pathway, which is evaluated qualitatively.

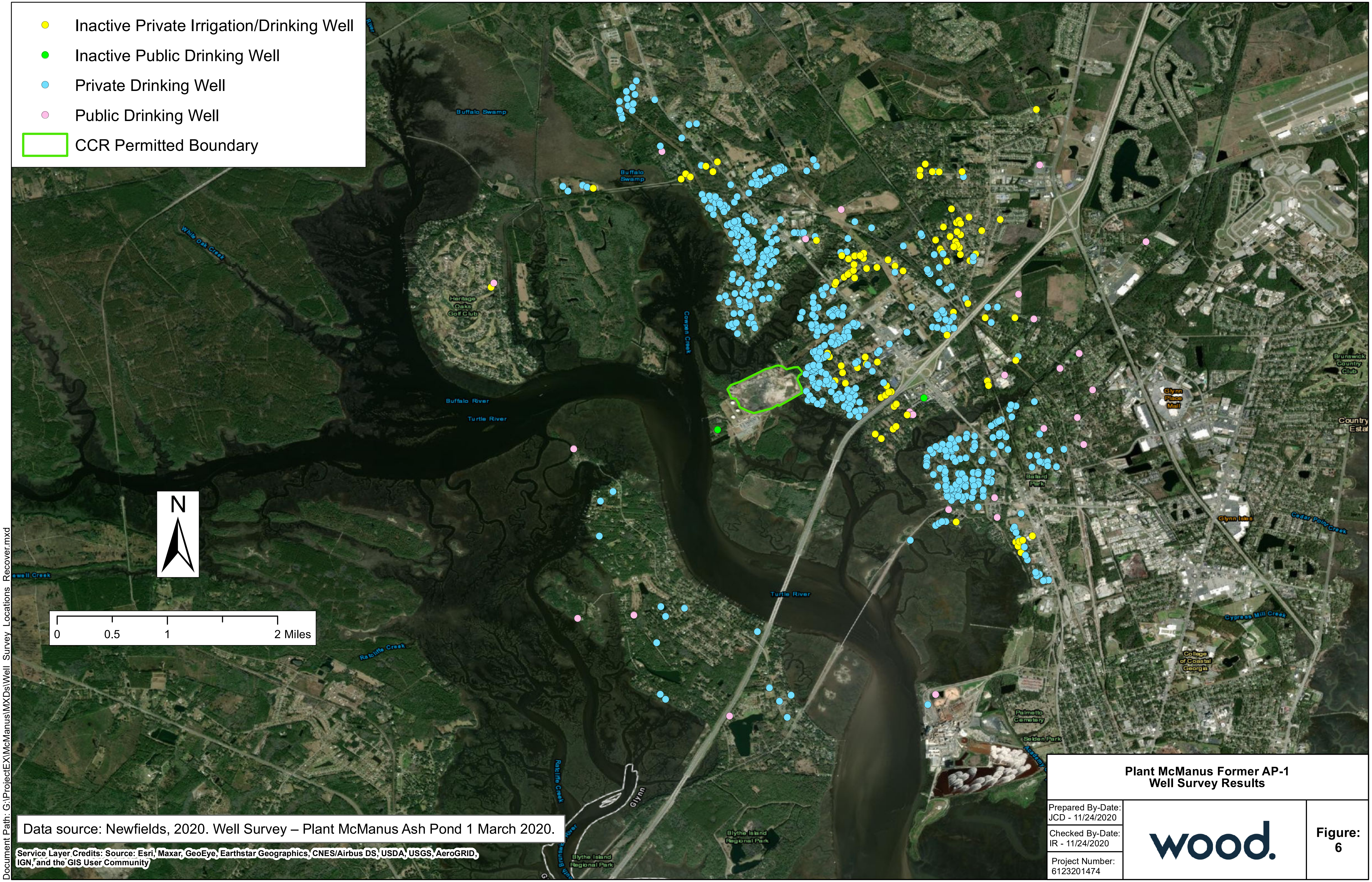
Footnotes

1. Industrial worker quantitatively evaluated. 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.
2. 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.

Plant McManus Former AP-1
Conceptual Exposure Model

Figure 5

Project Number 6123201474	Prepared by/Date: RMB 04/06/20 Checked by/Date: LMS 04/06/20



Data source: Newfields, 2020. Well Survey – Plant McManus Ash Pond 1 March 2020.

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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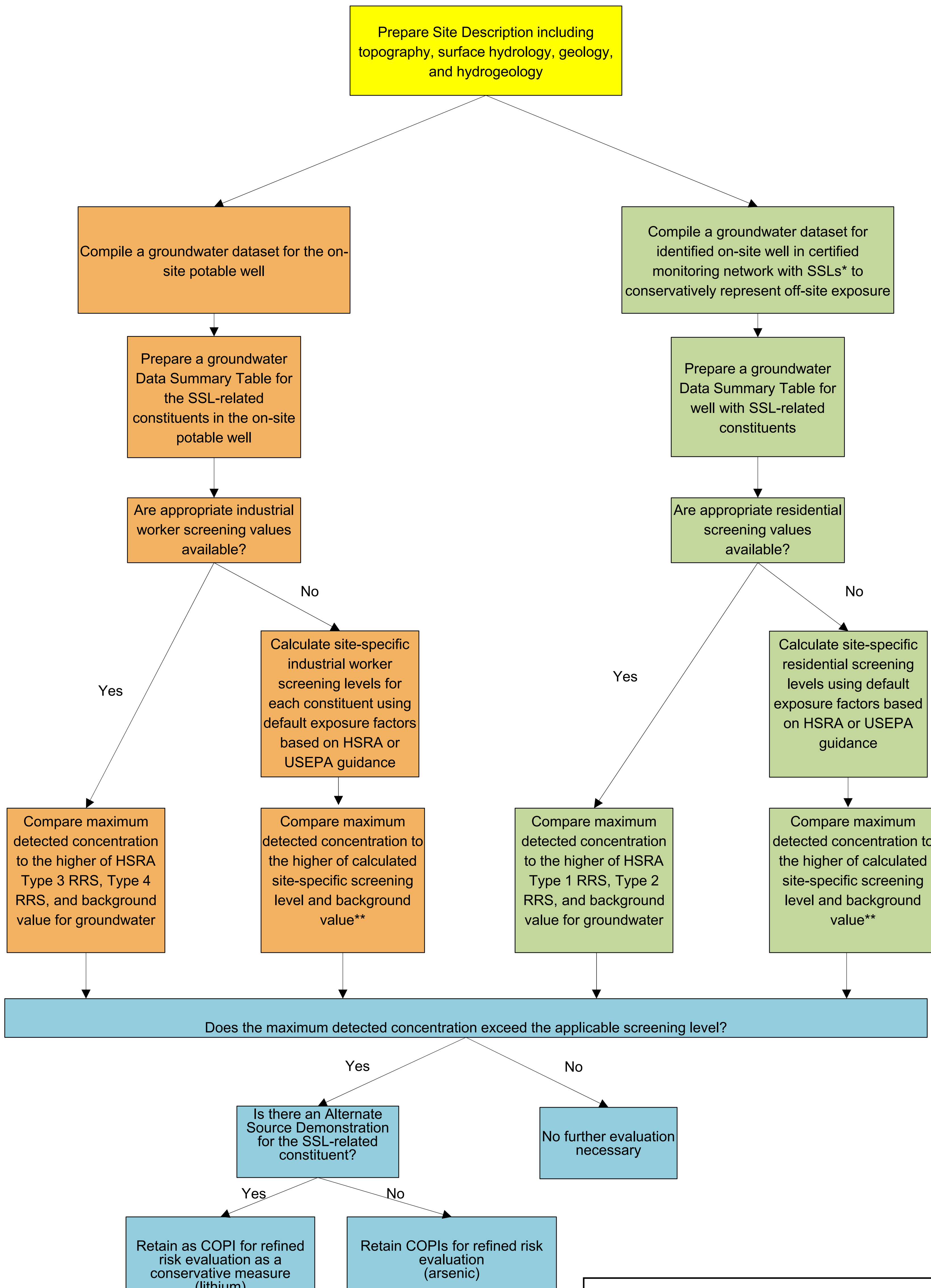
Plant McManus Former AP-1
Well Survey Results

Prepared By-Date: JCD - 11/24/2020	wood.	Figure: 6
Checked By-Date: IR - 11/24/2020		
Project Number: 6123201474		

Risk Screening Approach (Groundwater) for Former AP-1



Notes:

- Initial screen evaluates AP-1 wells with SSLs: arsenic (MCM-06) and lithium (MCM-06).

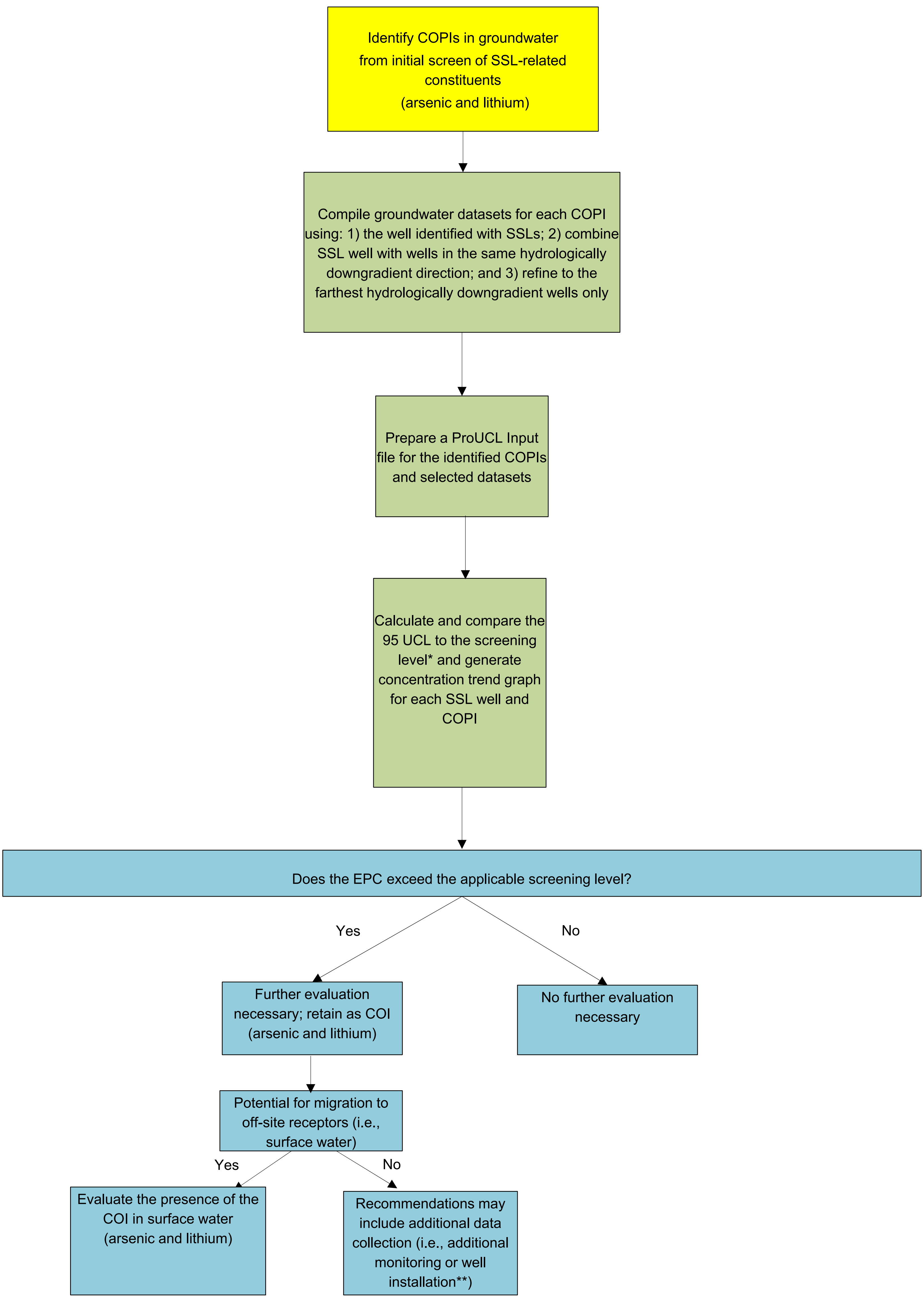
SSL = Statistically Significant Level
COPI = Constituent of Potential Interest
HSRA = Hazardous Site Response Act
RRS = Risk Reduction Standard
USEPA = United States Environmental Protection Agency

Plant McManus Former AP-1
Groundwater Risk
Screening Approach

Figure 7

Project Number 6123201474	Prepared by/Date: IMR 09/01/20 Checked by/Date: NSR 11/02/20

Refined Risk Screening Approach (Groundwater) for Former AP-1



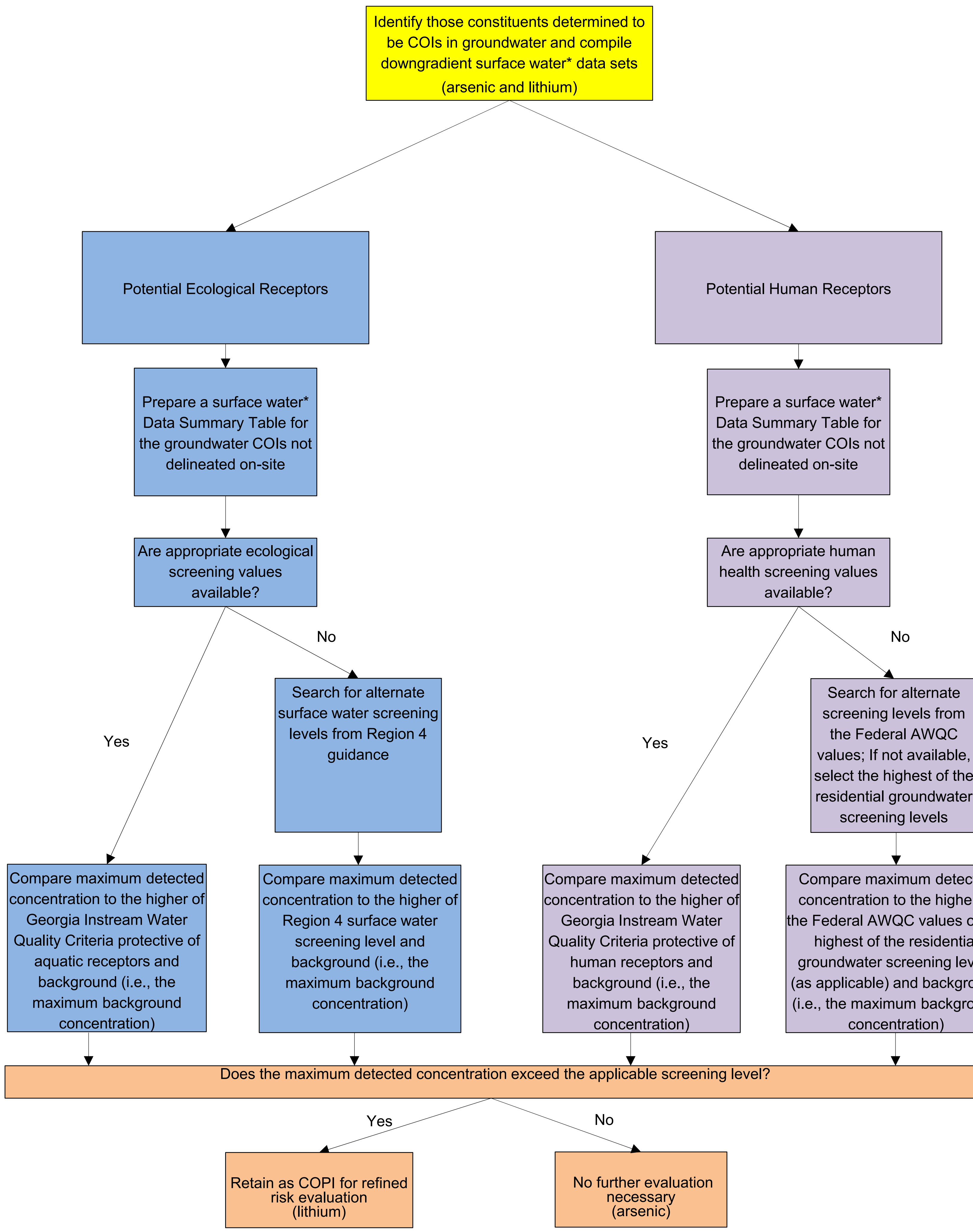
Notes:
*If the 95 UCL exceeds the maximum concentration, use the maximum as the EPC.
**This step is not necessary for Plant McManus AP-1.
SSL = Statistically Significant Level
COPI = Constituent of Potential Interest
EPC = Exposure Point Concentration
COI = Constituent of Interest
UCL = Upper Confidence Limit

Plant McManus Former AP-1
Approach for Refined Groundwater Risk Screening

Figure 8

Project Number 6123201474	Prepared by/Date: IMR 09/01/20 Checked by/Date: NSR 11/02/20

Risk Screening Approach (Surface Water) for Former AP-1



- Surface water data collected from Burnett Creek and two background locations.

SSL = Statistically Significant Level
AWQC = Ambient Water Quality Criteria
COI = Constituent of Interest
COPI = Constituent of Potential Interest

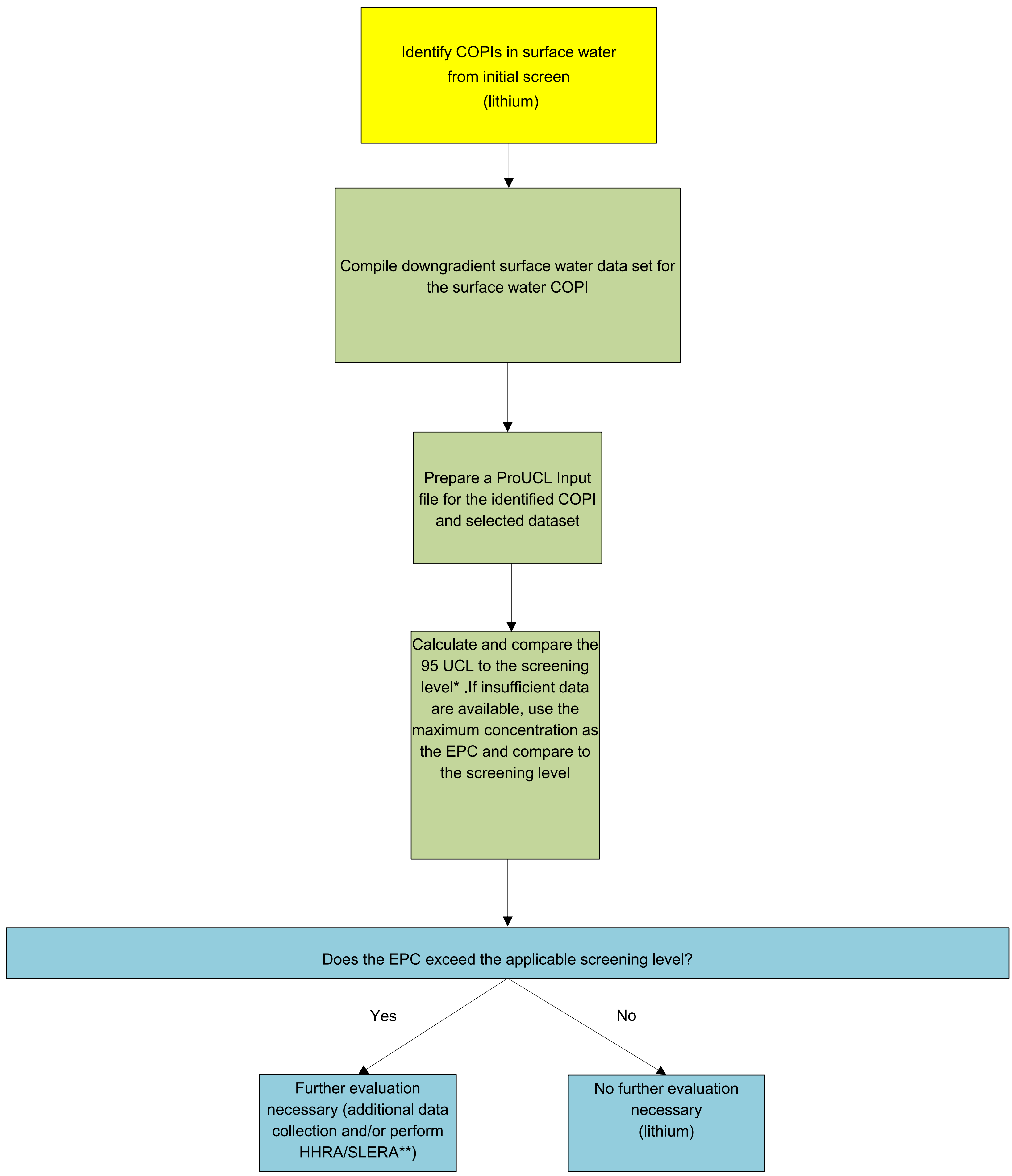
Plant McManus Former AP-1
Surface Water Risk
Screening Approach

Figure 9

Project Number
6123201474

Prepared by/Date: IMR 09/01/20
Checked by/Date NSR 11/02/20:

Refined Risk Screening Approach (Surface Water) for Former AP-1



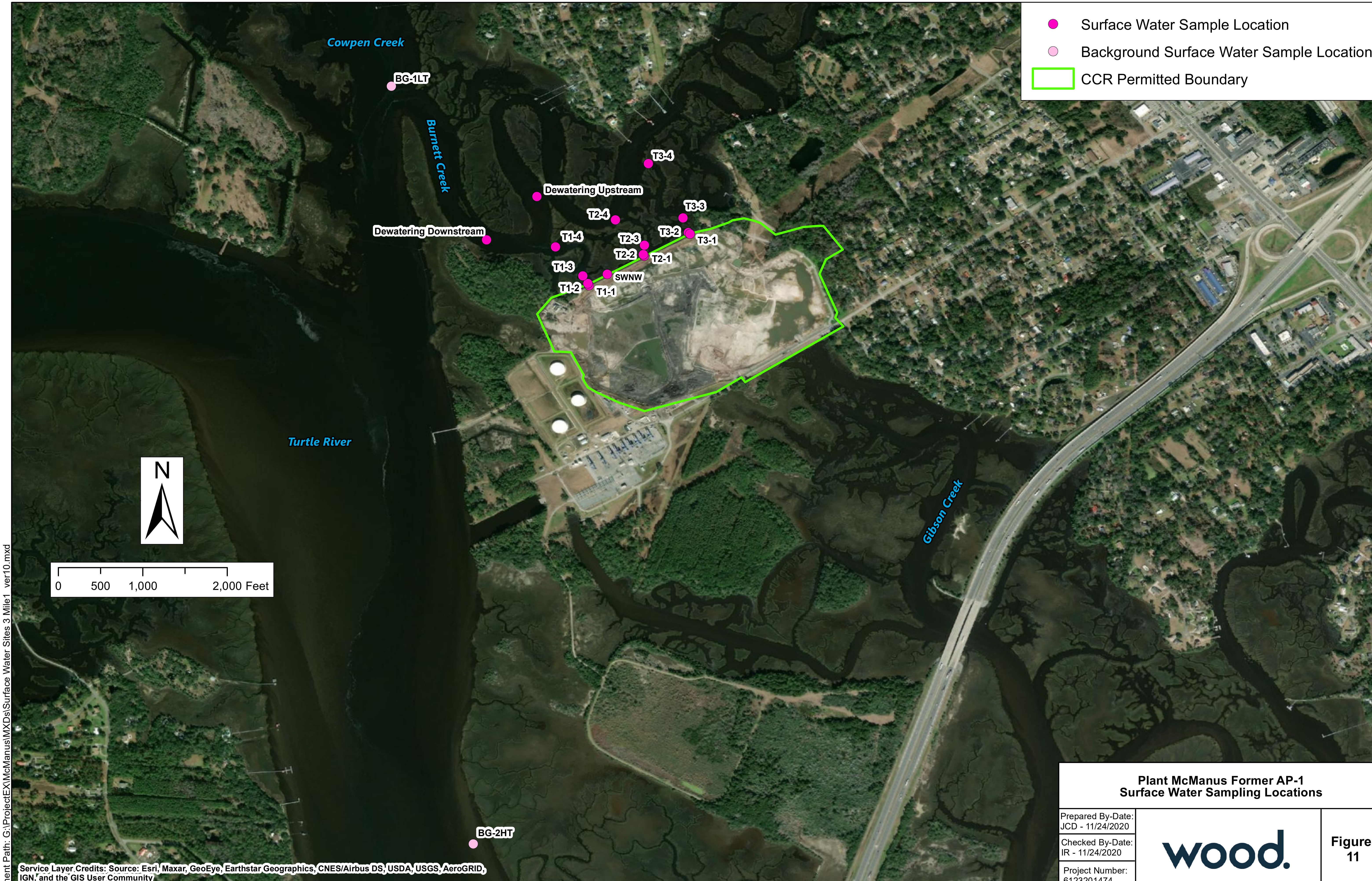
Notes:
*If the 95 UCL exceeds the maximum concentration, use the maximum as the EPC.
**Human Health Risk Assessment/Screening Level Ecological Risk Assessment. This step is not necessary for McManus AP-1.
COPI = Constituent of Potential Interest
UCL = Upper Confidence Limit
EPC = Exposure Point Concentration

Plant McManus Former AP-1
Approach for Refined Surface Water Risk Screening

Figure 10

Project Number 6123201474

Prepared by/Date: IMR 09/01/20
Checked by/Date: NSR 11/02/20



Plant McManus Former AP-1
Surface Water Sampling Locations

Prepared By-Date: JCD - 11/24/2020	wood.	Figure: 11
Checked By-Date: IR - 11/24/2020		
Project Number: 6123201474		

Document Path: G:\ProjectEX\McManus\MXDs\Surface Water Sites 3 Mile1_ver10.mxd

APPENDIX A

Plant McManus Well Survey (Off-Site)

Well Survey

Plant McManus

Ash Pond 1

Brunswick, GA

Prepared for

Georgia Power Company

241 Ralph McGill Blvd., Atlanta, GA 30308

Prepared by

NewFields

1349 W. Peachtree Street, Suite 2000

Atlanta, GA 30309

March 5, 2020

Introduction

Plant McManus is located on Crispin Island in Brunswick, Georgia.

NewFields conducted a well survey of potential drinking water wells within the three-mile radius of Ash Pond 1 (AP-1). This radius is referred to in this report as the Investigated Area, and is shown on Figure 1. AP-1 is currently being closed by removal.

As part of this survey, NewFields accessed and 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 for identifying potential drinking water wells within the Investigated Area.

1. Federal Sources
    a. United States Geological Survey (USGS) maintains an inventory database of wells that sampled by a USGS-affiliated program for ground-water levels and/or water quality parameters.[1] Well information and coordinates were downloaded for the state of Georgia and compiled into the GIS database. Wells in this database are labelled 'human drinking water wells' or 'monitoring wells'; however, many of the monitoring wells appear to be co-located with drinking water wells and may in fact be private drinking water wells utilized for monitoring purposes by USGS. Some listings in this database are over 50 years old and may be inactive.

    b. The Safe Drinking Water Information System (SDWIS) 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 the facility.

2. State Sources
    a. Georgia Environmental Protection Division (EPD)
        i. EPD maintains records about municipal and industrial wells, whose presence or absence within a radius of a site can be ascertained by contacting the agency. An email was sent to Michael Gillis of EPD on October 23rd, 2019 with the coordinates of Plant McManus. Mr. Gillis confirmed that there were 21 public water systems operating public wells within the Investigated Area. NewFields used a combination of parcel data, information from the Drinking Water Branch online database, and

[1] http://waterdata.usgs.gov/ga/nwis/inventory?introduction

aerial photography to locate these wells. There is also an inactive public drinking water well located at Plant McManus and an inactive public water system at the I-95 interchange nearly a mile to the northeast of the Ash Pond.

ii. EPD maintains files for Hazardous Site Inventory (HSI) files for site which are undergoing state-led corrective action. These files usually contain groundwater data and well surveys. There are no HSI sites or associated groundwater data or well surveys within the Investigated Area.

iii. EPD maintains non-HSI Hazardous Site Response Act notification reports (i.e., notifications submitted after releases of reportable substances). Reports associated with sites in Glynn County well surveys for sites within a 5-mile radius of Plant McManus were reviewed. A large number of wells within the Investigated Area were identified on the well surveys reviewed.

b. **Agricultural and Environmental Services Laboratory (AESL) records.** The University of Georgia's AESL Laboratory tests drinking water samples submitted by private individuals to their local county extension service. Maps of these sampling results can viewed online.[2] Precise coordinates are not available, but NewFields was able to use online images to find approximate locations.

3. County Sources

a. **Health Department Records.** County health departments (DOH) maintain records of the permits for "on-site sewage management systems" (septic tanks). In the Coastal Health District region, local health departments use an online system with information about local septic permits. NewFields was able to obtain a guest login to the database to search for and examine septic permits in the area.

b. **Water Department.** NewFields obtained shapefiles showing the waterlines for the main water provider in the area, the City of Brunswick. NewFields was also able to obtain detailed information about the locations and associated names of water meters connected to the City of Brunswick system. This information allows us to confirm which residences have active service connections and are unlikely to be drinking from a private well (older residences may still have inactive wells or wells used for irrigation).

c. **Tax Assessor Records.** Parcel data, including improvement data (i.e., information about the structures built on a property), was obtained from the Glynn County Tax Assessor.

[2] http://aesl.ces.uga.edu/water/map/

4. Windshield Surveys
    a. A windshield survey of the area was conducted on October 18 – 20, 2019. During the survey wells were visually identified and compiled into the GIS database.

Summary

Public water systems are operating wells throughout the Investigated Area. This includes wells for the main water provider in the area, the City of Brunswick, as well as 22 other smaller public water systems. Two public water systems that formerly had wells in the area are now inactive.

Public water is available to many residences in the area; however, a large number of parcels in the immediate vicinity of the plant rely on private wells.

For areas with no public water availability, NewFields assumed that all parcels containing structures would be associated with a private well. Many of these parcels may be sharing a well.

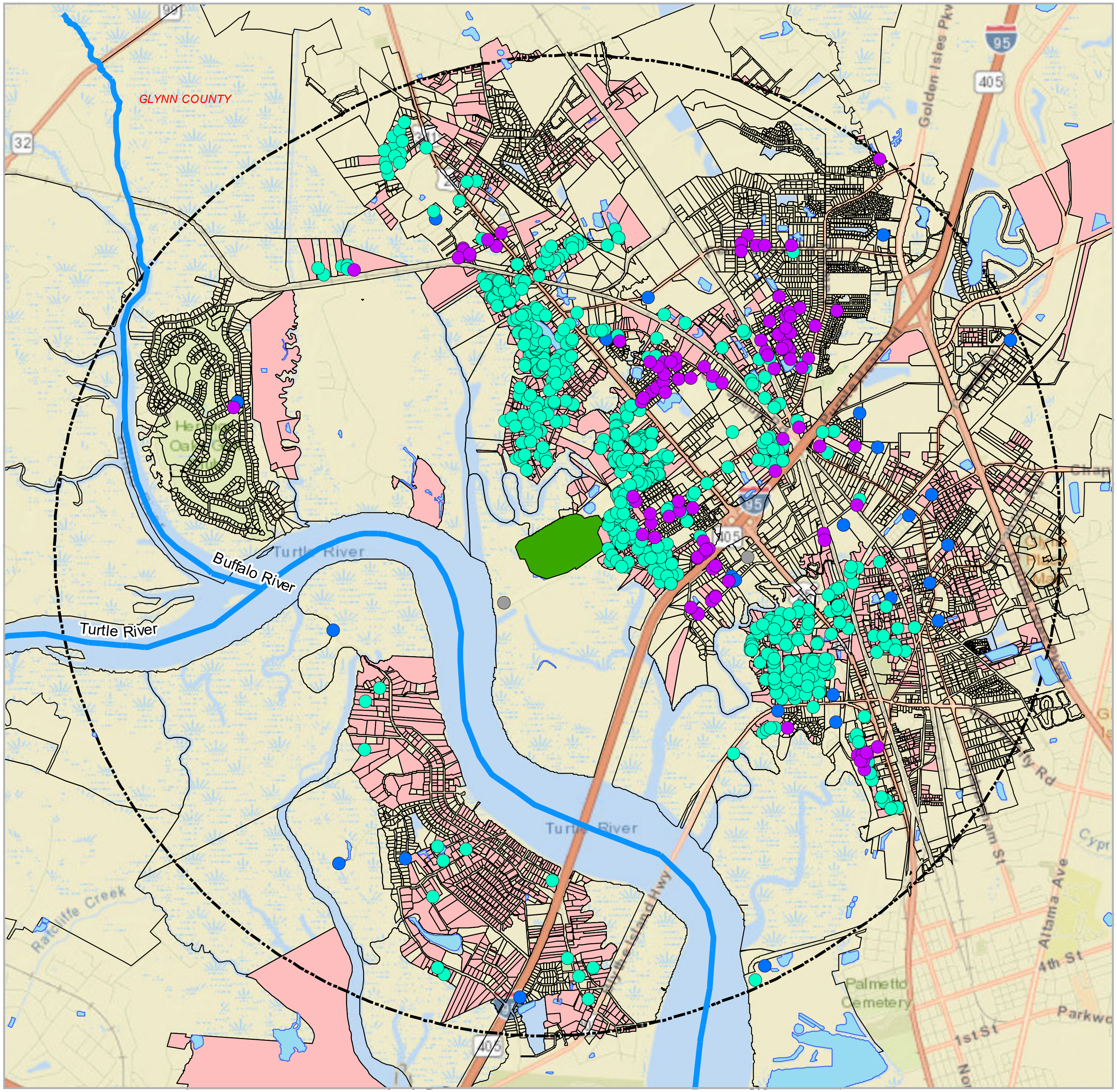
If a well was seen during the windshield survey or identified through older non-HSI well surveys, the USGS database, or septic system permits, but was also associated with a water meter connection, NewFields labelled the well as inactive or potentially an irrigation well.

USGS monitoring wells located on Georgia Power property were also considered not to be drinking water wells and omitted.

Combining well data from all sources with parcel data, NewFields identified 2361 total parcels likely to be associated with an active or inactive private well within the Investigated Area. 2266 parcels were identified using parcel data. 476 wells were seen during windshield survey, with 90 of those wells determined to be inactive or used only for irrigation because of their proximity to an active water connection. Eighteen (18) private wells were identified using other non-HSI well surveys. Four (4) wells were identified from the UGA Environmental Laboratory testing results, although 3 of these wells were determined to be inactive due to their proximity to an active water connection. Three (3) wells were identified using the USGS database, with one of them determined to be inactive due to the proximity to an active water connection.

Many wells were identified by multiple sources.

Figure 1 shows points for identified wells in the Investigated Area. Parcels identified as likely containing a well are shaded. When viewed as a PDF file, the figure is interactive, and wells identified using different sources can be turned on and off.



N
W E
S

- Inactive Private Irrigation/Drinking Well
- Private Drinking Well
- Public Drinking Well
- Inactive Public Drinking Well
- Ash Pond 1
- Parcels identified as likely containing a well
- Parcels
- 3-Mile Radius
- Rivers
- Lakes & Ponds
- County Border

0 2,250 4,500 9,000 Feet

Title	**Plant McManus Ash Pond 1**
Project	**GPC Plants Georgia**
NewFields	Two Midtown Plaza 1349 W. Peachtree St, #2000 Atlanta, Georgia 30309 Tel: 404-347-9050
Date 02/14/2020	Rev. No. 00
MXD GPC_MCMANUS_01	Figure No. 01

APPENDIX B
Data Used in Risk Evaluation

APPENDIX B-1
Potable Well Data

Appendix B-1
McManus Risk Evaluation Report
Potable Well Data (2015-2020) for Evaluation of SSLs
McManus Former AP-1
Plant McManus, Glynn County, GA

Well[a]	Date	CAS	Constituent	Unit	Result	Flag	MDL	PQL
MCMPW-01	01/28/20	7440-38-2	Arsenic	mg/L		ND	0.0005	0.001
Well #1 Plant	04/29/15	7440-38-2	Arsenic	mg/L		ND	n/a	0.005
MCMPW-01	01/28/20	7439-93-2	Lithium	mg/L		ND	0.15	0.5

Notes:
a) Well MCMPW-01 and Well #1 Plant are the same Plant McManus well just different naming for sampling events
MDL - method detection limit
mg/L - milligrams per liter
n/a - not available
ND - not detected above the laboratory PQL
PQL - practical quantitation limit
CAS - Chemical Abstract Service Number

Prepared by/Date: LO 07/10/20
Checked by/Date: IMR 07/13/20

APPENDIX B-2
Downgradient Groundwater Data

Appendix B-2
McManus Risk Evaluation Report
Downgradient Groundwater Data (2016-2020) for Evaluation of SSLs
McManus Former AP-1
Plant McManus, Glynn County, GA

Well	Date	CAS	Constituent	Unit	Result	Flag	MDL	PQL
MCM-05	08/31/16	7440-38-2	Arsenic	mg/L		ND	0.0016	0.005
MCM-05	11/30/16	7440-38-2	Arsenic	mg/L	0.0132		0.0016	0.005
MCM-05	02/16/17	7440-38-2	Arsenic	mg/L	0.0372		0.0016	0.005
MCM-05	06/02/17	7440-38-2	Arsenic	mg/L	0.0335		0.0021	0.025
MCM-05	08/17/17	7440-38-2	Arsenic	mg/L	0.0336		0.00057	0.005
MCM-05	06/20/18	7440-38-2	Arsenic	mg/L	0.019		0.0011	0.01
MCM-05	09/27/18	7440-38-2	Arsenic	mg/L	0.0035	J	0.00057	0.005
MCM-05	11/07/18	7440-38-2	Arsenic	mg/L	0.002	J	0.00057	0.005
MCM-05	11/27/18	7440-38-2	Arsenic	mg/L	0.0016	J	0.00057	0.005
MCM-05	03/26/19	7440-38-2	Arsenic	mg/L	0.0018	J	n/a	n/a
MCM-05	08/28/19	7440-38-2	Arsenic	mg/L	0.0019	J	0.00035	0.005
MCM-05	10/16/19	7440-38-2	Arsenic	mg/L	0.0047	J	0.00035	0.005
MCM-05	03/28/20	7440-38-2	Arsenic	mg/L		ND	0.0012	0.005
MCM-06	08/31/16	7440-38-2	Arsenic	mg/L	0.212		0.0016	0.005
MCM-06	11/30/16	7440-38-2	Arsenic	mg/L	0.129		0.0016	0.005
MCM-06	02/16/17	7440-38-2	Arsenic	mg/L	0.257		0.0016	0.005
MCM-06	06/02/17	7440-38-2	Arsenic	mg/L	0.0559		0.0004	0.005
MCM-06	08/17/17	7440-38-2	Arsenic	mg/L	0.458		0.00057	0.005
MCM-06	06/20/18	7440-38-2	Arsenic	mg/L	0.44		0.0011	0.01
MCM-06	09/27/18	7440-38-2	Arsenic	mg/L	0.27		0.00057	0.005
MCM-06	11/07/18	7440-38-2	Arsenic	mg/L	0.5		0.00057	0.005
MCM-06	11/27/18	7440-38-2	Arsenic	mg/L	0.5		0.00057	0.005
MCM-06	03/06/19	7440-38-2	Arsenic	mg/L	0.49		0.00035	0.005
MCM-06	03/26/19	7440-38-2	Arsenic	mg/L	0.3		n/a	n/a
MCM-06	07/02/19	7440-38-2	Arsenic	mg/L	0.37		n/a	n/a
MCM-06	08/28/19	7440-38-2	Arsenic	mg/L	0.5		0.00035	0.005
MCM-06	10/17/19	7440-38-2	Arsenic	mg/L	0.34		0.00035	0.005
MCM-06	03/28/20	7440-38-2	Arsenic	mg/L	0.3		0.0012	0.005
MCM-6HighTide	09/21/16	7440-38-2	Arsenic	mg/L	0.258		n/a	n/a
MCM-6LowTide	09/21/16	7440-38-2	Arsenic	mg/L	0.0168		n/a	n/a
MCM-05	08/31/16	7439-93-2	Lithium	mg/L	0.0219	J	0.0021	0.05
MCM-05	11/30/16	7439-93-2	Lithium	mg/L	0.0333	J	0.0021	0.05
MCM-05	02/16/17	7439-93-2	Lithium	mg/L	0.0376	J	0.0021	0.05
MCM-05	06/02/17	7439-93-2	Lithium	mg/L	0.0346	J	0.0011	0.05
MCM-05	08/17/17	7439-93-2	Lithium	mg/L	0.0367	J	0.00097	0.05
MCM-05	06/20/18	7439-93-2	Lithium	mg/L	0.034	J	0.00097	0.05
MCM-05	09/27/18	7439-93-2	Lithium	mg/L	0.023	J	0.00097	0.05
MCM-05	11/07/18	7439-93-2	Lithium	mg/L	0.022	J	0.00097	0.05

Appendix B-2
McManus Risk Evaluation Report
Downgradient Groundwater Data (2016-2020) for Evaluation of SSLs
McManus Former AP-1
Plant McManus, Glynn County, GA

Well	Date	CAS	Constituent	Unit	Result	Flag	MDL	PQL
MCM-05	08/28/19	7439-93-2	Lithium	mg/L	0.023	J	0.00078	0.03
MCM-05	10/16/19	7439-93-2	Lithium	mg/L	0.021	J	0.00078	0.03
MCM-05	03/28/20	7439-93-2	Lithium	mg/L	0.014	J	0.0084	0.03
MCM-06	08/31/16	7439-93-2	Lithium	mg/L	0.0389	J	0.0021	0.05
MCM-06	11/30/16	7439-93-2	Lithium	mg/L	0.0303	J	0.0021	0.05
MCM-06	02/16/17	7439-93-2	Lithium	mg/L	0.05	J	0.0021	0.05
MCM-06	06/02/17	7439-93-2	Lithium	mg/L	0.0477	J	0.0011	0.05
MCM-06	08/17/17	7439-93-2	Lithium	mg/L	0.0645		0.00097	0.05
MCM-06	06/20/18	7439-93-2	Lithium	mg/L	0.066	J	0.0019	0.1
MCM-06	09/27/18	7439-93-2	Lithium	mg/L	0.045	J	0.00097	0.05
MCM-06	11/07/18	7439-93-2	Lithium	mg/L	0.11		0.00097	0.05
MCM-06	03/06/19	7439-93-2	Lithium	mg/L	0.12		0.00078	0.03
MCM-06	08/28/19	7439-93-2	Lithium	mg/L	0.13		0.00078	0.03
MCM-06	10/17/19	7439-93-2	Lithium	mg/L	0.12		0.00078	0.03
MCM-06	03/28/20	7439-93-2	Lithium	mg/L	0.064		0.0084	0.03

Notes:
1) Highlighted rows indicate constituent identified in the well at a statistically significant level (SSL).
J - indicates an estimated value; detected between the laboratory MDL and PQL.
MDL - method detection limit
mg/L - milligrams per liter
n/a - not available
ND - not detected above the laboratory PQL
PQL - practical quantitation limit
CAS - Chemical Abstract Service Number

Prepared by/Date: LO 09/10/20
Checked by/Date: IMR 09/17/20

APPENDIX B-3

Surface Water Data

Appendix B-3
Surface Water Data (2016-2020)
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Sample Location	Tide	Sample Designation	Date	CAS	Constituent	Unit	Fraction	Result	Flag	MDL	PQL
BG-1LT	Low	Background	02/02/20	7440-38-2	Arsenic	mg/L	T	0.0019	J	0.0012	0.002
BG-2HT	High	Background	02/02/20	7440-38-2	Arsenic	mg/L	T	0.0023		0.0012	0.002
Dewatering Downstream	Receding Tide	Downgradient	12/20/16	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	01/11/17	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	02/08/17	7440-38-2	Arsenic	mg/L	T	0.0011		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	03/06/17	7440-38-2	Arsenic	mg/L	T	0.0011		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	04/11/17	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	05/08/17	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	06/13/17	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	07/10/17	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	08/07/17	7440-38-2	Arsenic	mg/L	T	0.0024		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	09/20/17	7440-38-2	Arsenic	mg/L	T	0.0016		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	10/09/17	7440-38-2	Arsenic	mg/L	T	0.0013		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	11/08/17	7440-38-2	Arsenic	mg/L	T	0.0017		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	12/05/17	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	01/25/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	02/14/18	7440-38-2	Arsenic	mg/L	T	0.0014		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	03/06/18	7440-38-2	Arsenic	mg/L	T	0.0013		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	04/04/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	05/02/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	06/13/18	7440-38-2	Arsenic	mg/L	T	0.0032		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	06/26/18	7440-38-2	Arsenic	mg/L	T	0.0025		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	07/10/18	7440-38-2	Arsenic	mg/L	T	0.0036		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	07/25/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	08/01/18	7440-38-2	Arsenic	mg/L	T	0.0024		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	08/09/18	7440-38-2	Arsenic	mg/L	T	0.0031		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	09/10/18	7440-38-2	Arsenic	mg/L	T	0.0032		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	09/26/18	7440-38-2	Arsenic	mg/L	T	0.0033		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	10/09/18	7440-38-2	Arsenic	mg/L	T	0.0036		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	10/24/18	7440-38-2	Arsenic	mg/L	T	0.0052		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	11/08/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	11/27/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	12/06/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	12/13/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	01/08/19	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	01/23/19	7440-38-2	Arsenic	mg/L	T	0.0035		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	02/05/19	7440-38-2	Arsenic	mg/L	T	0.0032		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	02/19/19	7440-38-2	Arsenic	mg/L	T	0.0053		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	03/07/19	7440-38-2	Arsenic	mg/L	T	0.0051		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	03/20/19	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	04/09/19	7440-38-2	Arsenic	mg/L	T	0.0032		0.003	n/a
Dewatering Downstream	Receding Tide	Downgradient	04/18/19	7440-38-2	Arsenic	mg/L	T	0.0034		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	12/20/16	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	01/11/17	7440-38-2	Arsenic	mg/L	T	0.0011		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	02/08/17	7440-38-2	Arsenic	mg/L	T	0.0011		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	03/06/17	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	04/11/17	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	05/08/17	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	06/13/17	7440-38-2	Arsenic	mg/L	T	0.0013		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	07/10/17	7440-38-2	Arsenic	mg/L	T	0.0021		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	08/07/17	7440-38-2	Arsenic	mg/L	T	0.0023		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	09/20/17	7440-38-2	Arsenic	mg/L	T	0.0014		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	10/09/17	7440-38-2	Arsenic	mg/L	T	0.0017		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	11/08/17	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	12/05/17	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	01/25/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	02/14/18	7440-38-2	Arsenic	mg/L	T	0.0012		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	03/06/18	7440-38-2	Arsenic	mg/L	T	0.0012		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	04/04/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	05/02/18	7440-38-2	Arsenic	mg/L	T	0.001		0.003	n/a

Appendix B-3
Surface Water Data (2016-2020)
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Sample Location	Tide	Sample Designation	Date	CAS	Constituent	Unit	Fraction	Result	Flag	MDL	PQL
Dewatering Upstream	Receding Tide	Downgradient	06/13/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	06/26/18	7440-38-2	Arsenic	mg/L	T	0.0036		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	07/10/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	07/25/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	08/01/18	7440-38-2	Arsenic	mg/L	T	0.0025		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	08/09/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	09/10/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	09/26/18	7440-38-2	Arsenic	mg/L	T	0.0033		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	10/09/18	7440-38-2	Arsenic	mg/L	T	0.003		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	10/24/18	7440-38-2	Arsenic	mg/L	T	0.0048		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	11/08/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	11/27/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	12/06/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	12/13/18	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	01/08/19	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	01/23/19	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	02/05/19	7440-38-2	Arsenic	mg/L	T	0.0035		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	02/19/19	7440-38-2	Arsenic	mg/L	T	0.0051		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	03/07/19	7440-38-2	Arsenic	mg/L	T	0.0052		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	03/20/19	7440-38-2	Arsenic	mg/L	T	0.0046		0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	04/09/19	7440-38-2	Arsenic	mg/L	T		ND	0.003	n/a
Dewatering Upstream	Receding Tide	Downgradient	04/18/19	7440-38-2	Arsenic	mg/L	T	0.0049		0.003	n/a
SWNW		Downgradient	06/29/18	7440-38-2	Arsenic	mg/L	T	0.0097	J	0.0057	0.05
T1-1HT	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T	0.0016	J	0.0012	0.002
T1-1LT	Low	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T		ND	0.0012	0.002
T1-2HT	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T		ND	0.0012	0.002
T1-2HTS	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T		ND	0.0012	0.002
T1-2LT	Low	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T		ND	0.0012	0.002
T1-3HT	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T		ND	0.0012	0.002
T1-3HTS	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T		ND	0.0012	0.002
T1-3LT	Low	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T		ND	0.0012	0.002
T1-4HT	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T		ND	0.0012	0.002
T1-4HTS	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T	0.0014	J	0.0012	0.002
T1-4LT	Low	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T	0.0016	J	0.0012	0.002
T2-1HT	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T	0.0014		0.0012	0.002
T2-2HT	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T	0.0019		0.0012	0.002
T2-2HTS	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T	0.0019		0.0006	0.001
T2-2LT	Low	Downgradient	02/02/20	7440-38-2	Arsenic	mg/L	T	0.0018		0.0012	0.002
T2-3HT	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T	0.0016	J	0.0012	0.002
T2-3HTS	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T	0.0018	J	0.0012	0.002
T2-3LT	Low	Downgradient	02/02/20	7440-38-2	Arsenic	mg/L	T	0.002		0.0012	0.002
T2-4HT	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T	0.0016	J	0.0012	0.002
T2-4HTS	High	Downgradient	02/01/20	7440-38-2	Arsenic	mg/L	T	0.0015	J	0.0012	0.002
T2-4LT	Low	Downgradient	02/02/20	7440-38-2	Arsenic	mg/L	T	0.0015	J	0.0012	0.002
T3-1HT	High	Downgradient	02/02/20	7440-38-2	Arsenic	mg/L	T	0.0018	J	0.0012	0.002
T3-2HT	High	Downgradient	02/02/20	7440-38-2	Arsenic	mg/L	T	0.0015	J	0.0012	0.002
T3-2HTS	High	Downgradient	02/02/20	7440-38-2	Arsenic	mg/L	T	0.0013	J	0.0012	0.002
T3-2LT	Low	Downgradient	02/03/20	7440-38-2	Arsenic	mg/L	T	0.0029		0.0012	0.002
T3-3HT	High	Downgradient	02/02/20	7440-38-2	Arsenic	mg/L	T	0.0021		0.0012	0.002
T3-3HTS	High	Downgradient	02/02/20	7440-38-2	Arsenic	mg/L	T	0.0018	J	0.0012	0.002
T3-3LT	Low	Downgradient	02/03/20	7440-38-2	Arsenic	mg/L	T	0.0018	J	0.0012	0.002
T3-4HT	High	Downgradient	02/02/20	7440-38-2	Arsenic	mg/L	T	0.0018	J	0.0012	0.002
T3-4HTS	High	Downgradient	02/02/20	7440-38-2	Arsenic	mg/L	T	0.0014	J	0.0012	0.002
T3-4LT	Low	Downgradient	02/03/20	7440-38-2	Arsenic	mg/L	T	0.0012	J	0.0012	0.002
BG-1LT	Low	Background	02/02/20	7439-93-2	Lithium	mg/L	T	0.09		0.0084	0.05
BG-2HT	High	Background	02/02/20	7439-93-2	Lithium	mg/L	T	0.099		0.0084	0.05
SWNW		Downgradient	06/29/18	7439-93-2	Lithium	mg/L	T	0.097	J	0.0097	0.5
T1-1HT	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.039	J	0.0084	0.05
T1-1LT	Low	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.024	J	0.0084	0.05
T1-2HT	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.11		0.0084	0.05

Appendix B-3
Surface Water Data (2016-2020)
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Sample Location	Tide	Sample Designation	Date	CAS	Constituent	Unit	Fraction	Result	Flag	MDL	PQL
T1-2HTS	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.055		0.0084	0.05
T1-2LT	Low	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.022	J	0.0084	0.05
T1-3HT	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.092		0.0084	0.05
T1-3HTS	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.067		0.0084	0.05
T1-3LT	Low	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.022	J	0.0084	0.05
T1-4HT	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.08		0.0084	0.05
T1-4HTS	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.081		0.0084	0.05
T1-4LT	Low	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.09		0.0084	0.05
T2-1HT	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.052		0.0042	0.025
T2-2HT	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.1		0.0084	0.05
T2-2HTS	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.073		0.0042	0.025
T2-2LT	Low	Downgradient	02/02/20	7439-93-2	Lithium	mg/L	T	0.063		0.0042	0.025
T2-3HT	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.099		0.0084	0.05
T2-3HTS	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.11		0.0084	0.05
T2-3LT	Low	Downgradient	02/02/20	7439-93-2	Lithium	mg/L	T	0.049	J	0.0084	0.05
T2-4HT	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.091		0.0084	0.05
T2-4HTS	High	Downgradient	02/01/20	7439-93-2	Lithium	mg/L	T	0.085		0.0084	0.05
T2-4LT	Low	Downgradient	02/02/20	7439-93-2	Lithium	mg/L	T	0.075		0.0084	0.05
T3-1HT	High	Downgradient	02/02/20	7439-93-2	Lithium	mg/L	T	0.076		0.0084	0.05
T3-2HT	High	Downgradient	02/02/20	7439-93-2	Lithium	mg/L	T	0.097		0.0084	0.05
T3-2HTS	High	Downgradient	02/02/20	7439-93-2	Lithium	mg/L	T	0.075		0.0084	0.05
T3-2LT	Low	Downgradient	02/03/20	7439-93-2	Lithium	mg/L	T	0.077		0.0084	0.05
T3-3HT	High	Downgradient	02/02/20	7439-93-2	Lithium	mg/L	T	0.081		0.0084	0.05
T3-3HTS	High	Downgradient	02/02/20	7439-93-2	Lithium	mg/L	T	0.08		0.0084	0.05
T3-3LT	Low	Downgradient	02/03/20	7439-93-2	Lithium	mg/L	T	0.084		0.0084	0.05
T3-4HT	High	Downgradient	02/02/20	7439-93-2	Lithium	mg/L	T	0.087		0.0084	0.05
T3-4HTS	High	Downgradient	02/02/20	7439-93-2	Lithium	mg/L	T	0.085		0.0084	0.05
T3-4LT	Low	Downgradient	02/03/20	7439-93-2	Lithium	mg/L	T	0.072		0.0084	0.05

Notes:
J - indicates an estimated value; detected between the laboratory MDL and PQL.
MDL - method detection limit
mg/L - milligrams per liter
n/a - not available
ND - not detected above the laboratory PQL
PQL - practical quantitation limit
T - Total
CAS - Chemical Abstract Service Number

Prepared by/Date: LO 10/30/20
Checked by/Date: IMR 10/30/20

APPENDIX C

USEPA RSL Calculator Generated

Industrial Worker Screening Levels

Appendix D-1
Industrial Worker Equation Inputs for Tap Water

* Inputted values different from Resident defaults are highlighte

Variable	Resident Tap Water Default Value	Form-input Value
BW_{0-2} (mutagenic body weight) kg	15	0
BW_{2-6} (mutagenic body weight) kg	15	0
BW_{6-16} (mutagenic body weight) kg	80	0
BW_{16-26} (mutagenic body weight) kg	80	80
BW_{res-a} (body weight - adult) kg	80	80
BW_{res-c} (body weight - child) kg	15	0
$DFW_{res-adj}$ (age-adjusted dermal factor) cm^2-event/kg	2610650	275546.875
$DFWM_{res-adj}$ (mutagenic age-adjusted dermal factor) cm^2-event/kg	8191633	275546.875
ED_{res} (exposure duration - resident) years	26	25
ED_{0-2} (mutagenic exposure duration first phase) years	2	0
ED_{2-6} (mutagenic exposure duration second phase) years	4	0
ED_{6-16} (mutagenic exposure duration third phase) years	10	0
ED_{16-26} (mutagenic exposure duration fourth phase) years	10	25
ED_{res-a} (exposure duration - adult) years	20	25
ED_{res-c} (exposure duration - child) years	6	0
EF_{res} (exposure frequency) days/year	350	250
EF_{0-2} (mutagenic exposure frequency first phase) days/year	350	0
EF_{2-6} (mutagenic exposure frequency second phase) days/year	350	0
EF_{6-16} (mutagenic exposure frequency third phase) days/year	350	0
EF_{16-26} (mutagenic exposure frequency fourth phase) days/year	350	250
EF_{res-a} (exposure frequency - adult) days/year	350	250
EF_{res-c} (exposure frequency - child) days/year	350	0
ET_{res} (exposure time) hours/day	24	8
$ET_{event-res-adj}$ (age-adjusted exposure time) hours/event	0.67077	0.54
$ET_{event-res-madj}$ (mutagenic age-adjusted exposure time) hours/event	0.67077	0.54
ET_{0-2} (mutagenic dermal exposure time first phase) hours/event	0.54	0
ET_{2-6} (mutagenic dermal exposure time second phase) hours/event	0.54	0
ET_{6-16} (mutagenic dermal exposure time third phase) hours/event	0.71	0
ET_{16-26} (mutagenic dermal exposure time fourth phase) hours/event	0.71	0.54
ET_{res-a} (dermal exposure time - adult) hours/event	0.71	0.54
ET_{res-c} (dermal exposure time - child) hours/event	0.54	0
ET_{0-2} (mutagenic inhalation exposure time first phase) hours/day	24	0
ET_{2-6} (mutagenic inhalation exposure time second phase) hours/day	24	0
ET_{6-16} (mutagenic inhalation exposure time third phase) hours/day	24	0
ET_{16-26} (mutagenic inhalation exposure time fourth phase) hours/day	24	8
ET_{res-a} (inhalation exposure time - adult) hours/day	24	8
ET_{res-c} (inhalation exposure time - child) hours/day	24	0
EV_{0-2} (mutagenic events) per day	1	0
EV_{2-6} (mutagenic events) per day	1	0

Appendix D-1
Industrial Worker Equation Inputs for Tap Water

* Inputted values different from Resident defaults are highlighte

Variable	Resident Tap Water Default Value	Form-input Value
EV_{6-16} (mutagenic events) per day	1	0
EV_{16-26} (mutagenic events) per day	1	1
EV_{res-a} (events - adult) per day	1	1
EV_{res-c} (events - child) per day	1	0
THQ (target hazard quotient) unitless	0.1	1
$IFW_{res-adj}$ (adjusted intake factor) L/kg	327.95	78.125
$IFWM_{res-adj}$ (mutagenic adjusted intake factor) L/kg	1019.9	78.125
IRW_{0-2} (mutagenic water intake rate) L/day	0.78	0
IRW_{2-6} (mutagenic water intake rate) L/day	0.78	0
IRW_{6-16} (mutagenic water intake rate) L/day	2.5	0
IRW_{16-26} (mutagenic water intake rate) L/day	2.5	1
IRW_{res-a} (water intake rate - adult) L/day	2.5	1
IRW_{res-c} (water intake rate - child) L/day	0.78	0
K (volatilization factor of Andelman) L/m^3	0.5	0.5
LT (lifetime) years	70	70
SA_{0-2} (mutagenic skin surface area) cm^2	6365	0
SA_{2-6} (mutagenic skin surface area) cm^2	6365	0
SA_{6-16} (mutagenic skin surface area) cm^2	19652	0
SA_{16-26} (mutagenic skin surface area) cm^2	19652	3527
SA_{res-a} (skin surface area - adult) cm^2	19652	3527
SA_{res-c} (skin surface area - child) cm^2	6365	0
l_{sc} (apparent thickness of stratum corneum) cm	0.001	0.001
TR (target risk) unitless	0.000001	0.00001

Appendix C-2
Site-specific
Industrial Worker Regional Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Lithium	7439-93-2	No	No	Inorganics	-		-		2.00E-03	P	-		1.00E+00

Appendix C-2
Site-specific
Industrial Worker Regional Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	K_p (cm/hr)	MW	B (unitless)	t^* (hr)	τ_{event} (hr/event)	FA (unitless)	In EPD?	$DA_{event\ (ca)}$	$DA_{event\ (nc\ child)}$
Lithium	7439-93-2	No	No	Inorganics	1.00E-03	6.94E+00	1.01E-03	2.76E-01	1.15E-01	1.00E+00	Yes	-	-

Appendix C-2
Site-specific
Industrial Worker Regional Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	$DA_{event\ (nc\ adult)}$	MCL (ug/L)	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)
Lithium	7439-93-2	No	No	Inorganics	6.62E-02	-	-	-	-	-

Appendix C-2
Site-specific
Industrial Worker Regional Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	Ingestion SL Adult THQ=1 (ug/L)
Lithium	7439-93-2	No	No	Inorganics	-	-	-	-	2.34E+02

Appendix C-2
Site-specific
Industrial Worker Regional Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	Dermal SL Adult THQ=1 (ug/L)	Inhalation SL Adult THQ=1 (ug/L)	Noncarcinogenic SL Adult THI=1 (ug/L)	Screening Level (ug/L)
Lithium	7439-93-2	No	No	Inorganics	1.23E+05	-	2.33E+02	2.33E+02 nc

APPENDIX D

USEPA RSL Calculator Generated

Residential Screening Levels

Appendix D-1
Residential Equation Inputs for Tap Water

Variable	Value
THQ (target hazard quotient) unitless	1
TR (target risk) unitless	0.00001
LT (lifetime) years	70
K (volatilization factor of Andelman) L/m^3	0.5
l_{sc} (apparent thickness of stratum corneum) cm	0.001
ED_{res} (exposure duration - resident) years	26
ED_{res-c} (exposure duration - child) years	6
ED_{res-a} (exposure duration - adult) years	20
ED_{0-2} (mutagenic exposure duration first phase) years	2
ED_{2-6} (mutagenic exposure duration second phase) years	4
ED_{6-16} (mutagenic exposure duration third phase) years	10
ED_{16-26} (mutagenic exposure duration fourth phase) years	10
EF_{res} (exposure frequency) days/year	350
EF_{res-c} (exposure frequency - child) days/year	350
EF_{res-a} (exposure frequency - adult) days/year	350
EF_{0-2} (mutagenic exposure frequency first phase) days/year	350
EF_{2-6} (mutagenic exposure frequency second phase) days/year	350
EF_{6-16} (mutagenic exposure frequency third phase) days/year	350
EF_{16-26} (mutagenic exposure frequency fourth phase) days/year	350
$ET_{event-res-adj}$ (age-adjusted exposure time) hours/event	0.67077
$ET_{event-res-madj}$ (mutagenic age-adjusted exposure time) hours/event	0.67077
ET_{res} (exposure time) hours/day	24
ET_{res-c} (dermal exposure time - child) hours/event	0.54
ET_{res-a} (dermal exposure time - adult) hours/event	0.71
ET_{res-c} (inhalation exposure time - child) hours/day	24
ET_{res-a} (inhalation exposure time - adult) hours/day	24
Appendix D-3	24
Scherer AP-1	24
Plant Scherer, Juliette, GA	24
ET_{16-26} (mutagenic inhalation exposure time fourth phase) hours/day	24
ET_{0-2} (mutagenic dermal exposure time first phase) hours/event	0.54
ET_{2-6} (mutagenic dermal exposure time second phase) hours/event	0.54
ET_{6-16} (mutagenic dermal exposure time third phase) hours/event	0.71
ET_{16-26} (mutagenic dermal exposure time fourth phase) hours/event	0.71
BW_{res-a} (body weight - adult) kg	80

Appendix D-1
Residential Equation Inputs for Tap Water

Variable	Value
BW_{res-c} (body weight - child) kg	15
BW_{0-2} (mutagenic body weight) kg	15
BW_{2-6} (mutagenic body weight) kg	15
BW_{6-16} (mutagenic body weight) kg	80
BW_{16-26} (mutagenic body weight) kg	80
$IFW_{res-adj}$ (adjusted intake factor) L/kg	327.95
$IFW_{res-adj}$ (adjusted intake factor) L/kg	327.95
$IFWM_{res-adj}$ (mutagenic adjusted intake factor) L/kg	1019.9
$IFWM_{res-adj}$ (mutagenic adjusted intake factor) L/kg	1019.9
IRW_{res-c} (water intake rate - child) L/day	0.78
IRW_{res-a} (water intake rate - adult) L/day	2.5
IRW_{0-2} (mutagenic water intake rate) L/day	0.78
IRW_{2-6} (mutagenic water intake rate) L/day	0.78
IRW_{6-16} (mutagenic water intake rate) L/day	2.5
IRW_{16-26} (mutagenic water intake rate) L/day	2.5
EV_{res-a} (events - adult) per day	1
EV_{res-c} (events - child) per day	1
EV_{0-2} (mutagenic events) per day	1
EV_{2-6} (mutagenic events) per day	1
EV_{6-16} (mutagenic events) per day	1
EV_{16-26} (mutagenic events) per day	1
$DFW_{res-adj}$ (age-adjusted dermal factor) cm^2-event/kg	2610650
$DFWM_{res-adj}$ (mutagenic age-adjusted dermal factor) cm^2-event/kg	8191633
SA_{res-c} (skin surface area - child) cm^2	6365
SA_{res-a} (skin surface area - adult) cm^2	19652
SA_{0-2} (mutagenic skin surface area) cm^2	6365
SA_{2-6} (mutagenic skin surface area) cm^2	6365
SA_{6-16} (mutagenic skin surface area) cm^2	19652
SA_{16-26} (mutagenic skin surface area) cm^2	19652

Appendix D-2
Default
Resident Risk-Based Regional Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o $(mg/kg\text{-}day)^{-1}$	SF_o Ref	IUR $(ug/m^3)^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	K_p (cm/hr)	MW
Lithium	7439-93-2	No	No	Inorganics	-		-		2.00E-03	P	-		1.00E+00	1.00E-03	6.94E+00

Appendix D-2
Default
Resident Risk-Based Regional Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	B (unitless)	t^* (hr)	τ_{event} (hr/event)	FA (unitless)	In EPD?	$DA_{event\ (ca)}$	$DA_{event\ (nc\ child)}$	$DA_{event\ (nc\ adult)}$	MCL (ug/L)
Lithium	7439-93-2	No	No	Inorganics	1.01E-03	2.76E-01	1.15E-01	1.00E+00	Yes	-	4.92E-03	8.49E-03	-

Appendix D-2
Default
Resident Risk-Based Regional Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	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)	Dermal SL Child THQ=1 (ug/L)
Lithium	7439-93-2	No	No	Inorganics	-	-	-	-	4.01E+01	9.10E+03

Appendix D-2
Default
Resident Risk-Based Regional Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	Ingestion SL Adult THQ=1 (ug/L)	Dermal SL Adult THQ=1 (ug/L)	Inhalation SL Adult THQ=1 (ug/L)
Lithium	7439-93-2	No	No	Inorganics	-	3.99E+01	6.67E+01	1.20E+04	-

Appendix D-2
Default
Resident Risk-Based Regional Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	Noncarcinogenic SL Adult THI=1 (ug/L)	Screening Level (ug/L)
Lithium	7439-93-2	No	No	Inorganics	6.64E+01	3.99E+01 nc

Appendix E-1

Exposure Point Concentration
Calculation Results

Appendix E-1
Groundwater Exposure Point Calculation Details[1]
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

CCR Rule Designation	Constituent	Exposure Unit	Well IDs Included	Maximum Concentration (mg/L)	Detection Frequency	Exceedance Frequency	EPC Step 1	EPC Step 2	EPC Step 3
							Individual Target Well(s) 2016-2020 (mg/L)	Target Well(s) & Downgradient / Adjacent Well(s) 2016-2020 (mg/L)	Farthest Downgradient Well(s) 2016-2020 (mg/L)
Appendix IV	Arsenic	North	MCM-06	0.50	17 / 17	16 / 17	0.38		
			MCM-05 MCM-06	0.50	28 / 30	19 / 30		0.41	
			MCM-05 MCM-06	0.50	28 / 30	19 / 30			0.41
	Lithium	North	MCM-06	0.13	12 / 12	10 / 12	0.093		
			MCM-05 MCM-06	0.13	23 / 23	10 / 23		0.067	
			MCM-05 MCM-06	0.13	23 / 23	10 / 23			0.067

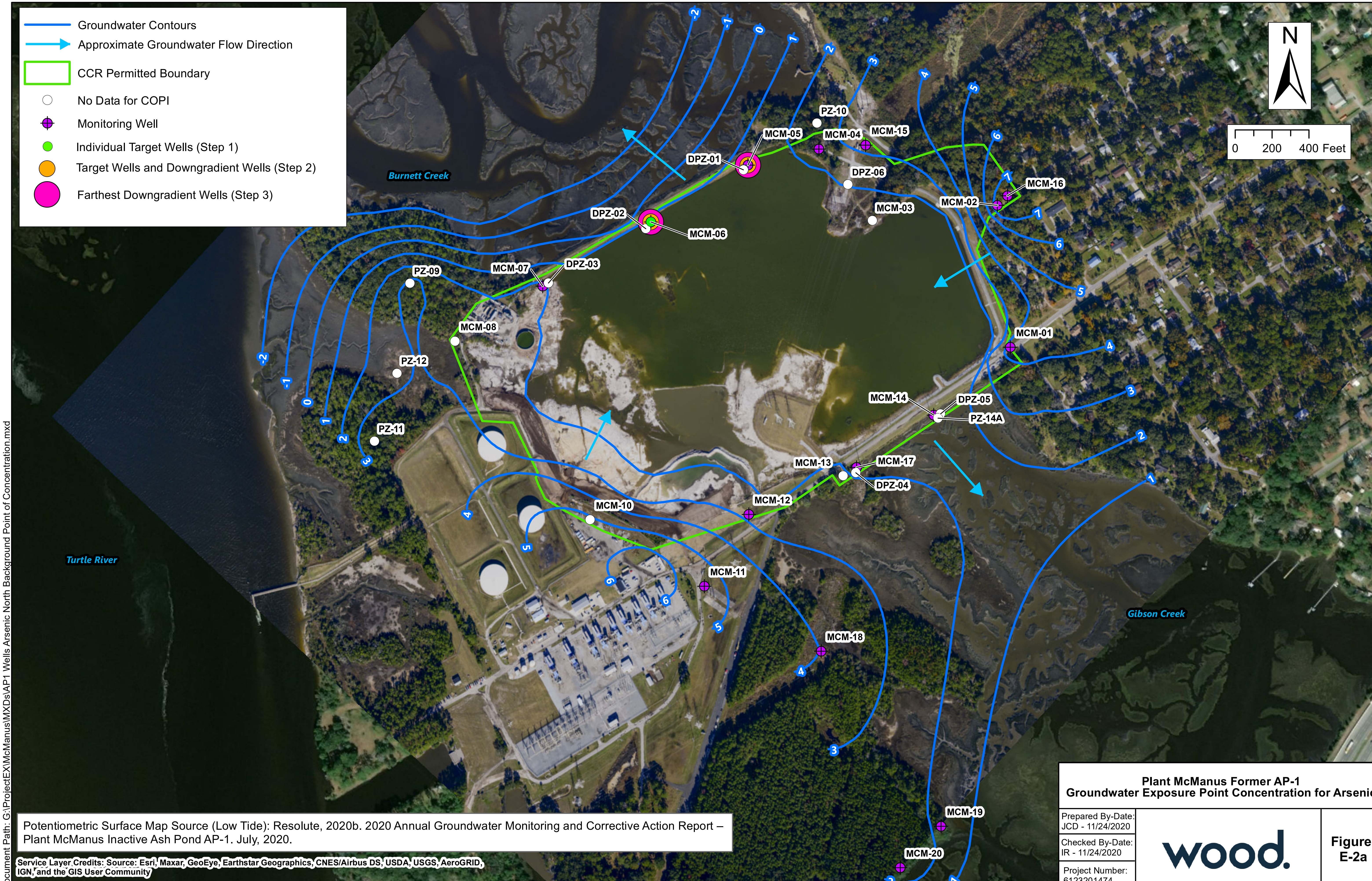
Notes:
Highlighted value is the EPC selected for the refined groundwater screening.
1 - EPCs calculated in accordance with USEPA, 2014. Memorandum for Determining Groundwater Exposure Point Concentrations, Supplemental Guidance. OSWER Directive 9283.1-42, February 2014. Located at https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236917

Definitions:
EPC = Exposure Point Concentration
mg/L = milligrams per liter
CCR = Coal Combustion Residuals

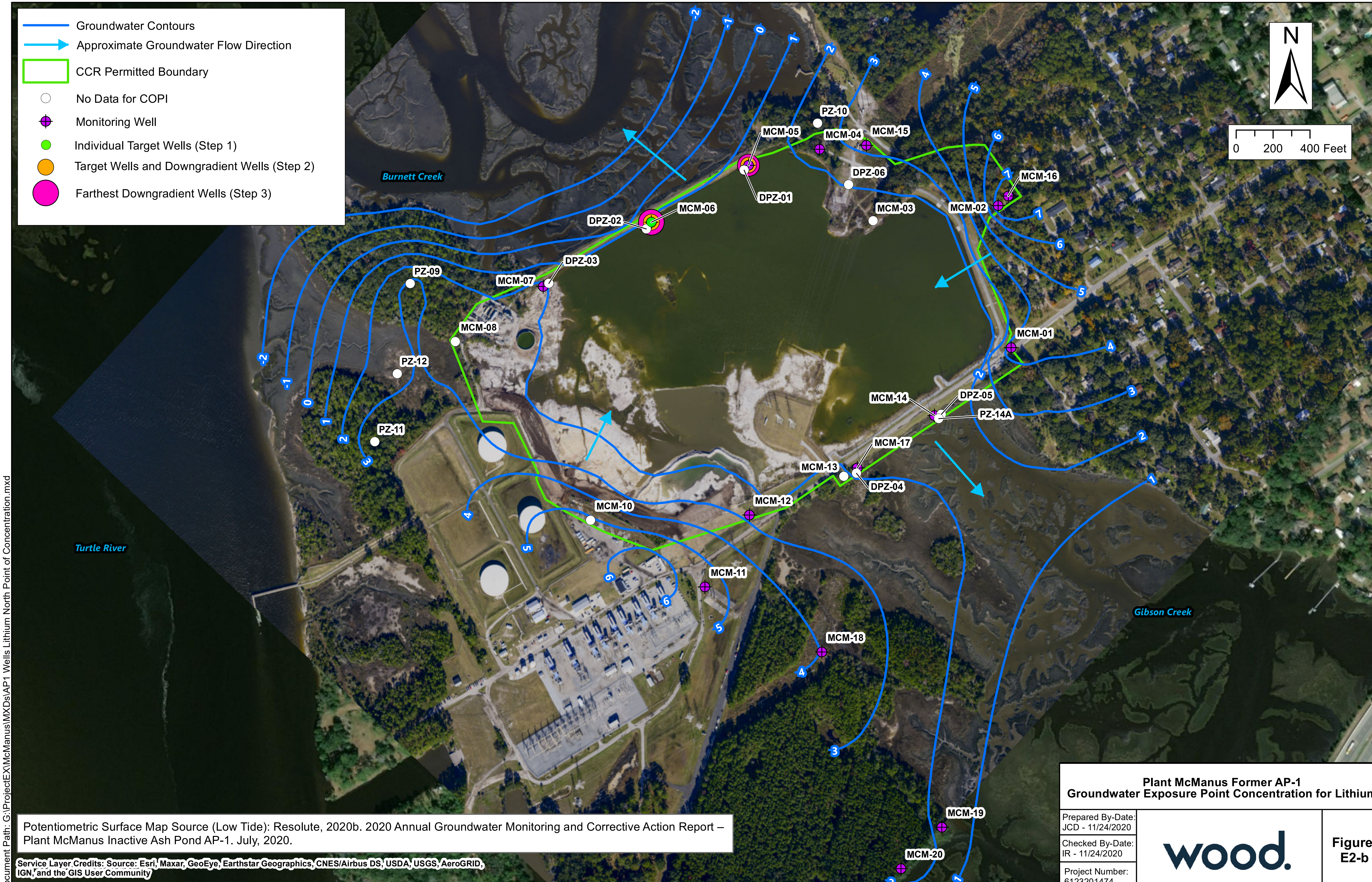
Prepared by/Date: LO 9/10/20
Checked by/Date: IMR 9/16/20

Appendix E-2

Groundwater Exposure Point Concentration Figures



Document Path: G:\Project\EX\McManus\MXDs\AP1 Wells Arsenic North Background Point of Concentration.mxd



Potentiometric Surface Map Source (Low Tide): Resolute, 2020b. 2020 Annual Groundwater Monitoring and Corrective Action Report – Plant McManus Inactive Ash Pond AP-1. July, 2020.

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Plant McManus Former AP-1
Groundwater Exposure Point Concentration for Lithium

Prepared By-Date: JCD - 11/24/2020	wood.	Figure: E2-b
Checked By-Date: IR - 11/24/2020		
Project Number: 6123201474		

Document Path: G:\ProjectEX\McManus\MXDs\AP1 Wells Lithium North Point of Concentration.mxd

Appendix E-3

Groundwater ProUCL Input/Output Files

Appendix E-3a
Groundwater ProUCL Input - Arsenic
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Step 1

Well(1)	Date(1)	As1_MCM-6	D_As1_MCM-6
MCM-06	08/31/16	0.212	1
MCM-06	11/30/16	0.129	1
MCM-06	02/16/17	0.257	1
MCM-06	06/02/17	0.0559	1
MCM-06	08/17/17	0.458	1
MCM-06	06/20/18	0.44	1
MCM-06	09/27/18	0.27	1
MCM-06	11/07/18	0.5	1
MCM-06	11/27/18	0.5	1
MCM-06	03/06/19	0.49	1
MCM-06	03/26/19	0.3	1
MCM-06	07/02/19	0.37	1
MCM-06	08/28/19	0.5	1
MCM-06	10/17/19	0.34	1
MCM-06	03/28/20	0.3	1
MCM-6Hig	09/21/16	0.258	1
MCM-6Lov	09/21/16	0.0168	1

Step 2

Well(2)	Date(2)	As2_MCM-5-6	D_As2_MCM-5-6
MCM-05	08/31/16	0.005	0
MCM-05	11/30/16	0.0132	1
MCM-05	02/16/17	0.0372	1
MCM-05	06/02/17	0.0335	1
MCM-05	08/17/17	0.0336	1
MCM-05	06/20/18	0.019	1
MCM-05	09/27/18	0.0035	1
MCM-05	11/07/18	0.002	1
MCM-05	11/27/18	0.0016	1
MCM-05	03/26/19	0.0018	1
MCM-05	08/28/19	0.0019	1
MCM-05	10/16/19	0.0047	1
MCM-05	03/28/20	0.005	0
MCM-06	08/31/16	0.212	1
MCM-06	11/30/16	0.129	1
MCM-06	03/28/20	0.3	1
MCM-06	02/16/17	0.257	1
MCM-06	06/02/17	0.0559	1
MCM-06	08/17/17	0.458	1
MCM-06	06/20/18	0.44	1
MCM-06	09/27/18	0.27	1
MCM-06	11/07/18	0.5	1
MCM-06	11/27/18	0.5	1
MCM-06	03/06/19	0.49	1
MCM-06	03/26/19	0.3	1
MCM-06	07/02/19	0.37	1
MCM-06	08/28/19	0.5	1
MCM-06	10/17/19	0.34	1
MCM-6Hig	09/21/16	0.258	1
MCM-6Lov	09/21/16	0.0168	1

Step 3

Well(3)	Date(3)	As3_MCM-5-6	D_As3_MCM-5-6
MCM-05	08/31/16	0.005	0
MCM-05	11/30/16	0.0132	1
MCM-05	02/16/17	0.0372	1
MCM-05	06/02/17	0.0335	1
MCM-05	08/17/17	0.0336	1
MCM-05	06/20/18	0.019	1
MCM-05	09/27/18	0.0035	1
MCM-05	11/07/18	0.002	1
MCM-05	11/27/18	0.0016	1
MCM-05	03/26/19	0.0018	1
MCM-05	08/28/19	0.0019	1
MCM-05	10/16/19	0.0047	1
MCM-05	03/28/20	0.005	0
MCM-06	08/31/16	0.212	1
MCM-06	11/30/16	0.129	1
MCM-06	03/28/20	0.3	1
MCM-06	02/16/17	0.257	1
MCM-06	06/02/17	0.0559	1
MCM-06	08/17/17	0.458	1
MCM-06	06/20/18	0.44	1
MCM-06	09/27/18	0.27	1
MCM-06	11/07/18	0.5	1
MCM-06	11/27/18	0.5	1
MCM-06	03/06/19	0.49	1
MCM-06	03/26/19	0.3	1
MCM-06	07/02/19	0.37	1
MCM-06	08/28/19	0.5	1
MCM-06	10/17/19	0.34	1
MCM-6Hig	09/21/16	0.258	1
MCM-6Lov	09/21/16	0.0168	1

Notes:
1) Concentrations in units of mg/L.

Prepared by/Date: LO 9/10/20
Checked by/Date: IMR 9/16/20

Appendix E-3b

Groundwater ProUCL Output - Arsenic

McManus Risk Evaluation Report

McManus Former AP-1

Plant McManus, Glynn County, GA

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.19/10/2020 9:29:17 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

As1_MCM-6

General Statistics

Total Number of Observations	17	Number of Distinct Observations	14
		Number of Missing Observations	0
Minimum	0.0168	Mean	0.317
Maximum	0.5	Median	0.3
SD	0.155	Std. Error of Mean	0.0375
Coefficient of Variation	0.488	Skewness	-0.484

Normal GOF Test

Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.892	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.139	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.207	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0.383	95% Adjusted-CLT UCL (Chen-1995)	0.374
		95% Modified-t UCL (Johnson-1978)	0.382

Gamma GOF Test

A-D Test Statistic	1.052	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.231	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.211	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Appendix E-3b
Groundwater ProUCL Output - Arsenic
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Gamma Statistics

k hat (MLE)	2.298	k star (bias corrected MLE)	1.932
Theta hat (MLE)	0.138	Theta star (bias corrected MLE)	0.164
nu hat (MLE)	78.14	nu star (bias corrected)	65.69
MLE Mean (bias corrected)	0.317	MLE Sd (bias corrected)	0.228
		Approximate Chi Square Value (0.05)	48.04
Adjusted Level of Significance	0.0346	Adjusted Chi Square Value	46.46

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.434	95% Adjusted Gamma UCL (use when n<50)	0.449

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.739	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.892	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.274	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.207	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-4.086	Mean of logged Data	-1.38
Maximum of Logged Data	-0.693	SD of logged Data	0.898

Assuming Lognormal Distribution

95% H-UCL	0.662	90% Chebyshev (MVUE) UCL	0.624
95% Chebyshev (MVUE) UCL	0.742	97.5% Chebyshev (MVUE) UCL	0.905
99% Chebyshev (MVUE) UCL	1.226		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.379	95% Jackknife UCL	0.383
95% Standard Bootstrap UCL	0.377	95% Bootstrap-t UCL	0.381
95% Hall's Bootstrap UCL	0.375	95% Percentile Bootstrap UCL	0.375
95% BCA Bootstrap UCL	0.375		
90% Chebyshev(Mean, Sd) UCL	0.43	95% Chebyshev(Mean, Sd) UCL	0.481
97.5% Chebyshev(Mean, Sd) UCL	0.552	99% Chebyshev(Mean, Sd) UCL	0.691

Appendix E-3b

Groundwater ProUCL Output - Arsenic

McManus Risk Evaluation Report

McManus Former AP-1

Plant McManus, Glynn County, GA

Suggested UCL to Use

95% Student's-t UCL	0.383

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

As2_MCM-5-6

General Statistics

Total Number of Observations	30	Number of Distinct Observations	26
Number of Detects	28	Number of Non-Detects	2
Number of Distinct Detects	25	Number of Distinct Non-Detects	1
Minimum Detect	0.0016	Minimum Non-Detect	0.005
Maximum Detect	0.5	Maximum Non-Detect	0.005
Variance Detects	0.0371	Percent Non-Detects	6.667%
Mean Detects	0.198	SD Detects	0.193
Median Detects	0.171	CV Detects	0.972
Skewness Detects	0.395	Kurtosis Detects	-1.47
Mean of Logged Detects	-2.789	SD of Logged Detects	2.071

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.832	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.924	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.164	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.185	KM Standard Error of Mean	0.0352
KM SD	0.189	95% KM (BCA) UCL	0.244
95% KM (t) UCL	0.245	95% KM (Percentile Bootstrap) UCL	0.241
95% KM (z) UCL	0.243	95% KM Bootstrap t UCL	0.247
90% KM Chebyshev UCL	0.291	95% KM Chebyshev UCL	0.338
97.5% KM Chebyshev UCL	0.405	99% KM Chebyshev UCL	0.535

Appendix E-3b
Groundwater ProUCL Output - Arsenic
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.303	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.806	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.207	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.174	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.537	k star (bias corrected MLE)	0.503
Theta hat (MLE)	0.369	Theta star (bias corrected MLE)	0.394
nu hat (MLE)	30.06	nu star (bias corrected)	28.17
Mean (detects)	0.198		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0016	Mean	0.189
Maximum	0.5	Median	0.0929
SD	0.189	CV	1.005
k hat (MLE)	0.553	k star (bias corrected MLE)	0.52
Theta hat (MLE)	0.341	Theta star (bias corrected MLE)	0.362
nu hat (MLE)	33.21	nu star (bias corrected)	31.22
Adjusted Level of Significance (β)	0.041		
Approximate Chi Square Value (31.22, α)	19.45	Adjusted Chi Square Value (31.22, β)	18.92
95% Gamma Approximate UCL (use when n>=50)	0.303	95% Gamma Adjusted UCL (use when n<50)	0.311

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.185	SD (KM)	0.189
Variance (KM)	0.0358	SE of Mean (KM)	0.0352
k hat (KM)	0.959	k star (KM)	0.885
nu hat (KM)	57.52	nu star (KM)	53.1
theta hat (KM)	0.193	theta star (KM)	0.209
80% gamma percentile (KM)	0.301	90% gamma percentile (KM)	0.439
95% gamma percentile (KM)	0.579	99% gamma percentile (KM)	0.907

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (53.10, α)	37.36	Adjusted Chi Square Value (53.10, β)	36.6
95% Gamma Approximate KM-UCL (use when n>=50)	0.263	95% Gamma Adjusted KM-UCL (use when n<50)	0.269

Appendix E-3b
Groundwater ProUCL Output - Arsenic
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.842	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.924	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.225	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.164	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.185	Mean in Log Scale	-2.964
SD in Original Scale	0.192	SD in Log Scale	2.11
95% t UCL (assumes normality of ROS data)	0.245	95% Percentile Bootstrap UCL	0.244
95% BCA Bootstrap UCL	0.244	95% Bootstrap t UCL	0.249
95% H-UCL (Log ROS)	2.391		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-3.006	KM Geo Mean	0.0495
KM SD (logged)	2.128	95% Critical H Value (KM-Log)	4.139
KM Standard Error of Mean (logged)	0.396	95% H-UCL (KM -Log)	2.445
KM SD (logged)	2.128	95% Critical H Value (KM-Log)	4.139
KM Standard Error of Mean (logged)	0.396		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.185	Mean in Log Scale	-3.003
SD in Original Scale	0.192	SD in Log Scale	2.157
95% t UCL (Assumes normality)	0.245	95% H-Stat UCL	2.72

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	0.405

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix E-3b
Groundwater ProUCL Output - Arsenic
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

As3_MCM-5-6

General Statistics

Total Number of Observations	30	Number of Distinct Observations	26
Number of Detects	28	Number of Non-Detects	2
Number of Distinct Detects	25	Number of Distinct Non-Detects	1
Minimum Detect	0.0016	Minimum Non-Detect	0.005
Maximum Detect	0.5	Maximum Non-Detect	0.005
Variance Detects	0.0371	Percent Non-Detects	6.667%
Mean Detects	0.198	SD Detects	0.193
Median Detects	0.171	CV Detects	0.972
Skewness Detects	0.395	Kurtosis Detects	-1.47
Mean of Logged Detects	-2.789	SD of Logged Detects	2.071

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.832	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.924	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.164	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	0.185	KM Standard Error of Mean	0.0352
KM SD	0.189	95% KM (BCA) UCL	0.24
95% KM (t) UCL	0.245	95% KM (Percentile Bootstrap) UCL	0.241
95% KM (z) UCL	0.243	95% KM Bootstrap t UCL	0.246
90% KM Chebyshev UCL	0.291	95% KM Chebyshev UCL	0.338
97.5% KM Chebyshev UCL	0.405	99% KM Chebyshev UCL	0.535

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.303	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.806	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.207	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.174	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.537	k star (bias corrected MLE)	0.503
Theta hat (MLE)	0.369	Theta star (bias corrected MLE)	0.394
nu hat (MLE)	30.06	nu star (bias corrected)	28.17
Mean (detects)	0.198		

Appendix E-3b
Groundwater ProUCL Output - Arsenic
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0016	Mean	0.189
Maximum	0.5	Median	0.0929
SD	0.189	CV	1.005
k hat (MLE)	0.553	k star (bias corrected MLE)	0.52
Theta hat (MLE)	0.341	Theta star (bias corrected MLE)	0.362
nu hat (MLE)	33.21	nu star (bias corrected)	31.22
Adjusted Level of Significance (β)	0.041		
Approximate Chi Square Value (31.22, α)	19.45	Adjusted Chi Square Value (31.22, β)	18.92
95% Gamma Approximate UCL (use when n>=50)	0.303	95% Gamma Adjusted UCL (use when n<50)	0.311

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.185	SD (KM)	0.189
Variance (KM)	0.0358	SE of Mean (KM)	0.0352
k hat (KM)	0.959	k star (KM)	0.885
nu hat (KM)	57.52	nu star (KM)	53.1
theta hat (KM)	0.193	theta star (KM)	0.209
80% gamma percentile (KM)	0.301	90% gamma percentile (KM)	0.439
95% gamma percentile (KM)	0.579	99% gamma percentile (KM)	0.907

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (53.10, α)	37.36	Adjusted Chi Square Value (53.10, β)	36.6
95% Gamma Approximate KM-UCL (use when n>=50)	0.263	95% Gamma Adjusted KM-UCL (use when n<50)	0.269

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.842	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.924	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.225	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.164	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Appendix E-3b

Groundwater ProUCL Output - Arsenic

McManus Risk Evaluation Report

McManus Former AP-1

Plant McManus, Glynn County, GA

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.185	Mean in Log Scale	-2.964
SD in Original Scale	0.192	SD in Log Scale	2.11
95% t UCL (assumes normality of ROS data)	0.245	95% Percentile Bootstrap UCL	0.243
95% BCA Bootstrap UCL	0.246	95% Bootstrap t UCL	0.247
95% H-UCL (Log ROS)	2.391		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-3.006	KM Geo Mean	0.0495
KM SD (logged)	2.128	95% Critical H Value (KM-Log)	4.139
KM Standard Error of Mean (logged)	0.396	95% H-UCL (KM -Log)	2.445
KM SD (logged)	2.128	95% Critical H Value (KM-Log)	4.139
KM Standard Error of Mean (logged)	0.396		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.185	Mean in Log Scale	-3.003
SD in Original Scale	0.192	SD in Log Scale	2.157
95% t UCL (Assumes normality)	0.245	95% H-Stat UCL	2.72

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	0.405

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix E-3c
Groundwater ProUCL Input - Lithium
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Step 1

Well(1)	Date(1)	Li1	D_Li1
MCM-06	08/31/16	0.0389	1
MCM-06	11/30/16	0.0303	1
MCM-06	02/16/17	0.05	1
MCM-06	06/02/17	0.0477	1
MCM-06	08/17/17	0.0645	1
MCM-06	06/20/18	0.066	1
MCM-06	09/27/18	0.045	1
MCM-06	11/07/18	0.11	1
MCM-06	03/06/19	0.12	1
MCM-06	08/28/19	0.13	1
MCM-06	10/17/19	0.12	1
MCM-06	3/28/2020	0.064	1

Step 2

Well(2)	Date(2)	Li2	D_Li2
MCM-05	08/31/16	0.0219	1
MCM-05	11/30/16	0.0333	1
MCM-05	02/16/17	0.0376	1
MCM-05	06/02/17	0.0346	1
MCM-05	08/17/17	0.0367	1
MCM-05	06/20/18	0.034	1
MCM-05	09/27/18	0.023	1
MCM-05	11/07/18	0.022	1
MCM-05	08/28/19	0.023	1
MCM-05	10/16/19	0.021	1
MCM-05	03/28/20	0.014	1
MCM-06	08/31/16	0.0389	1
MCM-06	11/30/16	0.0303	1
MCM-06	02/16/17	0.05	1
MCM-06	06/02/17	0.0477	1
MCM-06	08/17/17	0.0645	1
MCM-06	06/20/18	0.066	1
MCM-06	09/27/18	0.045	1
MCM-06	11/07/18	0.11	1
MCM-06	03/06/19	0.12	1
MCM-06	08/28/19	0.13	1
MCM-06	10/17/19	0.12	1
MCM-06	03/28/20	0.064	1

Step 3

Well(3)	Date(3)	Li3	D_Li3
MCM-05	08/31/16	0.0219	1
MCM-05	11/30/16	0.0333	1
MCM-05	02/16/17	0.0376	1
MCM-05	06/02/17	0.0346	1
MCM-05	08/17/17	0.0367	1
MCM-05	06/20/18	0.034	1
MCM-05	09/27/18	0.023	1
MCM-05	11/07/18	0.022	1
MCM-05	08/28/19	0.023	1
MCM-05	10/16/19	0.021	1
MCM-05	03/28/20	0.014	1
MCM-06	08/31/16	0.0389	1
MCM-06	11/30/16	0.0303	1
MCM-06	02/16/17	0.05	1
MCM-06	06/02/17	0.0477	1
MCM-06	08/17/17	0.0645	1
MCM-06	06/20/18	0.066	1
MCM-06	09/27/18	0.045	1
MCM-06	11/07/18	0.11	1
MCM-06	03/06/19	0.12	1
MCM-06	08/28/19	0.13	1
MCM-06	10/17/19	0.12	1
MCM-06	03/28/20	0.064	1

Notes:
1) Concentrations in units of mg/L.

Prepared by/Date: LO 9/10/20
Checked by/Date: IMR 9/16/20

Appendix E-3d
Groundwater ProUCL Output - Lithium
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.19/10/2020 9:32:02 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Li1

General Statistics

Total Number of Observations	12	Number of Distinct Observations	11
		Number of Missing Observations	0
Minimum	0.0303	Mean	0.0739
Maximum	0.13	Median	0.0643
SD	0.0359	Std. Error of Mean	0.0104
Coefficient of Variation	0.486	Skewness	0.56

Normal GOF Test

Shapiro Wilk Test Statistic	0.862	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.253	Lilliefors GOF Test
5% Lilliefors Critical Value	0.243	Data Not Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0.0925	95% Adjusted-CLT UCL (Chen-1995)	0.0927
		95% Modified-t UCL (Johnson-1978)	0.0928

Gamma GOF Test

A-D Test Statistic	0.574	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.733	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.201	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.246	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Appendix E-3d
Groundwater ProUCL Output - Lithium
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Gamma Statistics

k hat (MLE)	4.729	k star (bias corrected MLE)	3.603
Theta hat (MLE)	0.0156	Theta star (bias corrected MLE)	0.0205
nu hat (MLE)	113.5	nu star (bias corrected)	86.46
MLE Mean (bias corrected)	0.0739	MLE Sd (bias corrected)	0.0389
		Approximate Chi Square Value (0.05)	66.03
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	63.31

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.0967	95% Adjusted Gamma UCL (use when n<50)	0.101

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.918	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.183	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.243	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-3.497	Mean of logged Data	-2.715
Maximum of Logged Data	-2.04	SD of logged Data	0.491

Assuming Lognormal Distribution

95% H-UCL	0.102	90% Chebyshev (MVUE) UCL	0.106
95% Chebyshev (MVUE) UCL	0.121	97.5% Chebyshev (MVUE) UCL	0.141
99% Chebyshev (MVUE) UCL	0.18		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.0909	95% Jackknife UCL	0.0925
95% Standard Bootstrap UCL	0.0903	95% Bootstrap-t UCL	0.0965
95% Hall's Bootstrap UCL	0.0888	95% Percentile Bootstrap UCL	0.0905
95% BCA Bootstrap UCL	0.0934		
90% Chebyshev(Mean, Sd) UCL	0.105	95% Chebyshev(Mean, Sd) UCL	0.119
97.5% Chebyshev(Mean, Sd) UCL	0.139	99% Chebyshev(Mean, Sd) UCL	0.177

Appendix E-3d

Groundwater ProUCL Output - Lithium

McManus Risk Evaluation Report

McManus Former AP-1

Plant McManus, Glynn County, GA

Suggested UCL to Use

95% Student's-t UCL	0.0925

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Li2

General Statistics

Total Number of Observations	23	Number of Distinct Observations	21
		Number of Missing Observations	0
Minimum	0.014	Mean	0.0516
Maximum	0.13	Median	0.0376
SD	0.0352	Std. Error of Mean	0.00733
Coefficient of Variation	0.681	Skewness	1.271

Normal GOF Test

Shapiro Wilk Test Statistic	0.811	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.914	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.214	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.18	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.0642	95% Adjusted-CLT UCL (Chen-1995)	0.0658
		95% Modified-t UCL (Johnson-1978)	0.0645

Gamma GOF Test

A-D Test Statistic	0.801	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.752	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.16	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.183	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Appendix E-3d
Groundwater ProUCL Output - Lithium
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Gamma Statistics

k hat (MLE)	2.732	k star (bias corrected MLE)	2.405
Theta hat (MLE)	0.0189	Theta star (bias corrected MLE)	0.0215
nu hat (MLE)	125.7	nu star (bias corrected)	110.6
MLE Mean (bias corrected)	0.0516	MLE Sd (bias corrected)	0.0333
		Approximate Chi Square Value (0.05)	87.34
Adjusted Level of Significance	0.0389	Adjusted Chi Square Value	85.84

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.0654	95% Adjusted Gamma UCL (use when n<50)	0.0665

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.945	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.122	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.18	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-4.269	Mean of logged Data	-3.158
Maximum of Logged Data	-2.04	SD of logged Data	0.624

Assuming Lognormal Distribution

95% H-UCL	0.0682	90% Chebyshev (MVUE) UCL	0.0723
95% Chebyshev (MVUE) UCL	0.0818	97.5% Chebyshev (MVUE) UCL	0.0951
99% Chebyshev (MVUE) UCL	0.121		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.0637	95% Jackknife UCL	0.0642
95% Standard Bootstrap UCL	0.063	95% Bootstrap-t UCL	0.0669
95% Hall's Bootstrap UCL	0.0647	95% Percentile Bootstrap UCL	0.0637
95% BCA Bootstrap UCL	0.0644		
90% Chebyshev(Mean, Sd) UCL	0.0736	95% Chebyshev(Mean, Sd) UCL	0.0836
97.5% Chebyshev(Mean, Sd) UCL	0.0974	99% Chebyshev(Mean, Sd) UCL	0.125

Appendix E-3d
Groundwater ProUCL Output - Lithium
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Suggested UCL to Use

95% Adjusted Gamma UCL	0.0665

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Li3

General Statistics

Total Number of Observations	23	Number of Distinct Observations	21
		Number of Missing Observations	0
Minimum	0.014	Mean	0.0516
Maximum	0.13	Median	0.0376
SD	0.0352	Std. Error of Mean	0.00733
Coefficient of Variation	0.681	Skewness	1.271

Normal GOF Test

Shapiro Wilk Test Statistic	0.811	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.914	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.214	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.18	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.0642	95% Adjusted-CLT UCL (Chen-1995)	0.0658
		95% Modified-t UCL (Johnson-1978)	0.0645

Gamma GOF Test

A-D Test Statistic	0.801	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.752	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.16	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.183	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Appendix E-3d
Groundwater ProUCL Output - Lithium
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Gamma Statistics

k hat (MLE)	2.732	k star (bias corrected MLE)	2.405
Theta hat (MLE)	0.0189	Theta star (bias corrected MLE)	0.0215
nu hat (MLE)	125.7	nu star (bias corrected)	110.6
MLE Mean (bias corrected)	0.0516	MLE Sd (bias corrected)	0.0333
		Approximate Chi Square Value (0.05)	87.34
Adjusted Level of Significance	0.0389	Adjusted Chi Square Value	85.84

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.0654	95% Adjusted Gamma UCL (use when n<50)	0.0665

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.945	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.914	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.122	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.18	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-4.269	Mean of logged Data	-3.158
Maximum of Logged Data	-2.04	SD of logged Data	0.624

Assuming Lognormal Distribution

95% H-UCL	0.0682	90% Chebyshev (MVUE) UCL	0.0723
95% Chebyshev (MVUE) UCL	0.0818	97.5% Chebyshev (MVUE) UCL	0.0951
99% Chebyshev (MVUE) UCL	0.121		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.0637	95% Jackknife UCL	0.0642
95% Standard Bootstrap UCL	0.0633	95% Bootstrap-t UCL	0.0682
95% Hall's Bootstrap UCL	0.0642	95% Percentile Bootstrap UCL	0.0643
95% BCA Bootstrap UCL	0.0656		
90% Chebyshev(Mean, Sd) UCL	0.0736	95% Chebyshev(Mean, Sd) UCL	0.0836
97.5% Chebyshev(Mean, Sd) UCL	0.0974	99% Chebyshev(Mean, Sd) UCL	0.125

Appendix E-3d
Groundwater ProUCL Output - Lithium
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Suggested UCL to Use

95% Adjusted Gamma UCL	0.0665

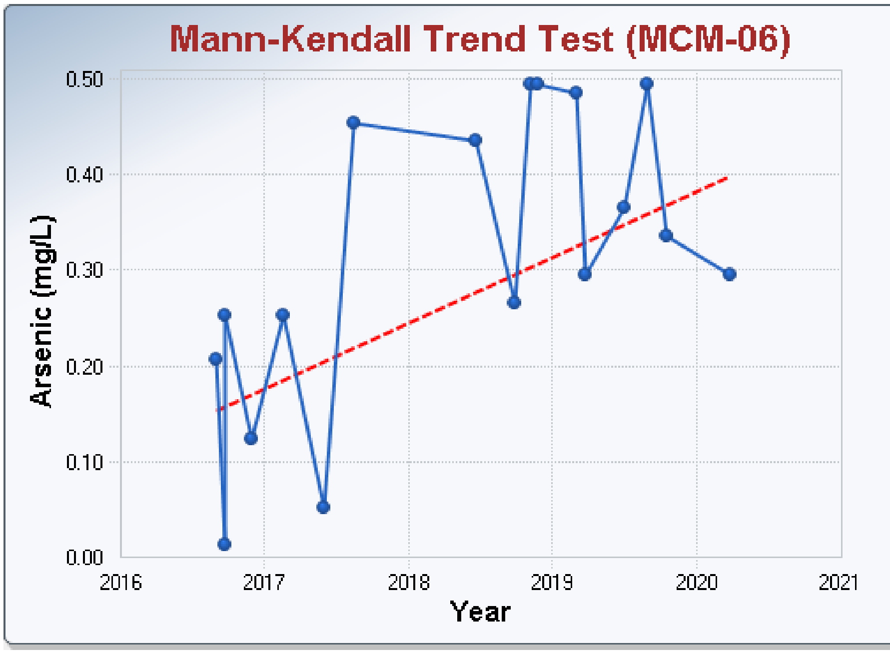
When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix E-4

Groundwater Trend Graphs

Appendix E-4
Groundwater Mann-Kendall Trend Graphs - MCM-06 Arsenic & Lithium
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA



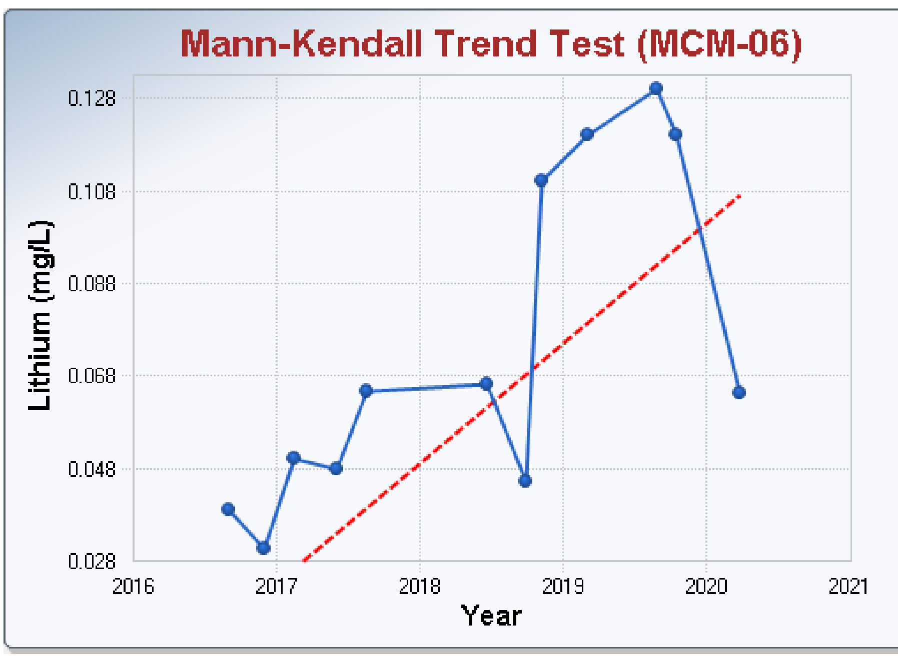
Mann-Kendall Trend Analysis

n	17
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	24.1799
Standardized Value of S	2.2746
M-K Test Value (S)	56
Tabulated p-value	0.0110
Approximate p-value	0.0115

Theil-Sen Trend Line (Red)

Theil-Sen Slope	0.0684
Theil-Sen Intercept	-137.8088

Statistically significant evidence of an increasing trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	12
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	14.5488
Standardized Value of S	2.6119
M-K Test Value (S)	39
Tabulated p-value	0.0040
Approximate p-value	0.0045

Theil-Sen Trend Line (Red)

Theil-Sen Slope	0.0261
Theil-Sen Intercept	-52.6085

Statistically significant evidence of an increasing trend at the specified level of significance.

Prepared by/Date: LO 11/12/20
Checked by/Date: SBM 11/16/20

APPENDIX F

Support for Refined Surface Water Risk Evaluation

APPENDIX F-1

Exposure Point Concentration Calculation Results

Appendix F-1
Surface Water Exposure Point Calculation Details
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

CCR Rule Designation	Constituent	Exposure Unit	Surface Water Location IDs Included	Maximum Concentration (mg/L)	Detection Frequency	Exceedance Frequency	EPC (mg/L)
Appendix IV	Lithium	North	SWNW T1-1HT T1-1LT T1-2HT T1-2HTS T1-2LT T1-3HT T1-3HTS T1-3LT T1-4HT T1-4HTS T1-4LT T2-1HT T2-2HT T2-2HTS T2-2LT T2-3HT T2-3HTS T2-3LT T2-4HT T2-4HTS T2-4LT T3-1HT T3-2HT T3-2HTS T3-2LT T3-3HT T3-3HTS T3-3LT T3-4HT	0.11	32 / 32	3 / 32	0.082

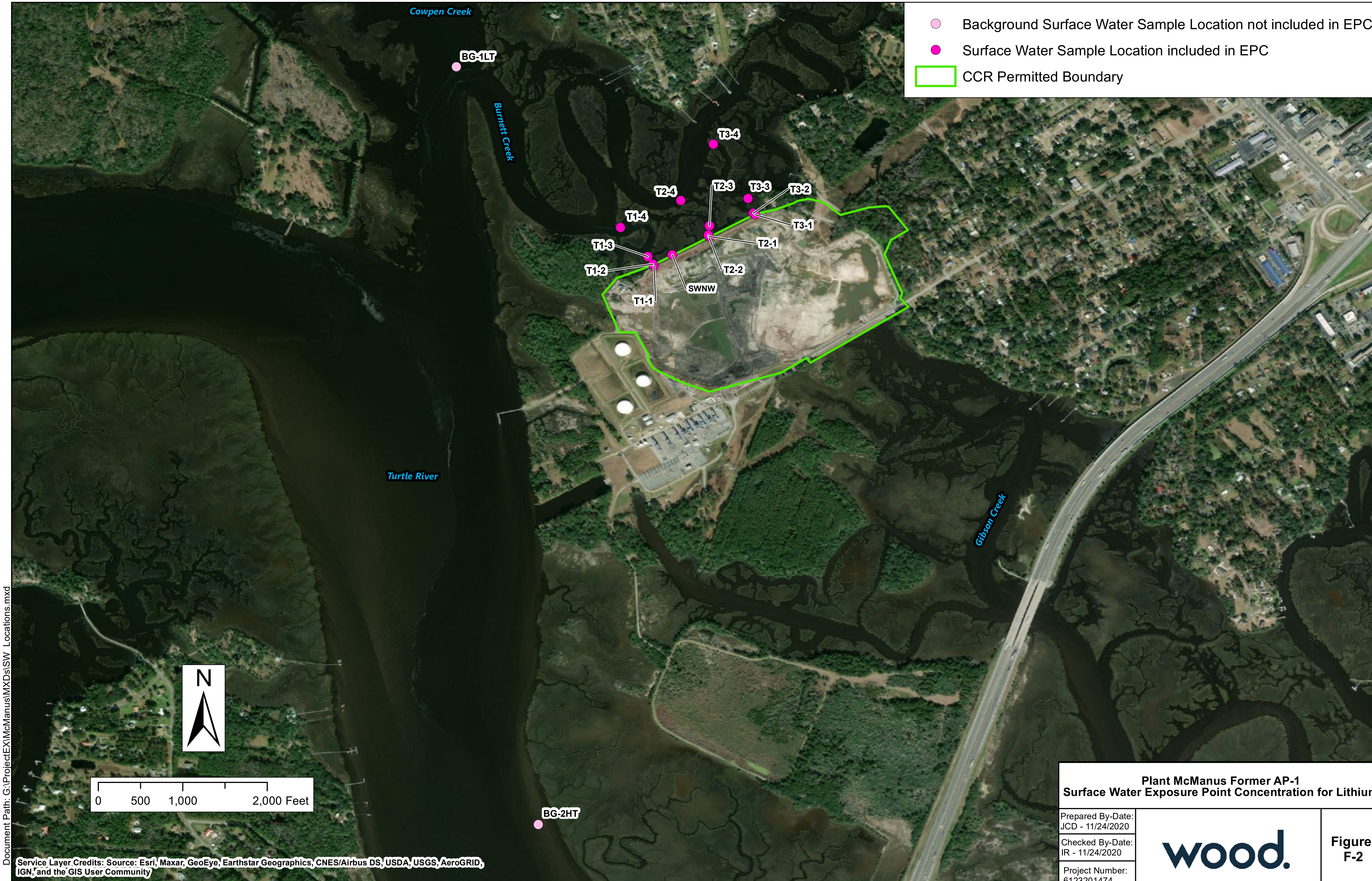
Notes:
Highlighted value is the EPC selected for the refined surface water screening.

Definitions:
CCR = Coal Combustion Residuals
EPC = Exposure Point Concentration
mg/L = milligrams per liter

Prepared by/Date: LO 10/30/20
Checked by/Date: IMR 10/30/20

APPENDIX F-2

Surface Water Exposure Point Concentration Figure



Plant McManus Former AP-1
Surface Water Exposure Point Concentration for Lithium

Prepared By-Date: JCD - 11/24/2020

Checked By-Date: IR - 11/24/2020

Project Number: 6123201474

wood.

Figure: F-2

Document Path: G:\ProjectEX\McManus\MXDs\SW_Locations.mxd

APPENDIX F-3

Surface Water ProUCL Input/Output Files

Appendix F-3a
Surface Water ProUCL Input - Lithium
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Location	Date	Li	D_Li
SWNW	06/29/18	0.097	1
T1-1HT	02/01/20	0.039	1
T1-1LT	02/01/20	0.024	1
T1-2HT	02/01/20	0.11	1
T1-2HTS	02/01/20	0.055	1
T1-2LT	02/01/20	0.022	1
T1-3HT	02/01/20	0.092	1
T1-3HTS	02/01/20	0.067	1
T1-3LT	02/01/20	0.022	1
T1-4HT	02/01/20	0.08	1
T1-4HTS	02/01/20	0.081	1
T1-4LT	02/01/20	0.09	1
T2-1HT	02/01/20	0.052	1
T2-2HT	02/01/20	0.10	1
T2-2HTS	02/01/20	0.073	1
T2-2LT	02/02/20	0.063	1
T2-3HT	02/01/20	0.099	1
T2-3HTS	02/01/20	0.11	1
T2-3LT	02/02/20	0.049	1
T2-4HT	02/01/20	0.091	1
T2-4HTS	02/01/20	0.085	1
T2-4LT	02/02/20	0.075	1
T3-1HT	02/02/20	0.076	1
T3-2HT	02/02/20	0.097	1
T3-2HTS	02/02/20	0.075	1
T3-2LT	02/03/20	0.077	1
T3-3HT	02/02/20	0.081	1
T3-3HTS	02/02/20	0.08	1
T3-3LT	02/03/20	0.084	1
T3-4HT	02/02/20	0.087	1
T3-4HTS	02/02/20	0.085	1
T3-4LT	02/03/20	0.072	1

Notes:
1) Concentrations in units of mg/L.

Prepared by/Date: LO 10/30/20
Checked by/Date: IMR 10/30/20

Appendix F-3b
Surface Water ProUCL Output - Lithium
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.15/17/2020 11:40:33 PM
From File	Surface water lithium input_a.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Li

General Statistics

Total Number of Observations	32	Number of Distinct Observations	25
		Number of Missing Observations	0
Minimum	0.022	Mean	0.0747
Maximum	0.11	Median	0.08
SD	0.0236	Std. Error of Mean	0.00417
Coefficient of Variation	0.316	Skewness	-0.907

Normal GOF Test

Shapiro Wilk Test Statistic	0.91	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.93	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.173	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.154	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.0818	95% Adjusted-CLT UCL (Chen-1995)	0.0808
		95% Modified-t UCL (Johnson-1978)	0.0817

Gamma GOF Test

A-D Test Statistic	1.968	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.23	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.156	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	7.091	k star (bias corrected MLE)	6.447
Theta hat (MLE)	0.0105	Theta star (bias corrected MLE)	0.0116
nu hat (MLE)	453.8	nu star (bias corrected)	412.6
MLE Mean (bias corrected)	0.0747	MLE Sd (bias corrected)	0.0294
		Approximate Chi Square Value (0.05)	366.5
Adjusted Level of Significance	0.0416	Adjusted Chi Square Value	364.2

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.0841	95% Adjusted Gamma UCL (use when n<50)	0.0846

Appendix F-3b
Surface Water ProUCL Output - Lithium
McManus Risk Evaluation Report
McManus Former AP-1
Plant McManus, Glynn County, GA

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.778	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.252	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.154	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-3.817	Mean of logged Data	-2.667
Maximum of Logged Data	-2.207	SD of logged Data	0.432

Assuming Lognormal Distribution

95% H-UCL	0.0883	90% Chebyshev (MVUE) UCL	0.0941
95% Chebyshev (MVUE) UCL	0.102	97.5% Chebyshev (MVUE) UCL	0.114
99% Chebyshev (MVUE) UCL	0.136		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	0.0816	95% Jackknife UCL	0.0818
95% Standard Bootstrap UCL	0.0814	95% Bootstrap-t UCL	0.0812
95% Hall's Bootstrap UCL	0.0812	95% Percentile Bootstrap UCL	0.0814
95% BCA Bootstrap UCL	0.0808		
90% Chebyshev(Mean, Sd) UCL	0.0872	95% Chebyshev(Mean, Sd) UCL	0.0929
97.5% Chebyshev(Mean, Sd) UCL	0.101	99% Chebyshev(Mean, Sd) UCL	0.116

Suggested UCL to Use

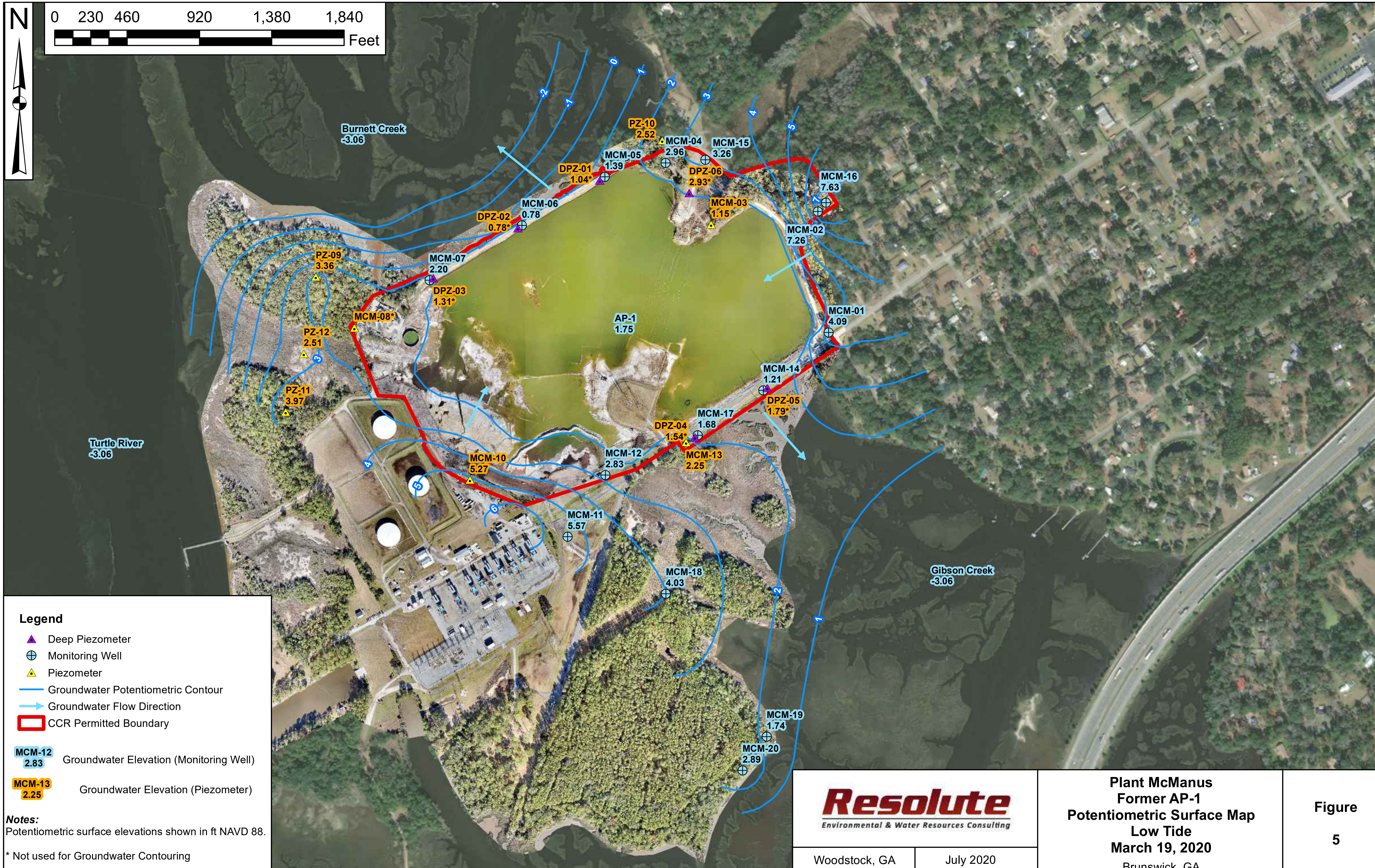
95% Student's-t UCL	0.0818	or 95% Modified-t UCL	0.0817

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

APPENDIX B

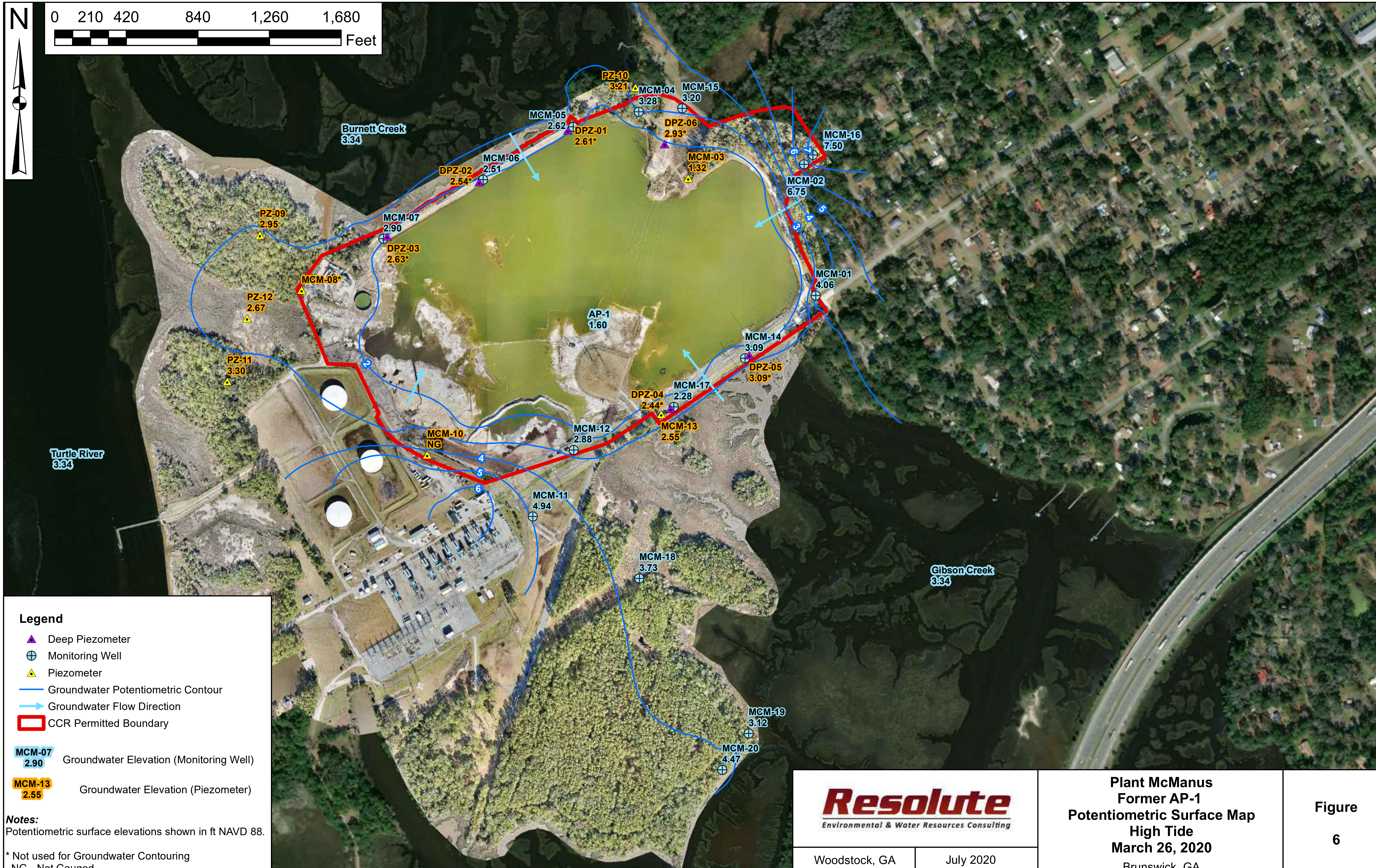
Potentiometric Maps (Resolute 2020a)



X:\ArcGIS\McManus\2020\CCR\Pot Maps

Resolute
Environmental & Water Resources Consulting

Woodstock, GA	July 2020	Plant McManus Former AP-1 Potentiometric Surface Map Low Tide March 19, 2020 Brunswick, GA	Figure 5

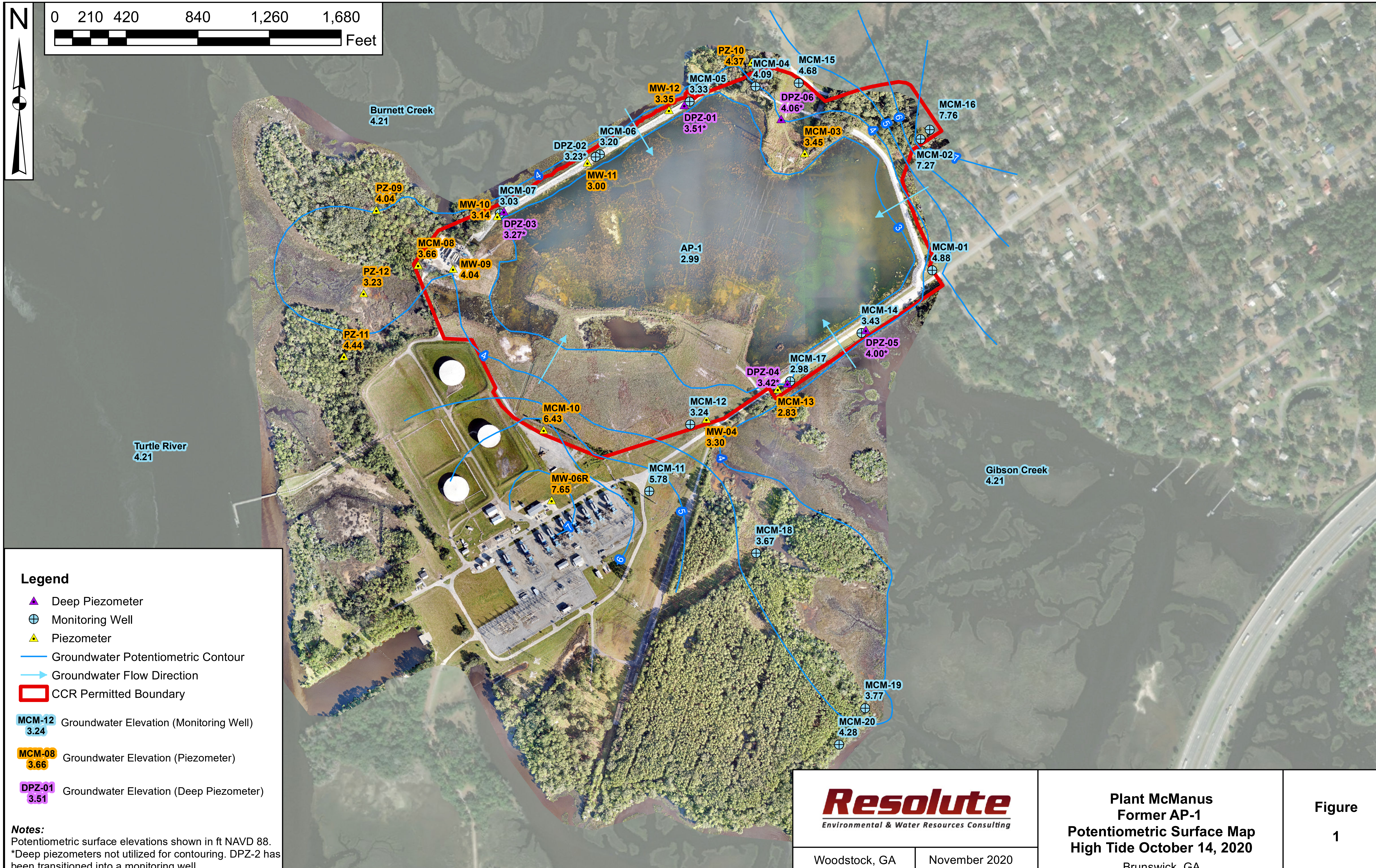


Resolute
Environmental & Water Resources Consulting

Woodstock, GA	July 2020

Plant McManus
Former AP-1
Potentiometric Surface Map
High Tide
March 26, 2020
Brunswick, GA

Figure
6



Notes:
Potentiometric surface elevations shown in ft NAVD 88.
*Deep piezometers not utilized for contouring. DPZ-2 has been transitioned into a monitoring well.

Resolute
Environmental & Water Resources Consulting

Woodstock, GA | November 2020

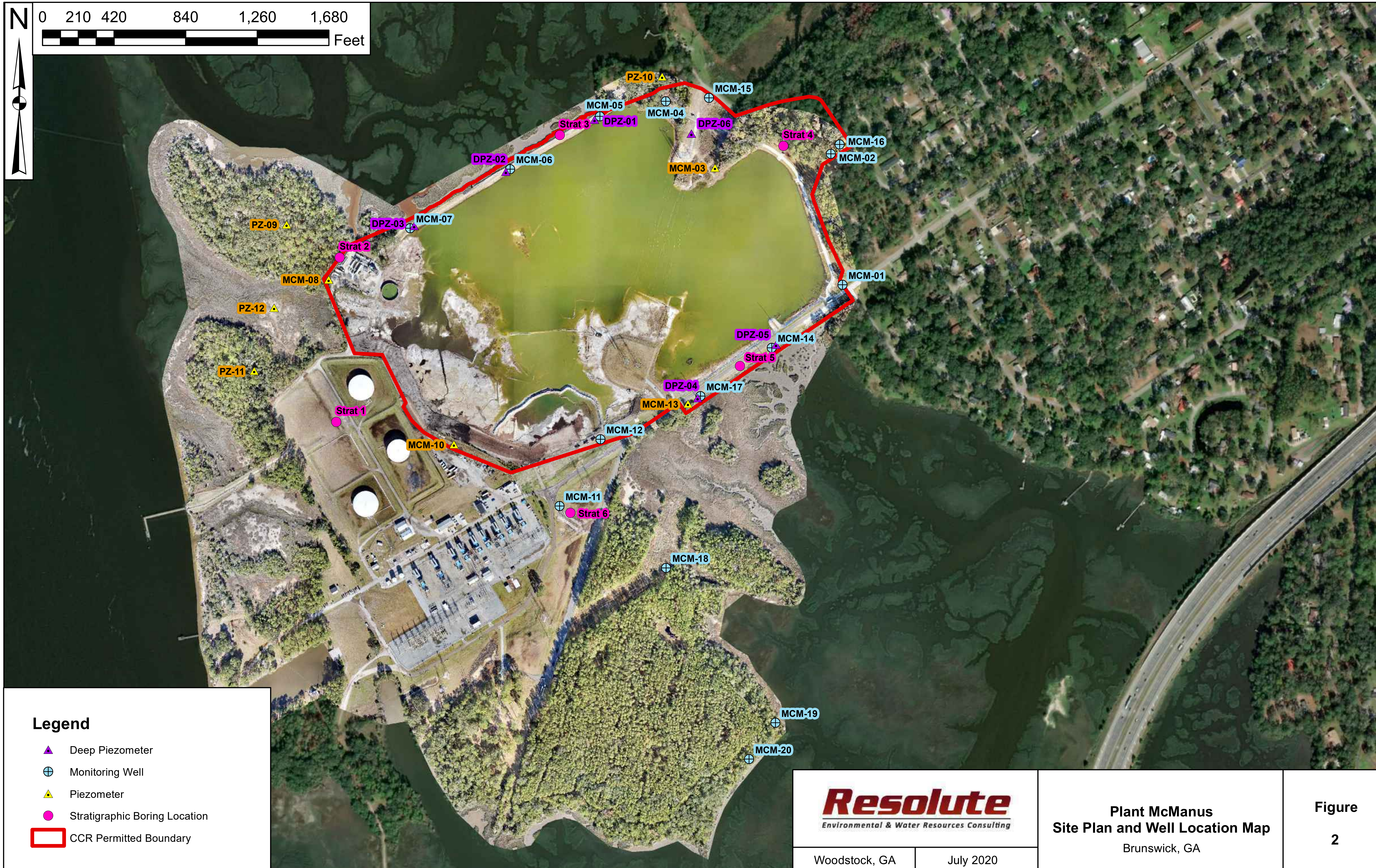
Plant McManus
Former AP-1
Potentiometric Surface Map
High Tide October 14, 2020
Brunswick, GA

Figure
1

Document Path: X:\ArcGIS\McManus\2020\CCR\Pot Maps\McManus Pot Map 10.14.20 HT.mxd

APPENDIX C

Gamma Logs and Conductivity Summary (Resolute 2020a)



Resolute
Environmental & Water Resources Consulting

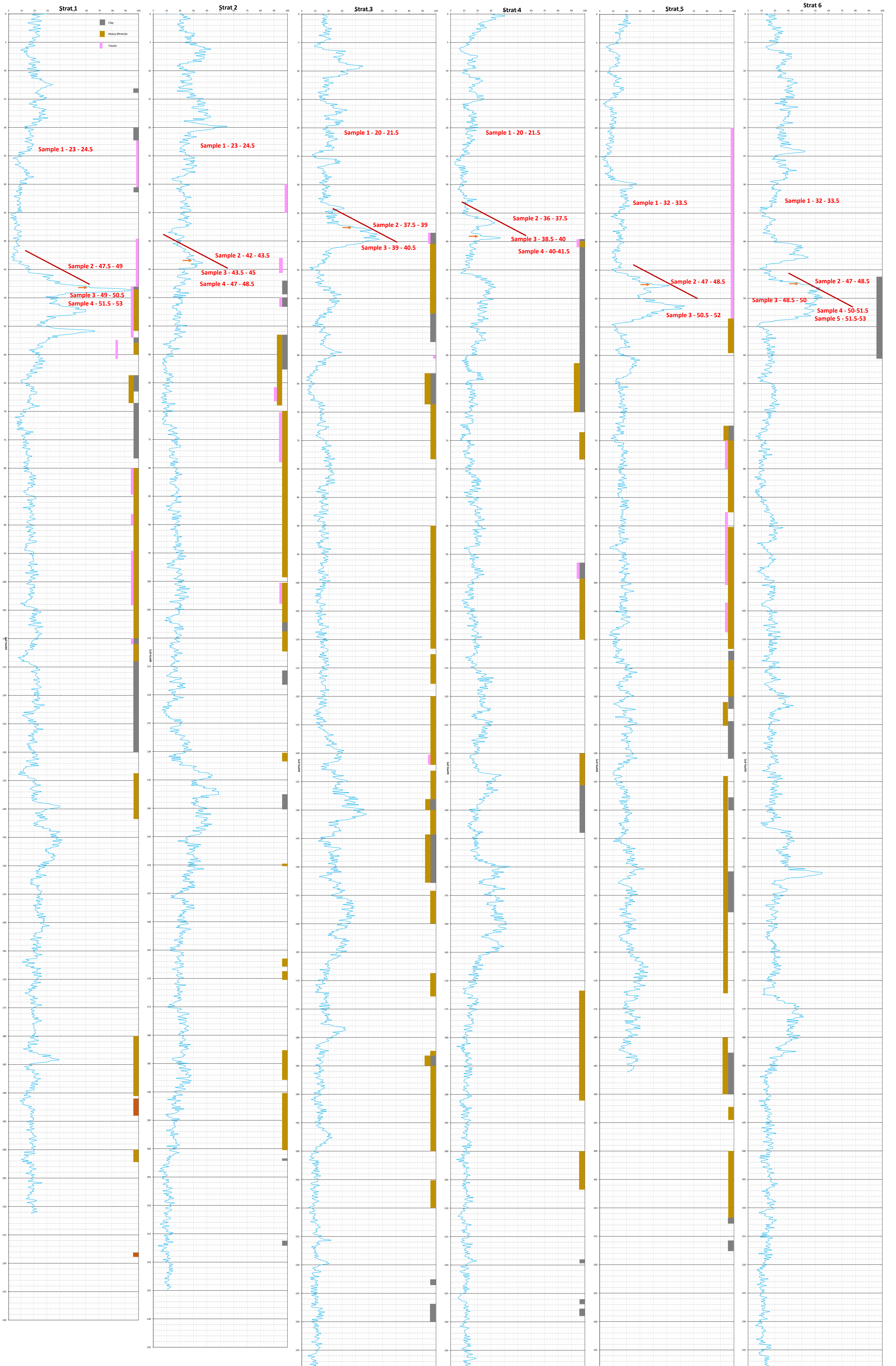
Woodstock, GA | July 2020

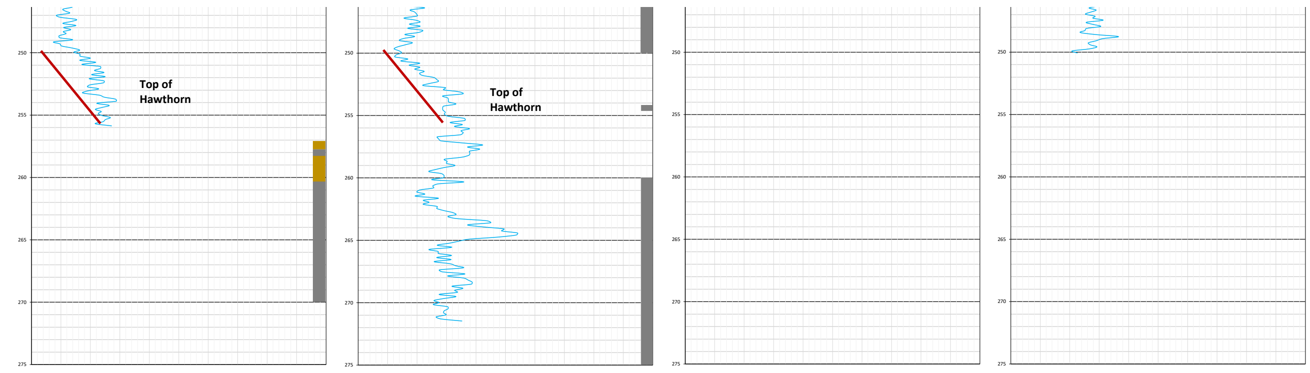
Plant McManus
Site Plan and Well Location Map
Brunswick, GA

Figure 2

Document Path: X:\ArcGIS\McManus\2019\CCR\Figure 2C - Site Plan and Well Locations Map.mxd

Shelby Tube Samples with Relation to Gamma Logs




Top of Hawthorn
Top of Hawthorn

Vertical Hydraulic Conductivity Based on ASTM D 5084-10
Georgia Power Plant McManus
Brunswick, Georgia

Upper Satilla Formation K Values			
Boring ID	**Top Depth (ft bgs)**	**Bottom Depth (ft bgs)**	**Measured K (cm/s)**
Strat 1	23	25	1.72E-06
Strat 2	23	25	2.45E-05
Strat 3	20	22	1.06E-03
Strat 4	20	22	1.88E-04
Strat 5	32	34	1.27E-03
Strat 6	31.5	33.5	6.19E-06

Lower Satilla (Cypresshead/Ebenezer) Formation K Values			
Boring ID	**Top Depth**	**Bottom Depth**	**Measured K**
Strat 1	47	49	7.14E-05
Strat 1	49	51	1.65E-04
Strat 1	51.5	53.5	1.58E-05
Strat 2	43.5	45.5	1.81E-05
Strat 2	47	49	2.02E-06
Strat 3	37.5	39.5	1.08E-07
Strat 3	39.5	41.5	4.91E-05
Strat 4	36	38	3.07E-05
Strat 4	38	40	8.09E-06
Strat 4	40	42	4.70E-05
Strat 5	47	49	5.25E-05
Strat 5	50.5	51.5	2.57E-05
Strat 6	48.5	50	2.04E-07
Strat 6	50	51.5	1.24E-06
Strat 6	51.5	53	1.35E-07

Range of Upper Satilla Vertical K Values (cm/s): 1.72E-06 to 1.27E-03
Range of Lower Satilla Vertical K Values (cm/s): 1.08E-07 to 1.65E-04
Average Upper Satilla Vertical K (cm/s): 4.25E-04
Average Lower Satilla Vertical K (cm/s): 3.25E-05

Notes:
ft bgs - feet below ground surface
cm/s - centimeters per second

APPENDIX D

Analytical Summary Tables (Resolute 2020a)

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date							
		MCM-01	MCM-01	MCM-01 resample	MCM-01	MCM-02	MCM-02	MCM-02 resample	MCM-02
		8/27/2019	10/16/2019	11/20/2019	3/26/2020	8/28/2019	10/16/2019	11/19/2019	3/27/2020
APPENDIX III	Boron	- -	ND (0.036 J)	- -	ND (0.064 J)	- -	0.085	- -	ND (0.17 J)
	Calcium	- -	13.6	- -	10.1	- -	4.9	- -	4.9
	Chloride	- -	21.4	- -	23.0	- -	33.1	- -	32.9
	Fluoride	ND	ND (0.046 J)	- -	ND	ND	ND (0.044 J)	- -	ND
	pH[2]	5.58	5.72	5.77	5.45	4.99	4.98	5.11	5.12
	Sulfate	- -	31.9	- -	36.2	- -	24.4	- -	28.6
	TDS	- -	104	- -	114	- -	96.0	- -	119
APPENDIX IV	Antimony	ND	ND	- -	ND	ND	ND	- -	ND
	Arsenic	0.0079	0.010	0.0064	0.0069	ND	ND (0.0030 J)	ND (0.00057 J)	ND
	Barium	0.077	0.074	- -	0.070	0.10	0.10	- -	0.095
	Beryllium	ND (0.000090 J)	ND	- -	ND	ND (0.00011 J)	ND (0.00013 J)	- -	ND
	Cadmium	ND	- -	- -	ND	ND	- -	- -	ND
	Chromium	ND (0.00079 J)	ND	- -	ND	ND (0.0035 J)	ND	- -	ND
	Cobalt	ND	ND	- -	ND	ND (0.00042 J)	ND (0.00037 J)	- -	ND
	Fluoride	ND	ND (0.046 J)	- -	ND	ND	ND (0.044 J)	- -	ND
	Lead	ND	ND	- -	ND	ND	ND	- -	ND
	Lithium	ND	ND	- -	ND	ND	ND	- -	ND
	Mercury	ND	- -	- -	ND	ND	- -	- -	ND
	Molybdenum	ND	ND	- -	ND	ND	ND	- -	ND
	Radium	1.20 U	1.40 U	- -	1.15U	0.679 U	0.422 U	- -	0.838U
	Selenium	ND	ND	- -	ND	ND	ND	- -	ND
	Thallium	ND	ND	- -	ND	ND	ND	- -	ND

Notes:

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

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

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

TDS indicates total dissolved solids

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

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

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date							
		MCM-04	MCM-04	MCM-04 resample	MCM-04	MCM-05	MCM-05	MCM-05 resample	MCM-05
		8/27/2019	10/15/2019	11/20/2019	3/28/2020	8/28/2019	10/16/2019	11/20/2019	3/28/2020
APPENDIX III	Boron	- -	0.068	- -	ND (0.067 J)	- -	0.49	0.53	ND (0.28 J)
	Calcium	- -	15.5	- -	15.5	- -	55.2	55.8	25.8
	Chloride	- -	46.0	- -	71.4	- -	413	1480	693
	Fluoride	ND	ND (0.095 J)	- -	ND	0.36	0.41	0.34	0.34
	pH[2]	5.05	4.89	5.03	5.27	6.69	6.64	6.58	6.6
	Sulfate	- -	105	- -	86.6	- -	158	132	63.8
	TDS	- -	237	- -	284	- -	2860	2640	1470
APPENDIX IV	Antimony	ND	ND	- -	ND	ND	ND	- -	ND
	Arsenic	0.0072	ND (0.0038 J)	- -	ND (0.0034 J)	ND (0.0019 J)	ND (0.0047 J)	- -	ND
	Barium	0.083	0.082	- -	0.039	0.011	0.012	- -	ND (0.0041 J)
	Beryllium	ND (0.00032 J)	ND (0.00035 J)	- -	ND	ND	ND	- -	ND
	Cadmium	ND	- -	- -	ND	ND	- -	- -	ND
	Chromium	ND (0.0018 J)	ND (0.0012 J)	- -	ND	ND (0.00047 J)	ND (0.00057 J)	- -	ND
	Cobalt	0.0078	0.0085	0.0090	ND (0.0041 J)	ND	ND	- -	ND
	Fluoride	ND	ND (0.095 J)	- -	ND	0.36	0.41	0.34	0.34
	Lead	ND	ND	- -	ND	ND	ND	- -	ND
	Lithium	ND (0.0020 J)	ND (0.0019 J)	- -	ND	ND (0.023 J)	ND (0.021 J)	- -	ND (0.014 J)
	Mercury	ND	- -	- -	ND	ND	- -	- -	ND
	Molybdenum	ND	ND	- -	ND	ND	ND	- -	ND
	Radium	4.40	4.92	- -	4.16	1.67	1.92	- -	1.44U
	Selenium	ND	ND	- -	ND	ND	ND	- -	ND
	Thallium	ND	ND	- -	ND	ND	ND	- -	ND

Notes:

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

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

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

TDS indicates total dissolved solids

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

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

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date						
		MCM-06	MCM-06	MCM-06	MCM-07	MCM-07	MCM-07 resample	MCM-07
		8/28/2019	10/17/2019	3/28/2020	8/28/2019	10/17/2019	11/20/2019	3/28/2020
APPENDIX III	Boron	- -	1.30	0.95	- -	1.1	1.3	0.79
	Calcium	- -	309	286	- -	260	308	286
	Chloride	- -	9930	9190	- -	8210	9810	9070
	Fluoride	ND	ND	ND	ND	ND	ND	ND
	pH[2]	6.87	6.86	6.8	6.35	6.40	6.27	6.35
	Sulfate	- -	507	701	- -	1230	1550	1090
	TDS	- -	16100	18800	- -	13200	16700	18300
APPENDIX IV	Antimony	ND (0.00098 J)	ND (0.00090 J)	ND (0.0029 J)	ND	ND	- -	ND
	Arsenic	0.50	0.34	0.30	0.011	ND (0.0046 J)	- -	0.012
	Barium	0.13	0.13	0.12	0.40	0.35	- -	0.11
	Beryllium	ND	ND	ND	ND	ND (0.000078 J)	- -	ND
	Cadmium	ND	- -	ND	ND	- -	- -	ND
	Chromium	ND (0.00085 J)	ND (0.0015 J)	ND	ND (0.0024 J)	ND (0.0019 J)	- -	ND
	Cobalt	ND	ND	ND	ND	ND	- -	ND
	Fluoride	ND	ND	ND	ND	ND	ND	ND
	Lead	ND	ND (0.00012 J)	ND	ND (0.00010 J)	ND	- -	ND
	Lithium	0.13	0.12	0.064	0.12	0.096	0.12	ND (0.027 J)
	Mercury	ND	- -	ND	ND	- -	- -	ND
	Molybdenum	ND (0.0017 J)	ND (0.0017 J)	ND	ND	ND	- -	ND
	Radium	6.86	7.85	11	8.73	7.97	9.80	11.7
	Selenium	ND (0.0014 J)	ND (0.0066 J)	ND	ND (0.0019 J)	ND (0.0049 J)	- -	ND
	Thallium	ND	ND (0.000076 J)	ND	ND	ND	- -	ND

Notes:

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

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

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

TDS indicates total dissolved solids

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

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

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date					
		MCM-08	MCM-08	MCM-08 resample	MCM-11	MCM-11	MCM-11
		8/28/2019	10/16/2019	11/19/2019	8/28/2019	10/16/2019	3/27/2020
APPENDIX III	**Boron**	- -	0.39	- -	- -	ND (0.032 J)	ND (0.058 J)
	Calcium	- -	53.0	- -	- -	2.2	3.3
	Chloride	- -	2150	- -	- -	12.2	14.5
	Fluoride	ND	ND (0.10 J)	- -	ND (0.068 J)	ND (0.10 J)	ND (0.066 J)
	pH[2]	5.11	5.23	5.29	4.87	5.05	5.09
	Sulfate	- -	423	- -	- -	17.4	23.4
	TDS	- -	4070	- -	- -	82.0	87.0
APPENDIX IV	**Antimony**	ND	ND	- -	ND	ND	ND
	Arsenic	0.023	0.024	- -	ND (0.0050 J)	0.0054	ND (0.0034 J)
	Barium	0.52	0.54	- -	0.035	0.036	0.039
	Beryllium	ND (0.00061 J)	ND (0.00059 J)	- -	ND (0.000084 J)	ND (0.000090 J)	ND
	Cadmium	ND	- -	- -	ND	- -	ND
	Chromium	ND (0.0095 J)	0.010	- -	ND (0.00053 J)	ND (0.00072 J)	ND
	Cobalt	0.0061	0.0063	ND (0.0062 J)	ND	ND	ND
	Fluoride	ND	ND (0.10 J)	- -	ND (0.068 J)	ND (0.10 J)	ND (0.066 J)
	Lead	ND	ND	- -	ND	ND	ND
	Lithium	ND (0.0031 J)	ND (0.0027 J)	- -	ND (0.00082 J)	ND	ND
	Mercury	ND	- -	- -	ND	- -	ND
	Molybdenum	ND (0.0026 J)	ND (0.0026 J)	- -	ND	ND	ND
	Radium	20.6	25.3	- -	0.434 U	0.923 U	0.609U
	Selenium	ND (0.0048 J)	ND (0.0043 J)	- -	ND	ND	ND
	Thallium	ND	ND	- -	ND	ND	ND

Notes:

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

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

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

TDS indicates total dissolved solids

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

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

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date						
		MCM-12	MCM-12	MCM-12	MCM-14	MCM-14	MCM-14 resample	MCM-14
		8/27/2019	10/15/2019	3/27/2020	8/26/2019	10/15/2019	11/21/2019	3/27/2020
APPENDIX III	Boron	- -	1.1	1.5	- -	1.0	1.0	1.3
	Calcium	- -	7.9	8.3	- -	321	305	286
	Chloride	- -	744	675	- -	9050	8330	7680
	Fluoride	1.1	1.0	1.1	ND	ND	ND	ND
	pH[2]	6.24	6.19	6.33	6.62	6.58	6.67	6.59
	Sulfate	- -	ND (0.54 J)	ND	- -	ND	1070	899
	TDS	- -	1730	1970	- -	15400	15800	16400
APPENDIX IV	Antimony	ND	ND	ND	ND (0.00040 J)	ND	- -	ND
	Arsenic	ND (0.0011 J)	ND (0.0024 J)	ND	ND (0.0022 J)	0.0067	- -	ND
	Barium	0.14	0.14	0.12	0.12	0.12	- -	0.13
	Beryllium	ND (0.00090 J)	ND (0.00079 J)	ND	ND (0.00010 J)	ND	- -	ND
	Cadmium	ND	- -	ND	ND	- -	- -	ND
	Chromium	ND (0.0056 J)	ND (0.0057 J)	ND	ND (0.00071 J)	ND (0.00076 J)	- -	ND
	Cobalt	ND (0.00070 J)	ND (0.00054 J)	ND	ND	ND	- -	ND
	Fluoride	1.1	1.0	1.1	ND	ND	ND	ND
	Lead	ND (0.00022 J)	ND (0.000056 J)	ND	ND	ND	- -	ND
	Lithium	ND (0.012 J)	ND (0.012 J)	ND	0.059	ND (0.056 J)	0.052	0.052
	Mercury	ND	- -	ND	ND	- -	- -	ND
	Molybdenum	ND	ND	ND	ND	ND	- -	ND
	Radium	2.91	3.28	2.33	7.68	8.70	7.34	9.63
	Selenium	ND (0.0019 J)	ND	ND	ND (0.0025 J)	ND (0.0030 J)	- -	ND
	Thallium	ND	ND	ND	ND	ND	- -	ND

Notes:

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

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

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

TDS indicates total dissolved solids

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

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

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date					
		MCM-15	MCM-15	MCM-15	MCM-16	MCM-16	MCM-16
		8/27/2019	10/15/2019	3/27/2020	8/27/2019	10/16/2019	3/27/2020
APPENDIX III	Boron	- -	0.046	ND (0.076 J)	- -	0.051	0.088 J
	Calcium	- -	6.7	5.9	- -	4.8	5.4
	Chloride	- -	17.1	14.1	- -	20.0	23.6
	Fluoride	ND	ND (0.14 J)	ND	ND	ND (0.044 J)	ND
	pH[2]	5.35	5.32	5.30	4.88	4.89	5.12
	Sulfate	- -	17.9	14.6	- -	28.5	31.2
	TDS	- -	107	110	- -	95.0	110
APPENDIX IV	Antimony	ND	ND	ND	ND	ND	ND
	Arsenic	ND (0.0041 J)	ND (0.0038 J)	ND (0.0018 J)	ND (0.0019 J)	ND (0.0010 J)	ND
	Barium	0.048	0.041	0.041	0.13	0.13	0.13
	Beryllium	ND (0.00042 J)	ND (0.00034 J)	ND	ND (0.00021 J)	ND (0.00014 J)	ND
	Cadmium	ND	- -	ND	ND	- -	ND
	Chromium	ND (0.0026 J)	ND (0.0026 J)	ND	ND (0.00043 J)	ND	ND
	Cobalt	ND	ND	ND	ND (0.00030 J)	ND	ND
	Fluoride	ND	ND (0.14 J)	ND	ND	ND (0.044 J)	ND
	Lead	ND (0.00011 J)	ND (0.00038 J)	ND	ND	ND	ND
	Lithium	ND (0.0020 J)	ND (0.0016 J)	ND	ND	ND	ND
	Mercury	ND	- -	ND	ND	- -	ND
	Molybdenum	ND	ND	ND	ND	ND	ND
	Radium	2.33	0.979 U	1.84	1.03 U	1.86	1.51
	Selenium	ND (0.0018 J)	ND	ND	ND	ND	ND
	Thallium	ND	ND	ND	ND (0.000066 J)	ND	ND

Notes:

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

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

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

TDS indicates total dissolved solids

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

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

-- indicates the parameter was not analyzed

Table 5
Summary of Groundwater Analytical Data
Plant McManus
Brunswick, GA

List	Parameter	Well ID & Sample Date						
		MCM-17	MCM-17	MCM-17 resample	MCM-17	MCM-18	MCM-19	MCM-20
		8/27/2019	10/16/2019	11/21/2019	3/27/2020	3/27/2020	3/27/2020	3/27/2020
APPENDIX III	Boron	- -	1.6	1.5	1.8	ND (0.24 J)	0.96	0.94
	Calcium	- -	118	125	222	23.2	122	113
	Chloride	- -	4050	3890	4770	1450	6870	7110
	Fluoride	ND	ND (0.083 J)	ND	ND	ND (0.060 J)	ND	ND
	pH[2]	6.23	6.54	6.40	6.93	4.34	5.14	3.81
	Sulfate	- -	470	428	504	219	836	700
	TDS	- -	7740	7720	10200	3090	14300	14600
APPENDIX IV	Antimony	ND	ND	- -	ND	ND	ND	ND
	Arsenic	ND (0.0024 J)	ND (0.0043 J)	ND (0.0031 J)	ND	ND (0.0043 J)	0.017	0.027
	Barium	0.11	0.14	- -	0.16	0.076	0.12	0.12
	Beryllium	ND (0.00018 J)	ND (0.00014 J)	- -	ND	0.0040	0.011	0.018
	Cadmium	ND	- -	- -	ND	ND	ND	ND
	Chromium	ND (0.0066 J)	ND (0.0063 J)	- -	ND	ND	ND	ND (0.0095 J)
	Cobalt	ND	ND	- -	ND	ND	ND	0.036
	Fluoride	ND	ND (0.083 J)	ND	ND	ND (0.060 J)	ND	ND
	Lead	ND (0.00014 J)	ND (0.00034 J)	- -	ND	ND	ND	ND
	Lithium	ND (0.023 J)	ND (0.024 J)	- -	ND (0.033 J)	ND	ND (0.018 J)	ND (0.024 J)
	Mercury	ND	- -	- -	ND	ND	ND	ND
	Molybdenum	ND	ND	- -	ND	ND	ND	ND
	Radium	5.82	7.50	8.89	9.54	10.2	22.8	47.2
	Selenium	ND (0.0018 J)	ND	- -	ND	ND (0.0034 J)	0.013	0.012
	Thallium	ND	ND	- -	ND	ND	ND	ND

Notes:

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

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

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

TDS indicates total dissolved solids

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

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

-- indicates the parameter was not analyzed

Summary of Groundwater Analytical Data - August 2020
Plant McManus
Brunswick, Georgia

List	Parameter	Well ID & Sample Date														
		MCM-01	MCM-02	MCM-04	MCM-05	MCM-06	MCM-07	MCM-11	MCM-12	MCM-14	MCM-15	MCM-16	MCM-17	MCM-18	MCM-19	MCM-20
		8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020
APPENDIX III	Boron	<0.12	<0.12	<0.12	0.43 J	1.6	1.6	<0.12	1.4	1.2	<0.12	<0.12	1.8	0.25 J	0.91	1.0
	Calcium	10.5	4.6	20.6	21.5	254	259	3.2	7.5	284	5.8	5.6	146	25.7	121	110
	Chloride	13.2	26.7	42.0	558	6510	7330	13.3	529	<0.60	14.4	22.2	<0.60	0.60	5390	5470
	Fluoride	<0.050	<0.050	<0.050	0.39	<0.050	<0.050	0.097 J	1.2	<0.050	<0.050	<0.050	<0.050	0.096 J	<0.050	0.058 J
	pH	5.79	5.03	4.95	6.50	6.88	6.32	4.96	6.32	6.62	5.33	4.92	6.65	4.27	5.25	3.78
	Sulfate	32.9	28.0	112	61.9	514	895	21.8	<0.50	730	14.0	27.8	341	170	854	639
	TDS	82.0	89.0	289	1260	14900	19200	86.0	1700	14700	101	95.0	8400	2980	13300	15100
APPENDIX IV	Antimony	<0.0025	<0.0025	<0.0025	<0.0025	<0.0031	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
	Arsenic	0.0079	<0.0017	0.0059	<0.0017	0.46	0.019	0.0044 J	<0.0017	<0.0017	0.0024 J	<0.0017	<0.0017	0.0019 J	0.012	0.018
	Barium	0.056	0.092	0.086	0.0065 J	0.15 J	0.22	0.041	0.10	0.12	0.039	0.12	0.15	0.095	0.11	0.12
	Beryllium	<0.0010	<0.0010	<0.0010	<0.0010	<0.0012	<0.0010	<0.0010	0.0010 J	<0.0010	<0.0010	<0.0010	<0.0010	0.0042	0.011	0.018
	Cadmium	<0.0012	<0.0012	<0.0012	<0.0012	<0.0015	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012
	Chromium	<0.0099	<0.0099	<0.0099	<0.0099	<0.012	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099
	Cobalt	<0.0010	<0.0010	0.015	<0.0010	<0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.034
	Lead	<0.0015	0.0018 J	<0.0015	<0.0015	<0.0019	0.014	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.0035 J	<0.0015	<0.0015
	Lithium	<0.0078	<0.0078	<0.0078	0.018 J	0.096 J	0.045 J	<0.0078	0.013 J	0.054	<0.0078	<0.0078	0.027 J	<0.0078	0.018 J	0.026 J
	Mercury	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
	Molybdenum	<0.0022	<0.0022	<0.0022	<0.0022	<0.0028	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022
	Radium	0.491 U	0.470 U	5.28	0.841 U	8.06	11.8	0.424 U	2.14	9.60	1.29 U	0.643 U	8.51	10.5	22.6	36.7
	Selenium	<0.0012	<0.0012	<0.0012	<0.0012	<0.0015	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	0.0014 J	0.0060 J	0.0052 J
	Thallium	<0.0010	<0.0010	<0.0010	<0.0010	<0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Notes:
Laboratory results are reported in mg/L.
Non detected values are depicted by < the method detection limit (MDL).
Radium results are reported in picocuries per liter (pCi/L).
U indicates the substance was detected below the Minimum Detection Concentration (MDC)
and the precision of the laboratory instruments could not produce a reliable value.
Therefore, the value followed by U is qualified by the laboratory as estimated.

Resolute
Environmental & Water Resources Consulting

Created By: JB 11/8/20
Checked By: VF 11/9/20

APPENDIX E

Analytical Reports – Deep Piezometer Investigation, June 2020 Supplemental Sampling, August Scan Event

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

April 08, 2020

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

RE: Project: PLANT MCMANUS SCAN
Pace Project No.: 92471688

Dear Joju Abraham:

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

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

Sincerely,

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

Enclosures

cc: Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Ms. Lauren Petty, Southern Co. Services
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

Pace Analytical Services, LLC
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CERTIFICATIONS

Project:	PLANT MCMANUS SCAN
Pace Project No.:	92471688

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
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: PLANT MCMANUS SCAN
Pace Project No.: 92471688

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92471688001	**DPZ-2**	Water	03/28/20 11:46	03/31/20 10:15
92471688002	**DPZ-3**	Water	03/28/20 10:18	03/31/20 10:15

Pace Analytical Services, LLC
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Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: PLANT MCMANUS SCAN
Pace Project No.: 92471688

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92471688001	**DPZ-2**	EPA 6020B	JOR	2	PASI-A

PASI-A = Pace Analytical Services - Asheville
PASI-C = Pace Analytical Services - Charlotte

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SUMMARY OF DETECTION

Project: PLANT MCMANUS SCAN
Pace Project No.: 92471688

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92471688001	**DPZ-2**					
	pH	7.11	Std. Units		03/31/20 13:29	
EPA 6020B	Lithium	0.078J	mg/L	0.60	04/07/20 14:12	

REPORT OF LABORATORY ANALYSIS

Pace Analytical
www.pacelabs.com

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
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ANALYTICAL RESULTS

Project: PLANT MCMANUS SCAN
Pace Project No.: 92471688

Sample: DPZ-2 **Lab ID: 92471688001** Collected: 03/28/20 11:46 Received: 03/31/20 10:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**7.11**	Std. Units			1		03/31/20 13:29		
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.10	0.0012	20	04/07/20 00:47	04/07/20 14:12	7440-38-2	
Lithium	**0.078J**	mg/L	0.60	0.0084	20	04/07/20 00:47	04/07/20 14:12	7439-93-2	

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PLANT MCMANUS SCAN
Pace Project No.: 92471688

QC Batch: 534680
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92471688001

METHOD BLANK: 2853426 Matrix: Water
Associated Lab Samples: 92471688001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.000060	04/07/20 14:16	
Lithium	mg/L	ND	0.030	0.00042	04/07/20 14:16	

LABORATORY CONTROL SAMPLE: 2853427

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.010	103	80-120	
Lithium	mg/L	0.05	0.049	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2853428 2853429

Parameter	Units	92471688001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.01	0.01	0.012J	0.013J	112	118	75-125	4	20	
Lithium	mg/L	0.078J	0.05	0.05	0.13J	0.13J	109	109	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: PLANT MCMANUS SCAN
Pace Project No.: 92471688

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.

Pace Analytical Services, LLC
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Huntersville, NC 28078
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT MCMANUS SCAN
Pace Project No.: 92471688

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92471688001	**DPZ-2**				
92471688001	**DPZ-2**	EPA 3010A	534680	EPA 6020B	534695

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☑ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐

WO#: 92471688

92471688

Sample Condition Upon Receipt

Client Name: GA Power - Coal Combustion Residuals

Project #:

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

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☑ No

Date/Initials Person Examining Contents: NAF 3/31/20

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

Biological Tissue Frozen? ☐ Yes ☐ No ☑ N/A

Thermometer: ☑ IR Gun ID: 93T061

Type of Ice: ☑ Wet ☐ Blue ☐ None

Cooler Temp (°C): 3.8, 2.2, 14.9, 15.2, 1.9 Correction Factor: Add/Subtract (°C) 0.0

Cooler Temp Corrected (°C): 3.8, 2.2, 14.9, 15.2, 1.9

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (☑ N/A, water sample)
Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	10.
Trip Blank Present?	☐ Yes	☑ No	☐ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☑ No

Lot ID of split containers: ____

CLIENT NOTIFICATION/RESOLUTION

Person contacted: ____ Date/Time: ____

Project Manager SCURF Review: ____ Date: ____

Project Manager SRF Review: ____ Date: ____

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project # **WO#: 92471688**

PM: KLH1 Due Date: 04/07/20

CLIENT: 26-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H_2SO_4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO_3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H_2SO_4 (pH < 2)	AG3S-250 mL Amber H_2SO_4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH_4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA $Na_2S_2O_3$ (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H_3PO_4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic $(NH_2)_2SO_4$ (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1						✓ 1																						
2						✓ 1																						
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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.

CHAIN-OF-CUSTODY / Analytical Request Document

Pace Analytical

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

Page : 1 Of 1

Section A — Required Client Information:

- Company: Georgia Power - Coal Combustion Residuals
- Address: 2480 Maner Road, Atlanta, GA 30339
- Email: jabraham@southernco.com
- Phone: (404)506-7239
- Fax:
- Requested Due Date:

Section B — Required Project Information:

- Report To: Lauren Petty / Joju Abraham
- Copy To: Stephen Wilson / Trent Godwin
- Whitney Law
- Purchase Order #:
- Project Name: Plant McManus Scan
- Project #:

Section C — Invoice Information:

- Attention:
- Company Name:
- Address:
- Pace Quote:
- Pace Project Manager: Kevin.herring@pacelabs.com
- Pace Profile #:

Regulatory Agency:

State / Location: GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Date	COLLECTED Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals 6020	Residual Chlorine (Y/N)	92471648
1	DPZ-2	WT	G	3/28/20	1146		1			1							x		As & Li ONLY (pH 7.11)
2	DPZ-3	WT	G	3/28/20	1018		1			1							x		Li ONLY (pH 7.15)

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
DPZ-2 is As & Li only	Veronica Fay / Resolute	3/30/20	1100	Fed Ex	3/30/20	1100				
DPZ-3 is Li only				N… / PACE…	3/31/20	1015	3.8 2.8		N	Y
							4.9 5.2			
							1.9			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephanson / Veronica Fay / Will Laaker

SIGNATURE of SAMPLER: Veronica Fay DATE Signed: 3/28/20

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

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

June 25, 2020

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

RE: Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on June 18, 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

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

Sincerely,

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

Enclosures

cc: Veronica Fay
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Ms. Lauren Petty, Southern Co. Services
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

CERTIFICATIONS

Project:	MCMANUS GW GEOCHEM PERF
Pace Project No.:	92482476

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
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

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Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92482476001	**MCM-06**	Water	06/16/20 19:57	06/18/20 10:43
92482476002	**MCM-07**	Water	06/16/20 20:33	06/18/20 10:43
92482476003	**DPZ-2**	Water	06/16/20 19:50	06/18/20 10:43

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SAMPLE ANALYTE COUNT

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92482476001	**MCM-06**	EPA 6010D	DS, SH1	6	PASI-A
		EPA 6010D	DS	2	PASI-A
		EPA 6020B	BG2, JOR	3	PASI-A
		SM 2320B-2011	SMK	3	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		SM 3500-Fe D#4	EWS	1	PASI-A
		SM 3500-Fe B-2011	NAL	1	PASI-A
		SM 4500-S2D-2011	LMS1	1	PASI-A
		SM 5210B-2011	SMK	1	PASI-A
		EPA 300.0 Rev 2.1 1993	CDC	2	PASI-A
		SM 5310B-2011	ECH	1	PASI-A
92482476002	**MCM-07**	EPA 6010D	DS, SH1	6	PASI-A
		EPA 6010D	DS	2	PASI-A
		EPA 6020B	BG2	2	PASI-A
		SM 2320B-2011	SMK	3	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		SM 3500-Fe D#4	EWS	1	PASI-A
		SM 3500-Fe B-2011	NAL	1	PASI-A
		SM 4500-S2D-2011	LMS1	1	PASI-A
		SM 5210B-2011	SMK	1	PASI-A
		EPA 300.0 Rev 2.1 1993	CDC	2	PASI-A
		SM 5310B-2011	ECH	1	PASI-A
92482476003	**DPZ-2**	EPA 6010D	DS, SH1	6	PASI-A
		EPA 6010D	DS	2	PASI-A
		EPA 6020B	BG2, JOR	2	PASI-A
		SM 2320B-2011	SMK	3	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		SM 3500-Fe D#4	EWS	1	PASI-A
		SM 3500-Fe B-2011	NAL	1	PASI-A
		SM 4500-S2D-2011	LMS1	1	PASI-A
		SM 5210B-2011	SMK	1	PASI-A
		EPA 300.0 Rev 2.1 1993	CDC	2	PASI-A
		SM 5310B-2011	ECH	1	PASI-A

PASI-A = Pace Analytical Services - Asheville
PASI-C = Pace Analytical Services - Charlotte

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Peachtree Corners, GA 30092
(770)734-4200

SUMMARY OF DETECTION

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92482476001	**MCM-06**					
	pH	6.87	Std. Units		06/22/20 08:45	
EPA 6010D	Calcium	234	mg/L	1.0	06/20/20 17:15	
EPA 6010D	Iron	0.046J	mg/L	0.050	06/19/20 16:52	
EPA 6010D	Magnesium	624	mg/L	1.0	06/20/20 17:15	
EPA 6010D	Manganese	0.29	mg/L	0.0050	06/19/20 16:52	
EPA 6010D	Potassium	157	mg/L	50.0	06/20/20 17:15	
EPA 6010D	Sodium	4840	mg/L	500	06/20/20 17:48	
EPA 6010D	Manganese, Dissolved	0.26	mg/L	0.0050	06/19/20 16:11	
EPA 6020B	Arsenic	0.51	mg/L	0.25	06/22/20 02:09	
EPA 6020B	Boron	2.0	mg/L	1.2	06/22/20 02:09	
EPA 6020B	Lithium	0.12J	mg/L	0.60	06/19/20 15:34	
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	725	mg/L	5.0	06/18/20 19:43	
SM 2320B-2011	Alkalinity, Total as CaCO3	725	mg/L	5.0	06/18/20 19:43	
SM 2540C-2011	Total Dissolved Solids	17800	mg/L	2500	06/19/20 17:25	
SM 4500-S2D-2011	Sulfide	0.41	mg/L	0.10	06/19/20 18:27	
SM 5210B-2011	BOD, 5 day	77.6	mg/L	2.0	06/23/20 11:49	
EPA 300.0 Rev 2.1 1993	Chloride	7760	mg/L	100	06/19/20 04:22	
EPA 300.0 Rev 2.1 1993	Sulfate	663	mg/L	100	06/19/20 04:22	
SM 5310B-2011	Total Organic Carbon	9.6	mg/L	1.0	06/23/20 04:37	
92482476002	**MCM-07**					
	pH	6.33	Std. Units		06/22/20 08:45	
EPA 6010D	Calcium	254	mg/L	1.0	06/20/20 17:18	
EPA 6010D	Iron	0.088	mg/L	0.050	06/19/20 17:12	
EPA 6010D	Magnesium	640	mg/L	1.0	06/20/20 17:18	
EPA 6010D	Manganese	0.20	mg/L	0.0050	06/19/20 17:12	
EPA 6010D	Potassium	156	mg/L	50.0	06/20/20 17:18	
EPA 6010D	Sodium	4680	mg/L	500	06/20/20 17:52	
EPA 6010D	Manganese, Dissolved	0.19	mg/L	0.0050	06/19/20 16:21	
EPA 6020B	Boron	1.7	mg/L	0.50	06/19/20 15:38	
EPA 6020B	Lithium	0.049J	mg/L	0.60	06/19/20 15:38	
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	276	mg/L	5.0	06/18/20 19:53	
SM 2320B-2011	Alkalinity, Total as CaCO3	276	mg/L	5.0	06/18/20 19:53	
SM 2540C-2011	Total Dissolved Solids	17900	mg/L	2500	06/19/20 17:25	
SM 4500-S2D-2011	Sulfide	33.9	mg/L	5.0	06/19/20 18:39	
SM 5210B-2011	BOD, 5 day	3.2	mg/L	2.0	06/23/20 11:50	B2
EPA 300.0 Rev 2.1 1993	Chloride	7580	mg/L	100	06/19/20 04:36	
EPA 300.0 Rev 2.1 1993	Sulfate	961	mg/L	100	06/19/20 04:36	
SM 5310B-2011	Total Organic Carbon	14.5	mg/L	1.0	06/23/20 05:02	
92482476003	**DPZ-2**					
	pH	7.22	Std. Units		06/22/20 08:45	
EPA 6010D	Calcium	245	mg/L	1.0	06/20/20 17:22	
EPA 6010D	Magnesium	578	mg/L	1.0	06/20/20 17:22	
EPA 6010D	Manganese	0.28	mg/L	0.0050	06/19/20 17:15	
EPA 6010D	Potassium	162	mg/L	50.0	06/20/20 17:22	
EPA 6010D	Sodium	4840	mg/L	500	06/20/20 17:55	
EPA 6010D	Manganese, Dissolved	0.26	mg/L	0.0050	06/19/20 16:25	

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

SUMMARY OF DETECTION

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92482476003	**DPZ-2**					
EPA 6020B	Boron	2.1	mg/L	1.2	06/22/20 02:17	
EPA 6020B	Lithium	0.096J	mg/L	0.60	06/19/20 15:42	
SM 2320B-2011	Alkalinity,Bicarbonate (CaCO3)	391	mg/L	5.0	06/18/20 20:02	
SM 2320B-2011	Alkalinity, Total as CaCO3	391	mg/L	5.0	06/18/20 20:02	
SM 2540C-2011	Total Dissolved Solids	20100	mg/L	2500	06/19/20 17:25	
SM 4500-S2D-2011	Sulfide	37.9	mg/L	5.0	06/19/20 18:40	
SM 5210B-2011	BOD, 5 day	13.4	mg/L	2.0	06/23/20 11:44	B2,D6
EPA 300.0 Rev 2.1 1993	Chloride	7780	mg/L	100	06/19/20 04:50	
EPA 300.0 Rev 2.1 1993	Sulfate	970	mg/L	100	06/19/20 04:50	
SM 5310B-2011	Total Organic Carbon	6.7	mg/L	1.0	06/23/20 05:27	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Sample: MCM-06 | **Lab ID: 92482476001** | Collected: 06/16/20 19:57 | Received: 06/18/20 10:43 | Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**6.87**	Std. Units			1		06/22/20 08:45		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**234**	mg/L	1.0	0.94	10	06/19/20 01:48	06/20/20 17:15	7440-70-2	
Iron	**0.046J**	mg/L	0.050	0.042	1	06/19/20 01:48	06/19/20 16:52	7439-89-6	
Magnesium	**624**	mg/L	1.0	0.68	10	06/19/20 01:48	06/20/20 17:15	7439-95-4	
Manganese	**0.29**	mg/L	0.0050	0.0034	1	06/19/20 01:48	06/19/20 16:52	7439-96-5	
Potassium	**157**	mg/L	50.0	30.4	10	06/19/20 01:48	06/20/20 17:15	7440-09-7	
Sodium	**4840**	mg/L	500	61.1	100	06/19/20 01:48	06/20/20 17:48	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Iron, Dissolved	ND	mg/L	0.050	0.042	1	06/19/20 03:06	06/19/20 16:11	7439-89-6	
Manganese, Dissolved	**0.26**	mg/L	0.0050	0.0034	1	06/19/20 03:06	06/19/20 16:11	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.51**	mg/L	0.25	0.0043	50	06/19/20 00:59	06/22/20 02:09	7440-38-2	
Boron	**2.0**	mg/L	1.2	0.31	50	06/19/20 00:59	06/22/20 02:09	7440-42-8	
Lithium	**0.12J**	mg/L	0.60	0.0078	20	06/19/20 00:59	06/19/20 15:34	7439-93-2	
2320B Alkalinity	Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville								
Alkalinity,Bicarbonate (CaCO3)	**725**	mg/L	5.0	5.0	1		06/18/20 19:43		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		06/18/20 19:43		
Alkalinity, Total as CaCO3	**725**	mg/L	5.0	5.0	1		06/18/20 19:43		
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**17800**	mg/L	2500	2500	1		06/19/20 17:25		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe D#4 Pace Analytical Services - Asheville								
Iron, Ferric	ND	mg/L	0.50	0.25	1		06/22/20 17:14	7439-89-6	N2
Iron, Ferrous	Analytical Method: SM 3500-Fe B-2011 Pace Analytical Services - Asheville								
Iron, Ferrous	ND	mg/L	0.50	0.084	1		06/21/20 12:55		H3,N2
4500S2D Sulfide Water	Analytical Method: SM 4500-S2D-2011 Pace Analytical Services - Asheville								
Sulfide	**0.41**	mg/L	0.10	0.050	1		06/19/20 18:27	18496-25-8	

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ANALYTICAL RESULTS

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Sample: MCM-06 **Lab ID: 92482476001** Collected: 06/16/20 19:57 Received: 06/18/20 10:43 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5210B BOD, 5 day	Analytical Method: SM 5210B-2011 Pace Analytical Services - Asheville								
BOD, 5 day	**77.6**	mg/L	2.0	2.0	1	06/18/20 15:43	06/23/20 11:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**7760**	mg/L	100	60.0	100		06/19/20 04:22	16887-00-6	
Sulfate	**663**	mg/L	100	50.0	100		06/19/20 04:22	14808-79-8	
5310B TOC	Analytical Method: SM 5310B-2011 Pace Analytical Services - Asheville								
Total Organic Carbon	**9.6**	mg/L	1.0	0.50	1		06/23/20 04:37	7440-44-0	

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ANALYTICAL RESULTS

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Sample: MCM-07 **Lab ID: 92482476002** Collected: 06/16/20 20:33 Received: 06/18/20 10:43 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**6.33**	Std. Units			1		06/22/20 08:45		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**254**	mg/L	1.0	0.94	10	06/19/20 01:48	06/20/20 17:18	7440-70-2	
Iron	**0.088**	mg/L	0.050	0.042	1	06/19/20 01:48	06/19/20 17:12	7439-89-6	
Magnesium	**640**	mg/L	1.0	0.68	10	06/19/20 01:48	06/20/20 17:18	7439-95-4	
Manganese	**0.20**	mg/L	0.0050	0.0034	1	06/19/20 01:48	06/19/20 17:12	7439-96-5	
Potassium	**156**	mg/L	50.0	30.4	10	06/19/20 01:48	06/20/20 17:18	7440-09-7	
Sodium	**4680**	mg/L	500	61.1	100	06/19/20 01:48	06/20/20 17:52	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Iron, Dissolved	ND	mg/L	0.050	0.042	1	06/19/20 03:06	06/19/20 16:21	7439-89-6	
Manganese, Dissolved	**0.19**	mg/L	0.0050	0.0034	1	06/19/20 03:06	06/19/20 16:21	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Boron	**1.7**	mg/L	0.50	0.12	20	06/19/20 00:59	06/19/20 15:38	7440-42-8	
Lithium	**0.049J**	mg/L	0.60	0.0078	20	06/19/20 00:59	06/19/20 15:38	7439-93-2	
2320B Alkalinity	Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville								
Alkalinity,Bicarbonate (CaCO3)	**276**	mg/L	5.0	5.0	1		06/18/20 19:53		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		06/18/20 19:53		
Alkalinity, Total as CaCO3	**276**	mg/L	5.0	5.0	1		06/18/20 19:53		
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**17900**	mg/L	2500	2500	1		06/19/20 17:25		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe D#4 Pace Analytical Services - Asheville								
Iron, Ferric	ND	mg/L	0.50	0.25	1		06/22/20 17:14	7439-89-6	N2
Iron, Ferrous	Analytical Method: SM 3500-Fe B-2011 Pace Analytical Services - Asheville								
Iron, Ferrous	ND	mg/L	0.50	0.084	1		06/21/20 12:58		H3,N2
4500S2D Sulfide Water	Analytical Method: SM 4500-S2D-2011 Pace Analytical Services - Asheville								
Sulfide	**33.9**	mg/L	5.0	2.5	50		06/19/20 18:39	18496-25-8	

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ANALYTICAL RESULTS

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Sample: MCM-07 **Lab ID: 92482476002** Collected: 06/16/20 20:33 Received: 06/18/20 10:43 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5210B BOD, 5 day	Analytical Method: SM 5210B-2011 Pace Analytical Services - Asheville								
BOD, 5 day	**3.2**	mg/L	2.0	2.0	1	06/18/20 15:43	06/23/20 11:50		B2
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**7580**	mg/L	100	60.0	100		06/19/20 04:36	16887-00-6	
Sulfate	**961**	mg/L	100	50.0	100		06/19/20 04:36	14808-79-8	
5310B TOC	Analytical Method: SM 5310B-2011 Pace Analytical Services - Asheville								
Total Organic Carbon	**14.5**	mg/L	1.0	0.50	1		06/23/20 05:02	7440-44-0	

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ANALYTICAL RESULTS

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Sample: DPZ-2 **Lab ID: 92482476003** Collected: 06/16/20 19:50 Received: 06/18/20 10:43 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**7.22**	Std. Units			1		06/22/20 08:45		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**245**	mg/L	1.0	0.94	10	06/19/20 01:48	06/20/20 17:22	7440-70-2	
Iron	ND	mg/L	0.050	0.042	1	06/19/20 01:48	06/19/20 17:15	7439-89-6	
Magnesium	**578**	mg/L	1.0	0.68	10	06/19/20 01:48	06/20/20 17:22	7439-95-4	
Manganese	**0.28**	mg/L	0.0050	0.0034	1	06/19/20 01:48	06/19/20 17:15	7439-96-5	
Potassium	**162**	mg/L	50.0	30.4	10	06/19/20 01:48	06/20/20 17:22	7440-09-7	
Sodium	**4840**	mg/L	500	61.1	100	06/19/20 01:48	06/20/20 17:55	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Iron, Dissolved	ND	mg/L	0.050	0.042	1	06/19/20 03:06	06/19/20 16:25	7439-89-6	
Manganese, Dissolved	**0.26**	mg/L	0.0050	0.0034	1	06/19/20 03:06	06/19/20 16:25	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Boron	**2.1**	mg/L	1.2	0.31	50	06/19/20 00:59	06/22/20 02:17	7440-42-8	
Lithium	**0.096J**	mg/L	0.60	0.0078	20	06/19/20 00:59	06/19/20 15:42	7439-93-2	
2320B Alkalinity	Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville								
Alkalinity,Bicarbonate (CaCO3)	**391**	mg/L	5.0	5.0	1		06/18/20 20:02		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	5.0	1		06/18/20 20:02		
Alkalinity, Total as CaCO3	**391**	mg/L	5.0	5.0	1		06/18/20 20:02		
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**20100**	mg/L	2500	2500	1		06/19/20 17:25		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe D#4 Pace Analytical Services - Asheville								
Iron, Ferric	ND	mg/L	0.50	0.25	1		06/22/20 17:14	7439-89-6	N2
Iron, Ferrous	Analytical Method: SM 3500-Fe B-2011 Pace Analytical Services - Asheville								
Iron, Ferrous	ND	mg/L	0.50	0.084	1		06/21/20 12:53		H3,N2
4500S2D Sulfide Water	Analytical Method: SM 4500-S2D-2011 Pace Analytical Services - Asheville								
Sulfide	**37.9**	mg/L	5.0	2.5	50		06/19/20 18:40	18496-25-8	

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ANALYTICAL RESULTS

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Sample: DPZ-2 **Lab ID: 92482476003** Collected: 06/16/20 19:50 Received: 06/18/20 10:43 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5210B BOD, 5 day	Analytical Method: SM 5210B-2011 Pace Analytical Services - Asheville								
BOD, 5 day	**13.4**	mg/L	2.0	2.0	1	06/18/20 15:43	06/23/20 11:44		B2,D6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**7780**	mg/L	100	60.0	100		06/19/20 04:50	16887-00-6	
Sulfate	**970**	mg/L	100	50.0	100		06/19/20 04:50	14808-79-8	
5310B TOC	Analytical Method: SM 5310B-2011 Pace Analytical Services - Asheville								
Total Organic Carbon	**6.7**	mg/L	1.0	0.50	1		06/23/20 05:27	7440-44-0	

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QUALITY CONTROL DATA

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

QC Batch: 548410
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92482476001, 92482476002, 92482476003

METHOD BLANK: 2917703 Matrix: Water
Associated Lab Samples: 92482476001, 92482476002, 92482476003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	0.10	0.094	06/20/20 16:45	
Iron	mg/L	ND	0.050	0.042	06/19/20 16:28	
Magnesium	mg/L	ND	0.10	0.068	06/19/20 16:28	
Manganese	mg/L	ND	0.0050	0.0034	06/19/20 16:28	
Potassium	mg/L	ND	5.0	3.0	06/20/20 16:45	
Sodium	mg/L	ND	5.0	0.61	06/20/20 16:45	

LABORATORY CONTROL SAMPLE: 2917704

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	5	4.9	97	80-120	
Iron	mg/L	5	4.9	99	80-120	
Magnesium	mg/L	5	4.9	98	80-120	
Manganese	mg/L	0.5	0.51	102	80-120	
Potassium	mg/L	5	4.7J	95	80-120	
Sodium	mg/L	5	4.8J	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2917705 2917706

Parameter	Units	92482471001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	153	5	5	158	150	97	-61	75-125	5	20	M1
Iron	mg/L	0.25	5	5	5.5	5.3	105	102	75-125	3	20	
Magnesium	mg/L	496	5	5	484	478	-229	-359	75-125	1	20	M1,M6
Manganese	mg/L	0.035	0.5	0.5	0.57	0.55	106	104	75-125	2	20	
Potassium	mg/L	157	5	5	161	155	91	-32	75-125	4	20	M1
Sodium	mg/L	4010	5	5	4120	4000	2100	-180	75-125	3	20	M6

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QUALITY CONTROL DATA

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

QC Batch: 548426
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010 MET Filtered Diss.
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92482476001, 92482476002, 92482476003

METHOD BLANK: 2917744 Matrix: Water
Associated Lab Samples: 92482476001, 92482476002, 92482476003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron, Dissolved	mg/L	ND	0.050	0.042	06/19/20 15:48	
Manganese, Dissolved	mg/L	ND	0.0050	0.0034	06/19/20 15:48	

LABORATORY CONTROL SAMPLE: 2917745

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	mg/L	5	5.4	108	80-120	
Manganese, Dissolved	mg/L	0.5	0.55	110	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2917746 2917747

Parameter	Units	92482471001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron, Dissolved	mg/L	0.24	5	5	5.2	5.1	99	98	75-125	1	20	
Manganese, Dissolved	mg/L	0.030	0.5	0.5	0.53	0.52	99	97	75-125	2	20	

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QUALITY CONTROL DATA

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

QC Batch: 548421
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92482476001, 92482476002, 92482476003

METHOD BLANK: 2917738 Matrix: Water
Associated Lab Samples: 92482476001, 92482476002, 92482476003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.000087	06/19/20 16:00	
Boron	mg/L	ND	0.025	0.0062	06/19/20 16:00	
Lithium	mg/L	ND	0.030	0.00039	06/19/20 16:00	

LABORATORY CONTROL SAMPLE: 2917739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.011	108	80-120	
Boron	mg/L	0.05	0.052	104	80-120	
Lithium	mg/L	0.05	0.054	107	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2917740 2917741

Parameter	Units	92482471002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0026J	0.01	0.01	0.014J	0.014J	113	114	75-125	1	20	
Boron	mg/L	2.4	0.05	0.05	2.2	2.3	-387	-319	75-125	2	20	M6
Lithium	mg/L	0.091	0.05	0.05	0.14J	0.14J	95	101	75-125	2	20	

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QUALITY CONTROL DATA

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

QC Batch: 548334
QC Batch Method: SM 2320B-2011
Analysis Method: SM 2320B-2011
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92482476001, 92482476002, 92482476003

METHOD BLANK: 2917431 Matrix: Water
Associated Lab Samples: 92482476001, 92482476002, 92482476003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	5.0	06/18/20 18:38	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	5.0	5.0	06/18/20 18:38	
Alkalinity,Carbonate (CaCO3)	mg/L	ND	5.0	5.0	06/18/20 18:38	

LABORATORY CONTROL SAMPLE: 2917432

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	46.1	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2917433 2917434

Parameter	Units	92482129001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	41.2	50	50	90.4	92.9	98	103	80-120	3	25	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2917435 2917436

Parameter	Units	92482275002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	140	50	50	193	197	107	115	80-120	2	25	

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QUALITY CONTROL DATA

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

QC Batch: 548579
QC Batch Method: SM 2540C-2011
Analysis Method: SM 2540C-2011
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92482476001, 92482476002, 92482476003

METHOD BLANK: 2918485 Matrix: Water
Associated Lab Samples: 92482476001, 92482476002, 92482476003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	06/19/20 17:24	

LABORATORY CONTROL SAMPLE: 2918486

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	251	264	105	90-110	

SAMPLE DUPLICATE: 2918487

Parameter	Units	35556519006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	281	277	1	25	

SAMPLE DUPLICATE: 2918488

Parameter	Units	35556537004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	177	171	3	25	

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QUALITY CONTROL DATA

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

QC Batch: 548699
QC Batch Method: SM 3500-Fe B-2011
Analysis Method: SM 3500-Fe B-2011
Analysis Description: Iron, Ferrous
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92482476001, 92482476002, 92482476003

METHOD BLANK: 2919033 Matrix: Water
Associated Lab Samples: 92482476001, 92482476002, 92482476003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron, Ferrous	mg/L	ND	0.50	0.084	06/21/20 12:43	N2

LABORATORY CONTROL SAMPLE: 2919034

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Ferrous	mg/L	1.5	1.5	101	90-110	N2

SAMPLE DUPLICATE: 2919035

Parameter	Units	92482268001 Result	Dup Result	RPD	Max RPD	Qualifiers
Iron, Ferrous	mg/L	ND	ND		10	H3,N2

SAMPLE DUPLICATE: 2919036

Parameter	Units	92482268002 Result	Dup Result	RPD	Max RPD	Qualifiers
Iron, Ferrous	mg/L	0.24J	0.28J		10	H3,N2

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

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(770)734-4200

QUALITY CONTROL DATA

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

QC Batch: 548293 | Analysis Method: SM 4500-S2D-2011
QC Batch Method: SM 4500-S2D-2011 | Analysis Description: 4500S2D Sulfide Water
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92482476001, 92482476002, 92482476003

METHOD BLANK: 2917136 Matrix: Water
Associated Lab Samples: 92482476001, 92482476002, 92482476003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.10	0.050	06/19/20 18:24	

LABORATORY CONTROL SAMPLE: 2917137

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.53	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2917138 2917139

Parameter	Units	92482471001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.38	0.37	70	69	80-120	2	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2917140 2917141

Parameter	Units	92482471002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.37	0.39	67	70	80-120	4	10	M1

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QUALITY CONTROL DATA

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

QC Batch: 548237
QC Batch Method: SM 5210B-2011
Analysis Method: SM 5210B-2011
Analysis Description: 5210B BOD, 5 day
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92482476001, 92482476002, 92482476003

METHOD BLANK: 2916890 Matrix: Water
Associated Lab Samples: 92482476001, 92482476002, 92482476003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
BOD, 5 day	mg/L	ND	2.0	2.0	06/23/20 11:23	

LABORATORY CONTROL SAMPLE: 2916891

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	mg/L	198	195	98	84.6-115	

SAMPLE DUPLICATE: 2916892

Parameter	Units	92482476003 Result	Dup Result	RPD	Max RPD	Qualifiers
BOD, 5 day	mg/L	13.4	6.2	74	25	D6

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

QC Batch: 548304
QC Batch Method: EPA 300.0 Rev 2.1 1993
Analysis Method: EPA 300.0 Rev 2.1 1993
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92482476001, 92482476002, 92482476003

METHOD BLANK: 2917189 Matrix: Water
Associated Lab Samples: 92482476001, 92482476002, 92482476003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	06/18/20 17:15	
Sulfate	mg/L	ND	1.0	0.50	06/18/20 17:15	

LABORATORY CONTROL SAMPLE: 2917190

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	49.7	99	90-110	
Sulfate	mg/L	50	49.7	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2917191 2917192

Parameter	Units	92482471001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	6450	50	50	6730	6630	571	359	90-110	2	10	M6
Sulfate	mg/L	864	50	50	1080	964	428	199	90-110	11	10	M6,R1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2917193 2917194

Parameter	Units	92482276002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	102	50	50	151	151	99	100	90-110	0	10	
Sulfate	mg/L	ND	50	50	55.0	55.5	110	111	90-110	1	10	M1

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

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QUALITY CONTROL DATA

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

QC Batch: 548938
QC Batch Method: SM 5310B-2011
Analysis Method: SM 5310B-2011
Analysis Description: 5310B TOC
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92482476001, 92482476002, 92482476003

METHOD BLANK: 2919835 Matrix: Water
Associated Lab Samples: 92482476001, 92482476002, 92482476003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.50	06/23/20 00:19	

LABORATORY CONTROL SAMPLE: 2919836

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25	24.0	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2919837 2919838

Parameter	Units	92482471001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	12.2	25	25	37.0	37.1	99	100	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2919839 2919840

Parameter	Units	92482471002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	9.9	25	25	34.5	34.7	99	99	90-110	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.

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QUALIFIERS

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

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

B2	Oxygen usage is less than 2.0 for all dilutions set. The reported value is an estimated less than value and is calculated for the dilution using the most amount of sample.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H3	Sample was received or analysis requested beyond the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MCMANUS GW GEOCHEM PERF
Pace Project No.: 92482476

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92482476001	**MCM-06**				
92482476002	**MCM-07**				
92482476003	**DPZ-2**				
92482476001	**MCM-06**	EPA 3010A	548410	EPA 6010D	548437
92482476002	**MCM-07**	EPA 3010A	548410	EPA 6010D	548437
92482476003	**DPZ-2**	EPA 3010A	548410	EPA 6010D	548437
92482476001	**MCM-06**	EPA 3010A	548426	EPA 6010D	548441
92482476002	**MCM-07**	EPA 3010A	548426	EPA 6010D	548441
92482476003	**DPZ-2**	EPA 3010A	548426	EPA 6010D	548441
92482476001	**MCM-06**	EPA 3010A	548421	EPA 6020B	548433
92482476002	**MCM-07**	EPA 3010A	548421	EPA 6020B	548433
92482476003	**DPZ-2**	EPA 3010A	548421	EPA 6020B	548433
92482476001	**MCM-06**	SM 2320B-2011	548334		
92482476002	**MCM-07**	SM 2320B-2011	548334		
92482476003	**DPZ-2**	SM 2320B-2011	548334		
92482476001	**MCM-06**	SM 2540C-2011	548579		
92482476002	**MCM-07**	SM 2540C-2011	548579		
92482476003	**DPZ-2**	SM 2540C-2011	548579		
92482476001	**MCM-06**	SM 3500-Fe D#4	548904		
92482476002	**MCM-07**	SM 3500-Fe D#4	548904		
92482476003	**DPZ-2**	SM 3500-Fe D#4	548904		
92482476001	**MCM-06**	SM 3500-Fe B-2011	548699		
92482476002	**MCM-07**	SM 3500-Fe B-2011	548699		
92482476003	**DPZ-2**	SM 3500-Fe B-2011	548699		
92482476001	**MCM-06**	SM 4500-S2D-2011	548293		
92482476002	**MCM-07**	SM 4500-S2D-2011	548293		
92482476003	**DPZ-2**	SM 4500-S2D-2011	548293		
92482476001	**MCM-06**	SM 5210B-2011	548237	SM 5210B-2011	548321
92482476002	**MCM-07**	SM 5210B-2011	548237	SM 5210B-2011	548321
92482476003	**DPZ-2**	SM 5210B-2011	548237	SM 5210B-2011	548321
92482476001	**MCM-06**	EPA 300.0 Rev 2.1 1993	548304		
92482476002	**MCM-07**	EPA 300.0 Rev 2.1 1993	548304		
92482476003	**DPZ-2**	EPA 300.0 Rev 2.1 1993	548304		
92482476001	**MCM-06**	SM 5310B-2011	548938		
92482476002	**MCM-07**	SM 5310B-2011	548938		
92482476003	**DPZ-2**	SM 5310B-2011	548938		

Laboratory receiving samples:
Asheville [x] **Eden** [ ] **Greenwood** [ ] **Huntersville** [ ] **Raleigh** [ ] **Mechanicsville** [ ]

Sample Condition Upon Receipt

Client Name: Georgia Power

Project #

WO# : 92482476

92482476

Courier: [x] Fed Ex [ ] UPS [ ] USPS [ ] Client [ ] Commercial [ ] Pace [ ] Other:_____

Custody Seal Present? [x] Yes [ ] No **Seals Intact?** [x] Yes [ ] No

Date/Initials Person Examining Contents: JD 6/18/20

Packing Material: [ ] Bubble Wrap [x] Bubble Bags [ ] None [ ] Other

Biological Tissue Frozen? [ ] Yes [ ] No [x] N/A

Thermometer: [x] IR Gun ID: 92T061

Type of Ice: [x] Wet [ ] Blue [ ] None

Cooler Temp (°C): 0.9 **Correction Factor:** Add/Subtract (°C) 0.0

Cooler Temp Corrected (°C): 0.9

Temp should be above freezing to 6°C
[ ] Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil ([x] N/A, water sample)
Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? [ ] Yes [ ] No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? [ ] Yes [ ] No

				Comments/Discrepancy:
Chain of Custody Present?	[x] Yes	[ ] No	[ ] N/A	1.
Samples Arrived within Hold Time?	[x] Yes	[ ] No	[ ] N/A	2.
Short Hold Time Analysis (<72 hr.)?	[x] Yes	[ ] No	[ ] N/A	3.
Rush Turn Around Time Requested?	[ ] Yes	[x] No	[ ] N/A	4.
Sufficient Volume?	[x] Yes	[ ] No	[ ] N/A	5.
Correct Containers Used?	[x] Yes	[ ] No	[ ] N/A	6.
-Pace Containers Used?	[x] Yes	[ ] No	[ ] N/A	
Containers Intact?	[x] Yes	[ ] No	[ ] N/A	7.
Dissolved analysis: Samples Field Filtered?	[x] Yes	[ ] No	[ ] N/A	8.
Sample Labels Match COC?	[x] Yes	[ ] No	[ ] N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT				
Headspace in VOA Vials (>5-6mm)?	[ ] Yes	[x] No	[ ] N/A	10.
Trip Blank Present?	[ ] Yes	[x] No	[ ] N/A	11.
Trip Blank Custody Seals Present?	[ ] Yes	[ ] No	[x] N/A	

Field Data Required? [ ] Yes [x] No

COMMENTS/SAMPLE DISCREPANCY

FedEx tracking# 3939 5259 3351

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: ____________ Date/Time: ____________

Project Manager SCURF Review: ____________ **Date:** ____________

Project Manager SRF Review: ____________ **Date:** ____________

	Document Name: **Sample Condition Upon Receipt(SCUR)**	Document Revised: February 7, 2018 Page 1 of 2
Pace Analytical®	Document No.: **F-CAR-CS-033-Rev.06**	Issuing Authority: Pace Carolinas Quality Office

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

****Bottom half of box is to list number of bottle**

Project WO# : 92482476

PM: KLH1 Due Date: 06/22/20

CLIENT: GA-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		2	1	1		✓ 4	✓ 1									3												
2		2	1	1		✓ 4	✓ 1									3												
3		2	1	1		✓ 4	✓ 1									3												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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.

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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Page : 1 **Of** 1

ction A quired Client Information:		Section B Required Project Information:		Section C Invoice Information:	
mpany:	Georgia Power	Report To:	Veronica Fay, Stephen Wilson	Attention:	
dress:	1003 Weatherstone Parkway	Copy To:	Lauren Petty	Company Name:	
te 320, Woodstock, GA 30188				Address:	
ail:	veronica.fay@resoluteenv.com	Purchase Order #:		Pace Quote:	
one:	(404)358-8469 Fax:	Project Name:	McManus GW Geochem Performance Monitori	Pace Project Manager:	kevin.herring@pacelabs.com,
quested Due Date:		Project #:		Pace Profile #:	10768

Regulatory Agency
State / Location
GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	TOC	BOD	Total Fe, Mg, Mn, K, Na	Diss Fe, Mn	Alkalinity + Ferrous Iron	Sulfide	Li	As	B, Ca	Cl, SO4	TDS	Residual Chlorine (Y/N)	
1	MCM-06	WT	G	6/16/20	1957				12	4		4	3	1					X	X	X	X	X	X	X	X	X	X	X		pH 6.87
2	MCM-07	WT	G	6/16/20	2033				12	4		4	3	1					X	X	X	X	X	X	X		X	X	X		pH 6.33
3	OPZ-2	WT	G	6/16/20	1950				12	4		4	3	1					X	X	X	X	X	X	X		X	X	X		pH 7.22
4																															
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
ude ferric calc = Carb & BiCarb Include = Alk	Veronica Fay / Resolute	6/17/20	1230	FedEx	6/17/20	1230				
				[illegible] Pace	6/18/20	1043	0.9	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Trent Godwin, Stephen Wilson, Veronica Fay

SIGNATURE of SAMPLER: Veronica Fay DATE Signed: 6/17/20

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

September 23, 2020

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

RE: Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 28, 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

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

Sincerely,

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

Enclosures

cc: Veronica Fay
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Ms. Lauren Petty, Southern Co. Services
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

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

CERTIFICATIONS

Project:	MCMANUS ASH POND SCAN
Pace Project No.:	92493014

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
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

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

SAMPLE SUMMARY

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92493014001	**MCM-01**	Water	08/26/20 13:38	08/28/20 11:35
92493014002	**MCM-02**	Water	08/26/20 14:25	08/28/20 11:35
92493014003	**MCM-04**	Water	08/26/20 11:58	08/28/20 11:35
92493014004	**MCM-05**	Water	08/26/20 12:47	08/28/20 11:35
92493014005	**MCM-07**	Water	08/26/20 11:21	08/28/20 11:35
92493014006	**MCM-11**	Water	08/26/20 10:26	08/28/20 11:35
92493014007	**MCM-12**	Water	08/26/20 10:29	08/28/20 11:35
92493014008	**MCM-14**	Water	08/26/20 11:48	08/28/20 11:35
92493014009	**MCM-15**	Water	08/26/20 14:49	08/28/20 11:35
92493014010	**MCM-16**	Water	08/26/20 16:52	08/28/20 11:35
92493014011	**MCM-17**	Water	08/26/20 15:56	08/28/20 11:35
92493014012	**MCM-18**	Water	08/26/20 11:58	08/28/20 11:35
92493014013	**MCM-19**	Water	08/26/20 14:30	08/28/20 11:35
92493014014	**MCM-20**	Water	08/26/20 15:48	08/28/20 11:35
92493014015	**FBL082620**	Water	08/26/20 16:49	08/28/20 11:35
92493014016	**EQBL082620**	Water	08/26/20 16:55	08/28/20 11:35
92493014017	**DUP-1**	Water	08/26/20 00:00	08/28/20 11:35
92493014018	**DUP-2**	Water	08/26/20 00:00	08/28/20 11:35
92493014019	**MCM-06**	Water	08/26/20 16:08	08/28/20 11:35

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SAMPLE ANALYTE COUNT

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92493014001	**MCM-01**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014002	**MCM-02**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014003	**MCM-04**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014004	**MCM-05**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014005	**MCM-07**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014006	**MCM-11**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014007	**MCM-12**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014008	**MCM-14**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A

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SAMPLE ANALYTE COUNT

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014009	**MCM-15**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014010	**MCM-16**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014011	**MCM-17**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014012	**MCM-18**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014013	**MCM-19**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014014	**MCM-20**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014015	**FBL082620**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A

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SAMPLE ANALYTE COUNT

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014016	**EQBL082620**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014017	**DUP-1**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	ALP	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014018	**DUP-2**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92493014019	**MCM-06**	EPA 6010D	SH1	1	PASI-A
		EPA 6020B	BG2, JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A

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SUMMARY OF DETECTION

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92493014001	**MCM-01**					
	pH	5.79	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	10.5	mg/L	0.10	09/01/20 23:02	
EPA 6020B	Arsenic	0.0079	mg/L	0.0050	09/16/20 17:53	
EPA 6020B	Barium	0.056	mg/L	0.010	09/16/20 17:53	
SM 2540C-2011	Total Dissolved Solids	82.0	mg/L	25.0	08/31/20 18:33	
EPA 300.0 Rev 2.1 1993	Chloride	13.2	mg/L	1.0	08/29/20 18:18	
EPA 300.0 Rev 2.1 1993	Sulfate	32.9	mg/L	1.0	08/29/20 18:18	
92493014002	**MCM-02**					
	pH	5.03	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	4.6	mg/L	0.10	09/02/20 22:37	
EPA 6020B	Barium	0.092	mg/L	0.010	09/16/20 18:16	
EPA 6020B	Lead	0.0018J	mg/L	0.0050	09/16/20 18:16	
SM 2540C-2011	Total Dissolved Solids	89.0	mg/L	25.0	08/31/20 18:33	
EPA 300.0 Rev 2.1 1993	Chloride	26.7	mg/L	1.0	08/29/20 18:31	
EPA 300.0 Rev 2.1 1993	Sulfate	28.0	mg/L	1.0	08/29/20 18:31	
92493014003	**MCM-04**					
	pH	4.95	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	20.6	mg/L	0.10	09/02/20 22:57	
EPA 6020B	Arsenic	0.0059	mg/L	0.0050	09/16/20 18:20	
EPA 6020B	Barium	0.086	mg/L	0.010	09/16/20 18:20	
EPA 6020B	Cobalt	0.015	mg/L	0.0050	09/16/20 18:20	
SM 2540C-2011	Total Dissolved Solids	289	mg/L	25.0	08/31/20 18:33	
EPA 300.0 Rev 2.1 1993	Chloride	42.0	mg/L	1.0	08/29/20 18:45	
EPA 300.0 Rev 2.1 1993	Sulfate	112	mg/L	3.0	08/30/20 01:05	
92493014004	**MCM-05**					
	pH	6.50	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	21.5	mg/L	0.10	09/02/20 23:00	
EPA 6020B	Barium	0.0065J	mg/L	0.010	09/16/20 18:35	
EPA 6020B	Boron	0.43J	mg/L	0.50	09/16/20 18:35	
EPA 6020B	Lithium	0.018J	mg/L	0.030	09/16/20 18:35	
SM 2540C-2011	Total Dissolved Solids	1260	mg/L	125	08/31/20 18:33	
EPA 300.0 Rev 2.1 1993	Chloride	558	mg/L	12.0	08/30/20 01:19	
EPA 300.0 Rev 2.1 1993	Fluoride	0.39	mg/L	0.10	08/29/20 18:58	
EPA 300.0 Rev 2.1 1993	Sulfate	61.9	mg/L	1.0	08/29/20 18:58	
92493014005	**MCM-07**					
	pH	6.32	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	259	mg/L	0.50	09/03/20 19:13	
EPA 6020B	Arsenic	0.019	mg/L	0.0050	09/16/20 18:51	
EPA 6020B	Barium	0.22	mg/L	0.010	09/16/20 18:51	
EPA 6020B	Boron	1.6	mg/L	0.50	09/16/20 18:51	
EPA 6020B	Lead	0.014	mg/L	0.0050	09/16/20 18:51	
EPA 6020B	Lithium	0.045J	mg/L	0.030	09/16/20 18:51	
SM 2540C-2011	Total Dissolved Solids	19200	mg/L	2500	09/01/20 13:15	
EPA 300.0 Rev 2.1 1993	Chloride	7330	mg/L	100	08/30/20 01:33	
EPA 300.0 Rev 2.1 1993	Sulfate	895	mg/L	100	08/30/20 01:33	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92493014006	**MCM-11**					
	pH	4.96	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	3.2	mg/L	0.10	09/02/20 23:07	
EPA 6020B	Arsenic	0.0044J	mg/L	0.0050	09/16/20 18:59	
EPA 6020B	Barium	0.041	mg/L	0.010	09/16/20 18:59	
SM 2540C-2011	Total Dissolved Solids	86.0	mg/L	25.0	09/01/20 13:15	
EPA 300.0 Rev 2.1 1993	Chloride	13.3	mg/L	1.0	08/29/20 19:52	
EPA 300.0 Rev 2.1 1993	Fluoride	0.097J	mg/L	0.10	08/29/20 19:52	M1
EPA 300.0 Rev 2.1 1993	Sulfate	21.8	mg/L	1.0	08/29/20 19:52	
92493014007	**MCM-12**					
	pH	6.32	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	7.5	mg/L	0.10	09/02/20 23:10	
EPA 6020B	Barium	0.10	mg/L	0.010	09/16/20 19:03	
EPA 6020B	Beryllium	0.0010J	mg/L	0.0030	09/16/20 19:03	
EPA 6020B	Boron	1.4	mg/L	0.50	09/16/20 19:03	
EPA 6020B	Lithium	0.013J	mg/L	0.030	09/16/20 19:03	
SM 2540C-2011	Total Dissolved Solids	1700	mg/L	250	09/01/20 13:15	
EPA 300.0 Rev 2.1 1993	Chloride	529	mg/L	12.0	08/30/20 01:48	
EPA 300.0 Rev 2.1 1993	Fluoride	1.2	mg/L	0.10	08/29/20 21:00	
92493014008	**MCM-14**					
	pH	6.62	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	284	mg/L	0.50	09/03/20 19:17	
EPA 6020B	Barium	0.12	mg/L	0.010	09/16/20 19:10	
EPA 6020B	Boron	1.2	mg/L	0.50	09/16/20 19:10	
EPA 6020B	Lithium	0.054	mg/L	0.030	09/16/20 19:10	
SM 2540C-2011	Total Dissolved Solids	14700	mg/L	2500	09/01/20 13:16	
EPA 300.0 Rev 2.1 1993	Sulfate	730	mg/L	100	08/30/20 02:29	
92493014009	**MCM-15**					
	pH	5.33	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	5.8	mg/L	0.10	09/02/20 23:17	
EPA 6020B	Arsenic	0.0024J	mg/L	0.0050	09/16/20 19:18	
EPA 6020B	Barium	0.039	mg/L	0.010	09/16/20 19:18	
SM 2540C-2011	Total Dissolved Solids	101	mg/L	25.0	09/01/20 13:17	
EPA 300.0 Rev 2.1 1993	Chloride	14.4	mg/L	1.0	08/29/20 21:27	
EPA 300.0 Rev 2.1 1993	Sulfate	14.0	mg/L	1.0	08/29/20 21:27	
92493014010	**MCM-16**					
	pH	4.92	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	5.6	mg/L	0.10	09/02/20 23:20	
EPA 6020B	Barium	0.12	mg/L	0.010	09/16/20 19:22	
SM 2540C-2011	Total Dissolved Solids	95.0	mg/L	25.0	09/01/20 13:18	
EPA 300.0 Rev 2.1 1993	Chloride	22.2	mg/L	1.0	08/29/20 21:40	
EPA 300.0 Rev 2.1 1993	Sulfate	27.8	mg/L	1.0	08/29/20 21:40	
92493014011	**MCM-17**					
	pH	6.65	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	146	mg/L	0.50	09/03/20 19:20	

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SUMMARY OF DETECTION

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92493014011	**MCM-17**					
EPA 6020B	Barium	0.15	mg/L	0.010	09/16/20 19:26	
EPA 6020B	Boron	1.8	mg/L	0.50	09/16/20 19:26	
EPA 6020B	Lithium	0.027J	mg/L	0.030	09/16/20 19:26	
SM 2540C-2011	Total Dissolved Solids	8400	mg/L	1250	09/01/20 13:18	
EPA 300.0 Rev 2.1 1993	Sulfate	341	mg/L	100	08/30/20 02:43	
92493014012	**MCM-18**					
	pH	4.27	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	25.7	mg/L	0.10	09/02/20 23:40	
EPA 6020B	Arsenic	0.0019J	mg/L	0.0050	09/16/20 19:41	
EPA 6020B	Barium	0.095	mg/L	0.010	09/16/20 19:41	
EPA 6020B	Beryllium	0.0042	mg/L	0.0030	09/16/20 19:41	
EPA 6020B	Boron	0.25J	mg/L	0.50	09/16/20 19:41	
EPA 6020B	Lead	0.0035J	mg/L	0.0050	09/16/20 19:41	
EPA 6020B	Selenium	0.0014J	mg/L	0.010	09/16/20 19:41	
SM 2540C-2011	Total Dissolved Solids	2980	mg/L	500	09/01/20 13:18	
EPA 300.0 Rev 2.1 1993	Fluoride	0.096J	mg/L	0.10	08/29/20 22:07	
EPA 300.0 Rev 2.1 1993	Sulfate	170	mg/L	100	08/30/20 02:57	
92493014013	**MCM-19**					
	pH	5.25	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	121	mg/L	0.50	09/03/20 19:23	
EPA 6020B	Arsenic	0.012	mg/L	0.0050	09/16/20 19:57	
EPA 6020B	Barium	0.11	mg/L	0.010	09/16/20 19:57	
EPA 6020B	Beryllium	0.011	mg/L	0.0030	09/16/20 19:57	
EPA 6020B	Boron	0.91	mg/L	0.50	09/16/20 19:57	
EPA 6020B	Lithium	0.018J	mg/L	0.030	09/16/20 19:57	
EPA 6020B	Selenium	0.0060J	mg/L	0.010	09/16/20 19:57	
SM 2540C-2011	Total Dissolved Solids	13300	mg/L	2500	09/01/20 13:18	
EPA 300.0 Rev 2.1 1993	Chloride	5390	mg/L	100	08/31/20 00:04	
EPA 300.0 Rev 2.1 1993	Sulfate	854	mg/L	100	08/31/20 00:04	
92493014014	**MCM-20**					
	pH	3.78	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	110	mg/L	0.50	09/03/20 19:27	
EPA 6020B	Arsenic	0.018	mg/L	0.0050	09/16/20 20:04	
EPA 6020B	Barium	0.12	mg/L	0.010	09/16/20 20:04	
EPA 6020B	Beryllium	0.018	mg/L	0.0030	09/16/20 20:04	
EPA 6020B	Boron	1.0	mg/L	0.50	09/16/20 20:04	
EPA 6020B	Cobalt	0.034	mg/L	0.0050	09/16/20 20:04	
EPA 6020B	Lithium	0.026J	mg/L	0.030	09/16/20 20:04	
EPA 6020B	Selenium	0.0052J	mg/L	0.010	09/16/20 20:04	
SM 2540C-2011	Total Dissolved Solids	15100	mg/L	2500	09/01/20 13:19	
EPA 300.0 Rev 2.1 1993	Chloride	5470	mg/L	100	08/30/20 03:11	
EPA 300.0 Rev 2.1 1993	Fluoride	0.058J	mg/L	0.10	08/29/20 22:34	
EPA 300.0 Rev 2.1 1993	Sulfate	639	mg/L	100	08/30/20 03:11	
92493014015	**FBL082620**					
EPA 6020B	Barium	0.00044J	mg/L	0.010	09/17/20 00:03	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92493014016	**EQBL082620**					
EPA 6020B	Barium	0.00047J	mg/L	0.010	09/17/20 00:07	
92493014017	**DUP-1**					
EPA 6010D	Calcium	21.3	mg/L	0.10	09/02/20 23:56	
EPA 6020B	Arsenic	0.0056	mg/L	0.0050	09/16/20 20:20	
EPA 6020B	Barium	0.082	mg/L	0.010	09/16/20 20:20	
EPA 6020B	Cobalt	0.015	mg/L	0.0050	09/16/20 20:20	
SM 2540C-2011	Total Dissolved Solids	300	mg/L	25.0	09/01/20 13:19	
EPA 300.0 Rev 2.1 1993	Chloride	43.9	mg/L	1.0	08/30/20 00:22	
EPA 300.0 Rev 2.1 1993	Sulfate	113	mg/L	2.0	08/30/20 03:27	
92493014018	**DUP-2**					
EPA 6010D	Calcium	112	mg/L	0.50	09/03/20 19:30	
EPA 6020B	Arsenic	0.018	mg/L	0.0050	09/16/20 20:27	
EPA 6020B	Barium	0.12	mg/L	0.010	09/16/20 20:27	
EPA 6020B	Beryllium	0.019	mg/L	0.0030	09/16/20 20:27	
EPA 6020B	Boron	1.0	mg/L	0.50	09/16/20 20:27	
EPA 6020B	Cobalt	0.035	mg/L	0.0050	09/16/20 20:27	
EPA 6020B	Lithium	0.025J	mg/L	0.030	09/16/20 20:27	
EPA 6020B	Selenium	0.0054J	mg/L	0.010	09/16/20 20:27	
SM 2540C-2011	Total Dissolved Solids	12600	mg/L	1250	09/01/20 16:19	
EPA 300.0 Rev 2.1 1993	Chloride	5570	mg/L	100	08/30/20 03:41	
EPA 300.0 Rev 2.1 1993	Fluoride	0.079J	mg/L	0.10	08/30/20 00:36	
EPA 300.0 Rev 2.1 1993	Sulfate	670	mg/L	100	08/30/20 03:41	
92493014019	**MCM-06**					
	pH	6.88	Std. Units		09/10/20 09:31	
EPA 6010D	Calcium	254	mg/L	0.50	09/03/20 19:34	
EPA 6020B	Arsenic	0.46	mg/L	0.12	09/10/20 13:26	
EPA 6020B	Barium	0.15J	mg/L	0.25	09/10/20 13:26	
EPA 6020B	Boron	1.6	mg/L	1.2	09/09/20 14:13	
EPA 6020B	Lithium	0.096J	mg/L	0.75	09/10/20 13:26	
SM 2540C-2011	Total Dissolved Solids	14900	mg/L	2500	09/01/20 16:19	
EPA 300.0 Rev 2.1 1993	Chloride	6510	mg/L	100	08/30/20 03:55	
EPA 300.0 Rev 2.1 1993	Sulfate	514	mg/L	100	08/30/20 03:55	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-01 **Lab ID: 92493014001** Collected: 08/26/20 13:38 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**5.79**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**10.5**	mg/L	0.10	0.094	1	09/01/20 01:35	09/01/20 23:02	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 17:53	7440-36-0	
Arsenic	**0.0079**	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 17:53	7440-38-2	
Barium	**0.056**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 17:53	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 17:53	7440-41-7	
Boron	ND	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 17:53	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 17:53	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 17:53	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 17:53	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 17:53	7439-92-1	
Lithium	ND	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 17:53	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 17:53	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 17:53	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 17:53	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 14:49	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**82.0**	mg/L	25.0	25.0	1		08/31/20 18:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**13.2**	mg/L	1.0	0.60	1		08/29/20 18:18	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/29/20 18:18	16984-48-8	
Sulfate	**32.9**	mg/L	1.0	0.50	1		08/29/20 18:18	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-02 **Lab ID: 92493014002** Collected: 08/26/20 14:25 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**5.03**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**4.6**	mg/L	0.10	0.094	1	09/02/20 01:33	09/02/20 22:37	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 18:16	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 18:16	7440-38-2	
Barium	**0.092**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 18:16	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 18:16	7440-41-7	
Boron	ND	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 18:16	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 18:16	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 18:16	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 18:16	7440-48-4	
Lead	**0.0018J**	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 18:16	7439-92-1	
Lithium	ND	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 18:16	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 18:16	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 18:16	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 18:16	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 14:56	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**89.0**	mg/L	25.0	25.0	1		08/31/20 18:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**26.7**	mg/L	1.0	0.60	1		08/29/20 18:31	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/29/20 18:31	16984-48-8	
Sulfate	**28.0**	mg/L	1.0	0.50	1		08/29/20 18:31	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-04 **Lab ID: 92493014003** Collected: 08/26/20 11:58 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**4.95**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**20.6**	mg/L	0.10	0.094	1	09/02/20 01:33	09/02/20 22:57	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 18:20	7440-36-0	
Arsenic	**0.0059**	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 18:20	7440-38-2	
Barium	**0.086**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 18:20	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 18:20	7440-41-7	
Boron	ND	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 18:20	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 18:20	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 18:20	7440-47-3	
Cobalt	**0.015**	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 18:20	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 18:20	7439-92-1	
Lithium	ND	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 18:20	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 18:20	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 18:20	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 18:20	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 14:59	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**289**	mg/L	25.0	25.0	1		08/31/20 18:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**42.0**	mg/L	1.0	0.60	1		08/29/20 18:45	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/29/20 18:45	16984-48-8	
Sulfate	**112**	mg/L	3.0	1.5	3		08/30/20 01:05	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-05 **Lab ID: 92493014004** Collected: 08/26/20 12:47 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**6.50**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**21.5**	mg/L	0.10	0.094	1	09/02/20 01:33	09/02/20 23:00	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 18:35	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 18:35	7440-38-2	
Barium	**0.0065J**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 18:35	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 18:35	7440-41-7	
Boron	**0.43J**	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 18:35	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 18:35	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 18:35	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 18:35	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 18:35	7439-92-1	
Lithium	**0.018J**	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 18:35	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 18:35	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 18:35	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 18:35	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:01	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**1260**	mg/L	125	125	1		08/31/20 18:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**558**	mg/L	12.0	7.2	12		08/30/20 01:19	16887-00-6	
Fluoride	**0.39**	mg/L	0.10	0.050	1		08/29/20 18:58	16984-48-8	
Sulfate	**61.9**	mg/L	1.0	0.50	1		08/29/20 18:58	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN

Pace Project No.: 92493014

Sample: MCM-07 **Lab ID: 92493014005** Collected: 08/26/20 11:21 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**6.32**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**259**	mg/L	0.50	0.47	5	09/02/20 01:33	09/03/20 19:13	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 18:51	7440-36-0	
Arsenic	**0.019**	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 18:51	7440-38-2	
Barium	**0.22**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 18:51	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 18:51	7440-41-7	
Boron	**1.6**	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 18:51	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 18:51	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 18:51	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 18:51	7440-48-4	
Lead	**0.014**	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 18:51	7439-92-1	
Lithium	**0.045J**	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 18:51	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 18:51	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 18:51	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 18:51	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:03	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**19200**	mg/L	2500	2500	1		09/01/20 13:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**7330**	mg/L	100	60.0	100		08/30/20 01:33	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/29/20 19:12	16984-48-8	
Sulfate	**895**	mg/L	100	50.0	100		08/30/20 01:33	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-11 **Lab ID: 92493014006** Collected: 08/26/20 10:26 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**4.96**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**3.2**	mg/L	0.10	0.094	1	09/02/20 01:33	09/02/20 23:07	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 18:59	7440-36-0	
Arsenic	**0.0044J**	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 18:59	7440-38-2	
Barium	**0.041**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 18:59	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 18:59	7440-41-7	
Boron	ND	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 18:59	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 18:59	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 18:59	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 18:59	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 18:59	7439-92-1	
Lithium	ND	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 18:59	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 18:59	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 18:59	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 18:59	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:06	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**86.0**	mg/L	25.0	25.0	1		09/01/20 13:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**13.3**	mg/L	1.0	0.60	1		08/29/20 19:52	16887-00-6	
Fluoride	**0.097J**	mg/L	0.10	0.050	1		08/29/20 19:52	16984-48-8	M1
Sulfate	**21.8**	mg/L	1.0	0.50	1		08/29/20 19:52	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-12 **Lab ID: 92493014007** Collected: 08/26/20 10:29 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**6.32**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**7.5**	mg/L	0.10	0.094	1	09/02/20 01:33	09/02/20 23:10	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 19:03	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 19:03	7440-38-2	
Barium	**0.10**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 19:03	7440-39-3	
Beryllium	**0.0010J**	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 19:03	7440-41-7	
Boron	**1.4**	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 19:03	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 19:03	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 19:03	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 19:03	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 19:03	7439-92-1	
Lithium	**0.013J**	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 19:03	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 19:03	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 19:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 19:03	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:13	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**1700**	mg/L	250	250	1		09/01/20 13:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**529**	mg/L	12.0	7.2	12		08/30/20 01:48	16887-00-6	
Fluoride	**1.2**	mg/L	0.10	0.050	1		08/29/20 21:00	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		08/29/20 21:00	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-14 **Lab ID: 92493014008** Collected: 08/26/20 11:48 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**6.62**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**284**	mg/L	0.50	0.47	5	09/02/20 01:33	09/03/20 19:17	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 19:10	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 19:10	7440-38-2	
Barium	**0.12**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 19:10	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 19:10	7440-41-7	
Boron	**1.2**	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 19:10	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 19:10	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 19:10	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 19:10	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 19:10	7439-92-1	
Lithium	**0.054**	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 19:10	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 19:10	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 19:10	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 19:10	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:15	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**14700**	mg/L	2500	2500	1		09/01/20 13:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	ND	mg/L	1.0	0.60	1		08/29/20 21:13	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/29/20 21:13	16984-48-8	
Sulfate	**730**	mg/L	100	50.0	100		08/30/20 02:29	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-15 **Lab ID: 92493014009** Collected: 08/26/20 14:49 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**5.33**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**5.8**	mg/L	0.10	0.094	1	09/02/20 01:33	09/02/20 23:17	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 19:18	7440-36-0	
Arsenic	**0.0024J**	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 19:18	7440-38-2	
Barium	**0.039**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 19:18	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 19:18	7440-41-7	
Boron	ND	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 19:18	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 19:18	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 19:18	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 19:18	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 19:18	7439-92-1	
Lithium	ND	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 19:18	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 19:18	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 19:18	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 19:18	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:18	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**101**	mg/L	25.0	25.0	1		09/01/20 13:17		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**14.4**	mg/L	1.0	0.60	1		08/29/20 21:27	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/29/20 21:27	16984-48-8	
Sulfate	**14.0**	mg/L	1.0	0.50	1		08/29/20 21:27	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN

Pace Project No.: 92493014

Sample: MCM-16 **Lab ID: 92493014010** Collected: 08/26/20 16:52 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**4.92**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**5.6**	mg/L	0.10	0.094	1	09/02/20 01:33	09/02/20 23:20	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 19:22	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 19:22	7440-38-2	
Barium	**0.12**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 19:22	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 19:22	7440-41-7	
Boron	ND	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 19:22	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 19:22	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 19:22	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 19:22	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 19:22	7439-92-1	
Lithium	ND	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 19:22	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 19:22	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 19:22	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 19:22	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:20	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**95.0**	mg/L	25.0	25.0	1		09/01/20 13:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**22.2**	mg/L	1.0	0.60	1		08/29/20 21:40	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/29/20 21:40	16984-48-8	
Sulfate	**27.8**	mg/L	1.0	0.50	1		08/29/20 21:40	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-17 **Lab ID: 92493014011** Collected: 08/26/20 15:56 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**6.65**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**146**	mg/L	0.50	0.47	5	09/02/20 01:33	09/03/20 19:20	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 19:26	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 19:26	7440-38-2	
Barium	**0.15**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 19:26	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 19:26	7440-41-7	
Boron	**1.8**	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 19:26	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 19:26	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 19:26	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 19:26	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 19:26	7439-92-1	
Lithium	**0.027J**	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 19:26	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 19:26	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 19:26	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 19:26	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:22	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**8400**	mg/L	1250	1250	1		09/01/20 13:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	ND	mg/L	1.0	0.60	1		08/29/20 21:54	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/29/20 21:54	16984-48-8	
Sulfate	**341**	mg/L	100	50.0	100		08/30/20 02:43	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-18 **Lab ID: 92493014012** Collected: 08/26/20 11:58 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**4.27**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**25.7**	mg/L	0.10	0.094	1	09/02/20 01:33	09/02/20 23:40	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 19:41	7440-36-0	
Arsenic	**0.0019J**	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 19:41	7440-38-2	
Barium	**0.095**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 19:41	7440-39-3	
Beryllium	**0.0042**	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 19:41	7440-41-7	
Boron	**0.25J**	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 19:41	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 19:41	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 19:41	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 19:41	7440-48-4	
Lead	**0.0035J**	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 19:41	7439-92-1	
Lithium	ND	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 19:41	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 19:41	7439-98-7	
Selenium	**0.0014J**	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 19:41	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 19:41	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:25	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**2980**	mg/L	500	500	1		09/01/20 13:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	ND	mg/L	1.0	0.60	1		08/29/20 22:07	16887-00-6	
Fluoride	**0.096J**	mg/L	0.10	0.050	1		08/29/20 22:07	16984-48-8	
Sulfate	**170**	mg/L	100	50.0	100		08/30/20 02:57	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-19 **Lab ID: 92493014013** Collected: 08/26/20 14:30 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**5.25**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**121**	mg/L	0.50	0.47	5	09/02/20 01:33	09/03/20 19:23	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 19:57	7440-36-0	
Arsenic	**0.012**	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 19:57	7440-38-2	
Barium	**0.11**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 19:57	7440-39-3	
Beryllium	**0.011**	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 19:57	7440-41-7	
Boron	**0.91**	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 19:57	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 19:57	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 19:57	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 19:57	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 19:57	7439-92-1	
Lithium	**0.018J**	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 19:57	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 19:57	7439-98-7	
Selenium	**0.0060J**	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 19:57	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 19:57	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:27	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**13300**	mg/L	2500	2500	1		09/01/20 13:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**5390**	mg/L	100	60.0	100		08/31/20 00:04	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/29/20 22:21	16984-48-8	
Sulfate	**854**	mg/L	100	50.0	100		08/31/20 00:04	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-20 **Lab ID: 92493014014** Collected: 08/26/20 15:48 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**3.78**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**110**	mg/L	0.50	0.47	5	09/02/20 01:33	09/03/20 19:27	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 20:04	7440-36-0	
Arsenic	**0.018**	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 20:04	7440-38-2	
Barium	**0.12**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 20:04	7440-39-3	
Beryllium	**0.018**	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 20:04	7440-41-7	
Boron	**1.0**	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 20:04	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 20:04	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 20:04	7440-47-3	
Cobalt	**0.034**	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 20:04	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 20:04	7439-92-1	
Lithium	**0.026J**	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 20:04	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 20:04	7439-98-7	
Selenium	**0.0052J**	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 20:04	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 20:04	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:30	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**15100**	mg/L	2500	2500	1		09/01/20 13:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**5470**	mg/L	100	60.0	100		08/30/20 03:11	16887-00-6	
Fluoride	**0.058J**	mg/L	0.10	0.050	1		08/29/20 22:34	16984-48-8	
Sulfate	**639**	mg/L	100	50.0	100		08/30/20 03:11	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN

Pace Project No.: 92493014

Sample: FBL082620 **Lab ID: 92493014015** Collected: 08/26/20 16:49 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	ND	mg/L	0.10	0.094	1	09/02/20 01:33	09/02/20 23:50	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.00012	1	09/16/20 01:12	09/17/20 00:03	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000087	1	09/16/20 01:12	09/17/20 00:03	7440-38-2	
Barium	**0.00044J**	mg/L	0.010	0.00021	1	09/16/20 01:12	09/17/20 00:03	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	09/16/20 01:12	09/17/20 00:03	7440-41-7	
Boron	ND	mg/L	0.025	0.0062	1	09/16/20 01:12	09/17/20 00:03	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.000060	1	09/16/20 01:12	09/17/20 00:03	7440-43-9	
Chromium	ND	mg/L	0.010	0.00050	1	09/16/20 01:12	09/17/20 00:03	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.000050	1	09/16/20 01:12	09/17/20 00:03	7440-48-4	
Lead	ND	mg/L	0.0050	0.000077	1	09/16/20 01:12	09/17/20 00:03	7439-92-1	
Lithium	ND	mg/L	0.030	0.00039	1	09/16/20 01:12	09/17/20 00:03	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00011	1	09/16/20 01:12	09/17/20 00:03	7439-98-7	
Selenium	ND	mg/L	0.010	0.000061	1	09/16/20 01:12	09/17/20 00:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000050	1	09/16/20 01:12	09/17/20 00:03	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:32	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	ND	mg/L	25.0	25.0	1		09/01/20 13:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	ND	mg/L	1.0	0.60	1		08/30/20 23:50	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/30/20 23:50	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		08/30/20 23:50	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: EQBL082620 **Lab ID: 92493014016** Collected: 08/26/20 16:55 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	ND	mg/L	0.10	0.094	1	09/02/20 01:33	09/02/20 23:53	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.00012	1	09/16/20 01:12	09/17/20 00:07	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000087	1	09/16/20 01:12	09/17/20 00:07	7440-38-2	
Barium	**0.00047J**	mg/L	0.010	0.00021	1	09/16/20 01:12	09/17/20 00:07	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	09/16/20 01:12	09/17/20 00:07	7440-41-7	
Boron	ND	mg/L	0.025	0.0062	1	09/16/20 01:12	09/17/20 00:07	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.000060	1	09/16/20 01:12	09/17/20 00:07	7440-43-9	
Chromium	ND	mg/L	0.010	0.00050	1	09/16/20 01:12	09/17/20 00:07	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.000050	1	09/16/20 01:12	09/17/20 00:07	7440-48-4	
Lead	ND	mg/L	0.0050	0.000077	1	09/16/20 01:12	09/17/20 00:07	7439-92-1	
Lithium	ND	mg/L	0.030	0.00039	1	09/16/20 01:12	09/17/20 00:07	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00011	1	09/16/20 01:12	09/17/20 00:07	7439-98-7	
Selenium	ND	mg/L	0.010	0.000061	1	09/16/20 01:12	09/17/20 00:07	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000050	1	09/16/20 01:12	09/17/20 00:07	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 15:34	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	ND	mg/L	25.0	25.0	1		09/01/20 13:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	ND	mg/L	1.0	0.60	1		08/29/20 23:42	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/29/20 23:42	16984-48-8	M1,R1
Sulfate	ND	mg/L	1.0	0.50	1		08/29/20 23:42	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: DUP-1 **Lab ID: 92493014017** Collected: 08/26/20 00:00 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**21.3**	mg/L	0.10	0.094	1	09/02/20 01:33	09/02/20 23:56	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 20:20	7440-36-0	
Arsenic	**0.0056**	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 20:20	7440-38-2	
Barium	**0.082**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 20:20	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 20:20	7440-41-7	
Boron	ND	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 20:20	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 20:20	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 20:20	7440-47-3	
Cobalt	**0.015**	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 20:20	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 20:20	7439-92-1	
Lithium	ND	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 20:20	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 20:20	7439-98-7	
Selenium	ND	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 20:20	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 20:20	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 13:45	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**300**	mg/L	25.0	25.0	1		09/01/20 13:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**43.9**	mg/L	1.0	0.60	1		08/30/20 00:22	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/30/20 00:22	16984-48-8	
Sulfate	**113**	mg/L	2.0	1.0	2		08/30/20 03:27	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: DUP-2 **Lab ID: 92493014018** Collected: 08/26/20 00:00 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**112**	mg/L	0.50	0.47	5	09/02/20 01:33	09/03/20 19:30	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.0030	0.0025	20	09/16/20 01:12	09/16/20 20:27	7440-36-0	
Arsenic	**0.018**	mg/L	0.0050	0.0017	20	09/16/20 01:12	09/16/20 20:27	7440-38-2	
Barium	**0.12**	mg/L	0.010	0.0043	20	09/16/20 01:12	09/16/20 20:27	7440-39-3	
Beryllium	**0.019**	mg/L	0.0030	0.0010	20	09/16/20 01:12	09/16/20 20:27	7440-41-7	
Boron	**1.0**	mg/L	0.50	0.12	20	09/16/20 01:12	09/16/20 20:27	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.0012	20	09/16/20 01:12	09/16/20 20:27	7440-43-9	
Chromium	ND	mg/L	0.010	0.0099	20	09/16/20 01:12	09/16/20 20:27	7440-47-3	
Cobalt	**0.035**	mg/L	0.0050	0.0010	20	09/16/20 01:12	09/16/20 20:27	7440-48-4	
Lead	ND	mg/L	0.0050	0.0015	20	09/16/20 01:12	09/16/20 20:27	7439-92-1	
Lithium	**0.025J**	mg/L	0.030	0.0078	20	09/16/20 01:12	09/16/20 20:27	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0022	20	09/16/20 01:12	09/16/20 20:27	7439-98-7	
Selenium	**0.0054J**	mg/L	0.010	0.0012	20	09/16/20 01:12	09/16/20 20:27	7782-49-2	
Thallium	ND	mg/L	0.0010	0.0010	20	09/16/20 01:12	09/16/20 20:27	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 13:47	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**12600**	mg/L	1250	1250	1		09/01/20 16:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**5570**	mg/L	100	60.0	100		08/30/20 03:41	16887-00-6	
Fluoride	**0.079J**	mg/L	0.10	0.050	1		08/30/20 00:36	16984-48-8	
Sulfate	**670**	mg/L	100	50.0	100		08/30/20 03:41	14808-79-8	

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ANALYTICAL RESULTS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Sample: MCM-06 **Lab ID: 92493014019** Collected: 08/26/20 16:08 Received: 08/28/20 11:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
pH	**6.88**	Std. Units			1		09/10/20 09:31		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Calcium	**254**	mg/L	0.50	0.47	5	09/02/20 01:33	09/03/20 19:34	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Antimony	ND	mg/L	0.075	0.0031	25	09/02/20 01:04	09/10/20 13:26	7440-36-0	
Arsenic	**0.46**	mg/L	0.12	0.0022	25	09/02/20 01:04	09/10/20 13:26	7440-38-2	
Barium	**0.15J**	mg/L	0.25	0.0054	25	09/02/20 01:04	09/10/20 13:26	7440-39-3	
Beryllium	ND	mg/L	0.075	0.0012	25	09/02/20 01:04	09/10/20 13:26	7440-41-7	
Boron	**1.6**	mg/L	1.2	0.31	50	09/02/20 01:04	09/09/20 14:13	7440-42-8	
Cadmium	ND	mg/L	0.062	0.0015	25	09/02/20 01:04	09/10/20 13:26	7440-43-9	
Chromium	ND	mg/L	0.25	0.012	25	09/02/20 01:04	09/10/20 13:26	7440-47-3	
Cobalt	ND	mg/L	0.12	0.0012	25	09/02/20 01:04	09/10/20 13:26	7440-48-4	
Lead	ND	mg/L	0.12	0.0019	25	09/02/20 01:04	09/10/20 13:26	7439-92-1	
Lithium	**0.096J**	mg/L	0.75	0.0098	25	09/02/20 01:04	09/10/20 13:26	7439-93-2	
Molybdenum	ND	mg/L	0.25	0.0028	25	09/02/20 01:04	09/10/20 13:26	7439-98-7	
Selenium	ND	mg/L	0.25	0.0015	25	09/02/20 01:04	09/10/20 13:26	7782-49-2	
Thallium	ND	mg/L	0.025	0.0012	25	09/02/20 01:04	09/10/20 13:26	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Asheville								
Mercury	ND	ug/L	0.50	0.12	1	09/01/20 20:08	09/02/20 13:50	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Asheville								
Total Dissolved Solids	**14900**	mg/L	2500	2500	1		09/01/20 16:19		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**6510**	mg/L	100	60.0	100		08/30/20 03:55	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/30/20 00:49	16984-48-8	
Sulfate	**514**	mg/L	100	50.0	100		08/30/20 03:55	14808-79-8	

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QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

QC Batch: 563861 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92493014001, 92493014002, 92493014003, 92493014004, 92493014005, 92493014006, 92493014007, 92493014008, 92493014009, 92493014010, 92493014011, 92493014012, 92493014013, 92493014014, 92493014015, 92493014016, 92493014017, 92493014018, 92493014019

METHOD BLANK: 2989211 Matrix: Water

Associated Lab Samples: 92493014001, 92493014002, 92493014003, 92493014004, 92493014005, 92493014006, 92493014007, 92493014008, 92493014009, 92493014010, 92493014011, 92493014012, 92493014013, 92493014014, 92493014015, 92493014016, 92493014017, 92493014018, 92493014019

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	ND	0.50	0.12	09/02/20 14:45	

LABORATORY CONTROL SAMPLE: 2989212

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.7	109	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2989213 2989214

Parameter	Units	92493014001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	2.5	2.5	2.7	2.6	105	104	75-125	1	25	

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QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

QC Batch: 563604
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92493014001

METHOD BLANK: 2988233 Matrix: Water
Associated Lab Samples: 92493014001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	0.10	0.094	09/01/20 21:24	

LABORATORY CONTROL SAMPLE: 2988234

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	5	4.8	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2988235 2988236

Parameter	Units	92493209001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	2540 ug/L	5	5	7.5	7.5	99	98	75-125	1	20	

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QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

QC Batch: 563907 | Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A | Analysis Description: 6010 MET
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92493014002, 92493014003, 92493014004, 92493014005, 92493014006, 92493014007, 92493014008, 92493014009, 92493014010, 92493014011, 92493014012, 92493014013, 92493014014, 92493014015, 92493014016, 92493014017, 92493014018, 92493014019

METHOD BLANK: 2989431 Matrix: Water

Associated Lab Samples: 92493014002, 92493014003, 92493014004, 92493014005, 92493014006, 92493014007, 92493014008, 92493014009, 92493014010, 92493014011, 92493014012, 92493014013, 92493014014, 92493014015, 92493014016, 92493014017, 92493014018, 92493014019

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	0.10	0.094	09/02/20 22:31	

LABORATORY CONTROL SAMPLE: 2989432

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	5	5.0	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2989433 2989434

Parameter	Units	92493014002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	4.6	5	5	9.9	9.7	106	102	75-125	2	20	

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QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

QC Batch: 563910
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92493014019

METHOD BLANK: 2989443 Matrix: Water
Associated Lab Samples: 92493014019

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00012	09/07/20 21:42	
Arsenic	mg/L	ND	0.0050	0.000087	09/07/20 21:42	
Barium	mg/L	ND	0.010	0.00021	09/07/20 21:42	
Beryllium	mg/L	ND	0.0030	0.000050	09/07/20 21:42	
Boron	mg/L	ND	0.025	0.0062	09/07/20 21:42	
Cadmium	mg/L	ND	0.0025	0.000060	09/07/20 21:42	
Chromium	mg/L	ND	0.010	0.00050	09/07/20 21:42	
Cobalt	mg/L	ND	0.0050	0.000050	09/07/20 21:42	
Lead	mg/L	ND	0.0050	0.000077	09/07/20 21:42	
Lithium	mg/L	ND	0.030	0.00039	09/07/20 21:42	
Molybdenum	mg/L	ND	0.010	0.00011	09/07/20 21:42	
Selenium	mg/L	ND	0.010	0.000061	09/07/20 21:42	
Thallium	mg/L	ND	0.0010	0.000050	09/07/20 21:42	

LABORATORY CONTROL SAMPLE: 2989444

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.05	0.052	104	80-120	
Arsenic	mg/L	0.01	0.010	103	80-120	
Barium	mg/L	0.05	0.051	102	80-120	
Beryllium	mg/L	0.01	0.0099	99	80-120	
Boron	mg/L	0.05	0.050	100	80-120	
Cadmium	mg/L	0.01	0.010	103	80-120	
Chromium	mg/L	0.05	0.052	103	80-120	
Cobalt	mg/L	0.01	0.010	103	80-120	
Lead	mg/L	0.05	0.051	102	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.052	103	80-120	
Selenium	mg/L	0.05	0.051	102	80-120	
Thallium	mg/L	0.01	0.010	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2989445 2989446

Parameter	Units	92493089001 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	0.05	0.05	0.052	0.053	104	105	75-125	1	20	
Arsenic	mg/L	0.19 ug/L	0.01	0.01	0.010	0.010	99	101	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2989445 2989446

Parameter	Units	92493089001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	216 ug/L	0.05	0.05	0.27	0.27	109	113	75-125	1	20	E
Beryllium	mg/L	ND	0.01	0.01	0.0098	0.0098	98	97	75-125	1	20	
Boron	mg/L	32.5 ug/L	0.05	0.05	0.079	0.084	93	104	75-125	7	20	E
Cadmium	mg/L	ND	0.01	0.01	0.010	0.010	100	101	75-125	1	20	
Chromium	mg/L	0.60 ug/L	0.05	0.05	0.052	0.052	102	103	75-125	1	20	
Cobalt	mg/L	10.5 ug/L	0.01	0.01	0.022	0.023	117	123	75-125	3	20	
Lead	mg/L	0.17 ug/L	0.05	0.05	0.050	0.051	99	101	75-125	2	20	
Lithium	mg/L	0.50J ug/L	0.05	0.05	0.050	0.049	99	97	75-125	2	20	
Molybdenum	mg/L	ND	0.05	0.05	0.050	0.051	101	102	75-125	1	20	
Selenium	mg/L	0.091J ug/L	0.05	0.05	0.050	0.050	100	100	75-125	0	20	
Thallium	mg/L	ND	0.01	0.01	0.010	0.010	100	102	75-125	2	20	

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QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

QC Batch: 566587 | Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A | Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92493014001, 92493014002, 92493014003, 92493014004, 92493014005, 92493014006, 92493014007, 92493014008, 92493014009, 92493014010, 92493014011, 92493014012, 92493014013, 92493014014, 92493014015, 92493014016, 92493014017, 92493014018

METHOD BLANK: 3002724 Matrix: Water

Associated Lab Samples: 92493014001, 92493014002, 92493014003, 92493014004, 92493014005, 92493014006, 92493014007, 92493014008, 92493014009, 92493014010, 92493014011, 92493014012, 92493014013, 92493014014, 92493014015, 92493014016, 92493014017, 92493014018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00012	09/16/20 17:45	
Arsenic	mg/L	ND	0.0050	0.000087	09/16/20 17:45	
Barium	mg/L	ND	0.010	0.00021	09/16/20 17:45	
Beryllium	mg/L	ND	0.0030	0.000050	09/16/20 17:45	
Boron	mg/L	ND	0.025	0.0062	09/16/20 17:45	
Cadmium	mg/L	ND	0.0025	0.000060	09/16/20 17:45	
Chromium	mg/L	ND	0.010	0.00050	09/16/20 17:45	
Cobalt	mg/L	ND	0.0050	0.000050	09/16/20 17:45	
Lead	mg/L	ND	0.0050	0.000077	09/16/20 17:45	
Lithium	mg/L	ND	0.030	0.00039	09/16/20 17:45	
Molybdenum	mg/L	ND	0.010	0.00011	09/16/20 17:45	
Selenium	mg/L	ND	0.010	0.000061	09/16/20 17:45	
Thallium	mg/L	ND	0.0010	0.000050	09/16/20 17:45	

LABORATORY CONTROL SAMPLE: 3002725

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.05	0.052	104	80-120	
Arsenic	mg/L	0.01	0.010	102	80-120	
Barium	mg/L	0.05	0.052	105	80-120	
Beryllium	mg/L	0.01	0.010	101	80-120	
Boron	mg/L	0.05	0.053	106	80-120	
Cadmium	mg/L	0.01	0.010	105	80-120	
Chromium	mg/L	0.05	0.052	104	80-120	
Cobalt	mg/L	0.01	0.010	104	80-120	
Lead	mg/L	0.05	0.052	104	80-120	
Lithium	mg/L	0.05	0.051	101	80-120	
Molybdenum	mg/L	0.05	0.052	105	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Thallium	mg/L	0.01	0.010	104	80-120	

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QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3002726 3002727

Parameter	Units	92493014001 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	0.05	0.05	0.052	0.052	102	102	75-125	0	20	
Arsenic	mg/L	0.0079	0.01	0.01	0.018	0.018	98	99	75-125	1	20	
Barium	mg/L	0.056	0.05	0.05	0.11	0.11	99	101	75-125	1	20	
Beryllium	mg/L	ND	0.01	0.01	0.010	0.010	99	102	75-125	3	20	
Boron	mg/L	ND	0.05	0.05	ND	ND	81	78	75-125		20	
Cadmium	mg/L	ND	0.01	0.01	0.011	0.010	105	103	75-125	2	20	
Chromium	mg/L	ND	0.05	0.05	0.051	0.050	102	101	75-125	1	20	
Cobalt	mg/L	ND	0.01	0.01	0.010	0.010	103	103	75-125	0	20	
Lead	mg/L	ND	0.05	0.05	0.052	0.052	102	103	75-125	0	20	
Lithium	mg/L	ND	0.05	0.05	0.051	0.052	99	101	75-125	2	20	
Molybdenum	mg/L	ND	0.05	0.05	0.052	0.052	102	103	75-125	1	20	
Selenium	mg/L	ND	0.05	0.05	0.050	0.051	101	102	75-125	1	20	
Thallium	mg/L	ND	0.01	0.01	0.010	0.010	100	101	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

QC Batch: 563524 — Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 — Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92493014001, 92493014002, 92493014003, 92493014004

METHOD BLANK: 2987922 — Matrix: Water
Associated Lab Samples: 92493014001, 92493014002, 92493014003, 92493014004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	08/31/20 18:31	

LABORATORY CONTROL SAMPLE: 2987923

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	251	242	97	90-110	

SAMPLE DUPLICATE: 2987924

Parameter	Units	92492931002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	690	668	3	25	

SAMPLE DUPLICATE: 2988155

Parameter	Units	92493054001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	91.0	93.0	2	25	

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QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

QC Batch: 563688
QC Batch Method: SM 2540C-2011
Analysis Method: SM 2540C-2011
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92493014005, 92493014006, 92493014007, 92493014008, 92493014009, 92493014010, 92493014011, 92493014012, 92493014013, 92493014014, 92493014015, 92493014016, 92493014017

METHOD BLANK: 2988407 Matrix: Water
Associated Lab Samples: 92493014005, 92493014006, 92493014007, 92493014008, 92493014009, 92493014010, 92493014011, 92493014012, 92493014013, 92493014014, 92493014015, 92493014016, 92493014017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	09/01/20 13:12	

LABORATORY CONTROL SAMPLE: 2988408

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	251	246	98	90-110	

SAMPLE DUPLICATE: 2988409

Parameter	Units	92492906001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	232000 ug/L	226	3	25	

SAMPLE DUPLICATE: 2988410

Parameter	Units	92493014008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	14700	16200	10	25	

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QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

QC Batch: 563802 | Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92493014018, 92493014019

METHOD BLANK: 2988946 | Matrix: Water
Associated Lab Samples: 92493014018, 92493014019

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	09/01/20 16:19	

LABORATORY CONTROL SAMPLE: 2988947

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	251	232	93	90-110	

SAMPLE DUPLICATE: 2988948

Parameter	Units	92493014018 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	12600	12900	2	25	

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QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

QC Batch: 563275
QC Batch Method: EPA 300.0 Rev 2.1 1993
Analysis Method: EPA 300.0 Rev 2.1 1993
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92493014001, 92493014002, 92493014003, 92493014004, 92493014005

METHOD BLANK: 2986725 Matrix: Water
Associated Lab Samples: 92493014001, 92493014002, 92493014003, 92493014004, 92493014005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	08/29/20 12:40	
Fluoride	mg/L	ND	0.10	0.050	08/29/20 12:40	
Sulfate	mg/L	ND	1.0	0.50	08/29/20 12:40	

LABORATORY CONTROL SAMPLE: 2986726

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	48.8	98	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	
Sulfate	mg/L	50	49.0	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2986727 2986728

Parameter	Units	92492795001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.8	50	50	52.8	54.0	98	100	90-110	2	10	
Fluoride	mg/L	ND	2.5	2.5	2.5	2.6	99	102	90-110	3	10	
Sulfate	mg/L	1.7	50	50	50.9	52.0	98	101	90-110	2	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2986729 2986730

Parameter	Units	92492903002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	ND	50	50	49.6	50.3	99	101	90-110	1	10	
Fluoride	mg/L	ND	2.5	2.5	2.4	2.4	98	96	90-110	2	10	
Sulfate	mg/L	ND	50	50	49.6	50.1	99	100	90-110	1	10	

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QUALITY CONTROL DATA

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

QC Batch: 563276
QC Batch Method: EPA 300.0 Rev 2.1 1993
Analysis Method: EPA 300.0 Rev 2.1 1993
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92493014006, 92493014007, 92493014008, 92493014009, 92493014010, 92493014011, 92493014012, 92493014013, 92493014014, 92493014015, 92493014016, 92493014017, 92493014018, 92493014019

METHOD BLANK: 2986731 Matrix: Water

Associated Lab Samples: 92493014006, 92493014007, 92493014008, 92493014009, 92493014010, 92493014011, 92493014012, 92493014013, 92493014014, 92493014015, 92493014016, 92493014017, 92493014018, 92493014019

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	08/30/20 23:37	
Fluoride	mg/L	ND	0.10	0.050	08/30/20 23:37	
Sulfate	mg/L	ND	1.0	0.50	08/30/20 23:37	

LABORATORY CONTROL SAMPLE: 2986732

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.2	100	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	
Sulfate	mg/L	50	50.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2986733 2986734

Parameter	Units	92493014006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	13.3	50	50	62.7	63.8	99	101	90-110	2	10	
Fluoride	mg/L	0.097J	2.5	2.5	3.4	3.4	133	133	90-110	0	10	M1
Sulfate	mg/L	21.8	50	50	71.5	72.2	99	101	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2986735 2986736

Parameter	Units	92493014016 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	ND	50	50	49.6	50.1	99	100	90-110	1	10	
Fluoride	mg/L	ND	2.5	2.5	3.1	2.6	122	103	90-110	17	10	M1,R1
Sulfate	mg/L	ND	50	50	49.4	49.9	99	100	90-110	1	10	

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QUALIFIERS

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

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

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92493014001	**MCM-01**				
92493014002	**MCM-02**				
92493014003	**MCM-04**				
92493014004	**MCM-05**				
92493014005	**MCM-07**				
92493014006	**MCM-11**				
92493014007	**MCM-12**				
92493014008	**MCM-14**				
92493014009	**MCM-15**				
92493014010	**MCM-16**				
92493014011	**MCM-17**				
92493014012	**MCM-18**				
92493014013	**MCM-19**				
92493014014	**MCM-20**				
92493014019	**MCM-06**				
92493014001	**MCM-01**	EPA 3010A	563604	EPA 6010D	563623
92493014002	**MCM-02**	EPA 3010A	563907	EPA 6010D	563931
92493014003	**MCM-04**	EPA 3010A	563907	EPA 6010D	563931
92493014004	**MCM-05**	EPA 3010A	563907	EPA 6010D	563931
92493014005	**MCM-07**	EPA 3010A	563907	EPA 6010D	563931
92493014006	**MCM-11**	EPA 3010A	563907	EPA 6010D	563931
92493014007	**MCM-12**	EPA 3010A	563907	EPA 6010D	563931
92493014008	**MCM-14**	EPA 3010A	563907	EPA 6010D	563931
92493014009	**MCM-15**	EPA 3010A	563907	EPA 6010D	563931
92493014010	**MCM-16**	EPA 3010A	563907	EPA 6010D	563931
92493014011	**MCM-17**	EPA 3010A	563907	EPA 6010D	563931
92493014012	**MCM-18**	EPA 3010A	563907	EPA 6010D	563931
92493014013	**MCM-19**	EPA 3010A	563907	EPA 6010D	563931
92493014014	**MCM-20**	EPA 3010A	563907	EPA 6010D	563931
92493014015	**FBL082620**	EPA 3010A	563907	EPA 6010D	563931
92493014016	**EQBL082620**	EPA 3010A	563907	EPA 6010D	563931
92493014017	**DUP-1**	EPA 3010A	563907	EPA 6010D	563931
92493014018	**DUP-2**	EPA 3010A	563907	EPA 6010D	563931
92493014019	**MCM-06**	EPA 3010A	563907	EPA 6010D	563931
92493014001	**MCM-01**	EPA 3010A	566587	EPA 6020B	566664
92493014002	**MCM-02**	EPA 3010A	566587	EPA 6020B	566664
92493014003	**MCM-04**	EPA 3010A	566587	EPA 6020B	566664
92493014004	**MCM-05**	EPA 3010A	566587	EPA 6020B	566664
92493014005	**MCM-07**	EPA 3010A	566587	EPA 6020B	566664
92493014006	**MCM-11**	EPA 3010A	566587	EPA 6020B	566664
92493014007	**MCM-12**	EPA 3010A	566587	EPA 6020B	566664
92493014008	**MCM-14**	EPA 3010A	566587	EPA 6020B	566664
92493014009	**MCM-15**	EPA 3010A	566587	EPA 6020B	566664
92493014010	**MCM-16**	EPA 3010A	566587	EPA 6020B	566664
92493014011	**MCM-17**	EPA 3010A	566587	EPA 6020B	566664
92493014012	**MCM-18**	EPA 3010A	566587	EPA 6020B	566664
92493014013	**MCM-19**	EPA 3010A	566587	EPA 6020B	566664

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92493014014	**MCM-20**	EPA 3010A	566587	EPA 6020B	566664
92493014015	**FBL082620**	EPA 3010A	566587	EPA 6020B	566664
92493014016	**EQBL082620**	EPA 3010A	566587	EPA 6020B	566664
92493014017	**DUP-1**	EPA 3010A	566587	EPA 6020B	566664
92493014018	**DUP-2**	EPA 3010A	566587	EPA 6020B	566664
92493014019	**MCM-06**	EPA 3010A	563910	EPA 6020B	563924
92493014001	**MCM-01**	EPA 7470A	563861	EPA 7470A	563890
92493014002	**MCM-02**	EPA 7470A	563861	EPA 7470A	563890
92493014003	**MCM-04**	EPA 7470A	563861	EPA 7470A	563890
92493014004	**MCM-05**	EPA 7470A	563861	EPA 7470A	563890
92493014005	**MCM-07**	EPA 7470A	563861	EPA 7470A	563890
92493014006	**MCM-11**	EPA 7470A	563861	EPA 7470A	563890
92493014007	**MCM-12**	EPA 7470A	563861	EPA 7470A	563890
92493014008	**MCM-14**	EPA 7470A	563861	EPA 7470A	563890
92493014009	**MCM-15**	EPA 7470A	563861	EPA 7470A	563890
92493014010	**MCM-16**	EPA 7470A	563861	EPA 7470A	563890
92493014011	**MCM-17**	EPA 7470A	563861	EPA 7470A	563890
92493014012	**MCM-18**	EPA 7470A	563861	EPA 7470A	563890
92493014013	**MCM-19**	EPA 7470A	563861	EPA 7470A	563890
92493014014	**MCM-20**	EPA 7470A	563861	EPA 7470A	563890
92493014015	**FBL082620**	EPA 7470A	563861	EPA 7470A	563890
92493014016	**EQBL082620**	EPA 7470A	563861	EPA 7470A	563890
92493014017	**DUP-1**	EPA 7470A	563861	EPA 7470A	563890
92493014018	**DUP-2**	EPA 7470A	563861	EPA 7470A	563890
92493014019	**MCM-06**	EPA 7470A	563861	EPA 7470A	563890
92493014001	**MCM-01**	SM 2540C-2011	563524		
92493014002	**MCM-02**	SM 2540C-2011	563524		
92493014003	**MCM-04**	SM 2540C-2011	563524		
92493014004	**MCM-05**	SM 2540C-2011	563524		
92493014005	**MCM-07**	SM 2540C-2011	563688		
92493014006	**MCM-11**	SM 2540C-2011	563688		
92493014007	**MCM-12**	SM 2540C-2011	563688		
92493014008	**MCM-14**	SM 2540C-2011	563688		
92493014009	**MCM-15**	SM 2540C-2011	563688		
92493014010	**MCM-16**	SM 2540C-2011	563688		
92493014011	**MCM-17**	SM 2540C-2011	563688		
92493014012	**MCM-18**	SM 2540C-2011	563688		
92493014013	**MCM-19**	SM 2540C-2011	563688		
92493014014	**MCM-20**	SM 2540C-2011	563688		
92493014015	**FBL082620**	SM 2540C-2011	563688		
92493014016	**EQBL082620**	SM 2540C-2011	563688		
92493014017	**DUP-1**	SM 2540C-2011	563688		
92493014018	**DUP-2**	SM 2540C-2011	563802		
92493014019	**MCM-06**	SM 2540C-2011	563802		
92493014001	**MCM-01**	EPA 300.0 Rev 2.1 1993	563275		
92493014002	**MCM-02**	EPA 300.0 Rev 2.1 1993	563275		

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MCMANUS ASH POND SCAN
Pace Project No.: 92493014

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92493014003	**MCM-04**	EPA 300.0 Rev 2.1 1993	563275		
92493014004	**MCM-05**	EPA 300.0 Rev 2.1 1993	563275		
92493014005	**MCM-07**	EPA 300.0 Rev 2.1 1993	563275		
92493014006	**MCM-11**	EPA 300.0 Rev 2.1 1993	563276		
92493014007	**MCM-12**	EPA 300.0 Rev 2.1 1993	563276		
92493014008	**MCM-14**	EPA 300.0 Rev 2.1 1993	563276		
92493014009	**MCM-15**	EPA 300.0 Rev 2.1 1993	563276		
92493014010	**MCM-16**	EPA 300.0 Rev 2.1 1993	563276		
92493014011	**MCM-17**	EPA 300.0 Rev 2.1 1993	563276		
92493014012	**MCM-18**	EPA 300.0 Rev 2.1 1993	563276		
92493014013	**MCM-19**	EPA 300.0 Rev 2.1 1993	563276		
92493014014	**MCM-20**	EPA 300.0 Rev 2.1 1993	563276		
92493014015	**FBL082620**	EPA 300.0 Rev 2.1 1993	563276		
92493014016	**EQBL082620**	EPA 300.0 Rev 2.1 1993	563276		
92493014017	**DUP-1**	EPA 300.0 Rev 2.1 1993	563276		
92493014018	**DUP-2**	EPA 300.0 Rev 2.1 1993	563276		
92493014019	**MCM-06**	EPA 300.0 Rev 2.1 1993	563276		

Laboratory receiving samples:
Asheville [X] Eden [ ] Greenwood [ ] Huntersville [ ] Raleigh [ ] Mechanicsville [ ]

Sample Condition Upon Receipt

Client Name: Georgia Power

Projec

WO# : 92493014

92493014

Courier: [X] Fed Ex [ ] UPS [ ] USPS [ ] Client [ ] Commercial [ ] Pace [ ] Other:____

Custody Seal Present? [X] Yes [ ] No Seals Intact? [X] Yes [ ] No

Date/Initials Person Examining Contents: 9-28-20AA

Packing Material: [ ] Bubble Wrap [ ] Bubble Bags [X] None [ ] Other

Biological Tissue Frozen? [ ] Yes [ ] No [X] N/A

Thermometer: [X] IR Gun ID: 93-T061

Type of Ice: [X] Wet [ ] Blue [ ] None

Cooler Temp (°C): 1.9, 0.9, 1.2, 1.4 Correction Factor: Add/Subtract (°C) 0

Cooler Temp Corrected (°C): 1.9, 0.9, 1.2, 1.4

Temp should be above freezing to 6°C
[ ] Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil ([X] N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? [ ] Yes [X] No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? [ ] Yes [X] No

				Comments/Discrepancy:
Chain of Custody Present?	[X] Yes	[ ] No	[ ] N/A	1.
Samples Arrived within Hold Time?	[X] Yes	[ ] No	[ ] N/A	2.
Short Hold Time Analysis (<72 hr.)?	[ ] Yes	[X] No	[ ] N/A	3.
Rush Turn Around Time Requested?	[ ] Yes	[X] No	[ ] N/A	4.
Sufficient Volume?	[X] Yes	[ ] No	[ ] N/A	5.
Correct Containers Used?	[X] Yes	[ ] No	[ ] N/A	6.
-Pace Containers Used?	[X] Yes	[ ] No	[ ] N/A	
Containers Intact?	[X] Yes	[ ] No	[ ] N/A	7.
Dissolved analysis: Samples Field Filtered?	[ ] Yes	[ ] No	[X] N/A	8.
Sample Labels Match COC?	[X] Yes	[ ] No	[ ] N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT				
Headspace in VOA Vials (>5-6mm)?	[ ] Yes	[ ] No	[X] N/A	10.
Trip Blank Present?	[ ] Yes	[ ] No	[X] N/A	11.
Trip Blank Custody Seals Present?	[ ] Yes	[ ] No	[X] N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? [ ] Yes [ ] No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: ______________ Date/Time: ______________

Project Manager SCURF Review: ______________ Date: ______________

Project Manager SRF Review: ______________ Date: ______________

Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project # **WO#:92493014**

PM: KLH1 **Due Date: 09/14/20**

CLIENT: GA-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP1N	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		1	1		✓ 1																			2				
2		1	1		✓ 1																			2				
3		1	1		✓ 1																			2				
4		1	1		✓ 1																			2				
5		1	1		✓ 1																			2				
6		1	1		✓ 1																			2				
7		1	1		✓ 1																			2				
8		1	1		✓ 1																			2				
9		1	1		✓ 1																			2				
10		1	1		✓ 1																			2				
11		1	1		✓ 1																			2				
12		1	1		✓ 1																			2				

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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.

	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
Pace Analytical®	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project # **WO#: 92493014**

PM: KLH1 Due Date: 09/14/20

CLIENT: GA-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP1N	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		1	1			✓ 1																		2				
2		1	1			✓ 1																		2				
3		1	1			✓ 1																		2				
4		1	1			✓ 1																		2				
5		1	1			✓ 1																		2				
6		1	1			✓ 1																		2				
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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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.

Page : 1 Of 2

Section A – Required Client Information:
- Company: Georgia Power
- Address: 1003 Weatherstone Parkway
- Suite 320, Woodstock, GA 30188
- Email: veronica.fay@resoluteenv.com
- Phone: (404)358-8469 Fax:
- Requested Due Date:

Section B – Required Project Information:
- Report To: Veronica Fay
- Copy To: Stephen.Wilson@Resoluteenv.com
- Purchase Order #:
- Project Name: McManus Ash Pond Scan
- Project #:

Section C – Invoice Information:
- Attention:
- Company Name:
- Address:
- Pace Quote:
- Pace Project Manager: kevin.herring@pacelabs.com,
- Pace Profile #: 10768

Regulatory Agency:
State / Location: GA

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Start DATE	Start TIME	End DATE	End TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	RAD 9315/9320	Metals App III & IV	TDS	Cl, F, SO4	Residual Chlorine (Y/N)	92493014
1	MCM-01	WT	G	8/26/20	1330				5	2		3						X	X	X	X		5.79 pH
2	MCM-02	WT	G	8/26/20	1425				5	2		3						X	X	X	X		5.03 pH
3	MCM-04	WT	G	8/26/20	1158				5	2		3						X	X	X	X		4.95 pH
4	MCM-05	WT	G	8/26/20	1247				5	2		3						X	X	X	X		6.50 pH
5	MCM-07	WT	G	8/26/20	1121				5	2		3						X	X	X	X		6.32 pH
6	MCM-11	WT	G	8/26/20	1026				5	2		3						X	X	X	X		4.96 pH
7	MCM-12	WT	G	8/26/20	1029				5	2		3						X	X	X	X		6.32 pH
8	MCM-14	WT	G	8/26/20	1148				5	2		3						X	X	X	X		~~4.4~~ 6.62 pH
9	MCM-15	WT	G	8/26/20	1449				5	2		3						X	X	X	X		5.33 pH
10	MCM-16	WT	G	8/26/20	1652				5	2		3						X	X	X	X		4.92 pH
11	MCM-17	WT	G	8/26/20	1556				5	2		3						X	X	X	X		6.65 pH
12	MCM-18	WT	G	8/26/20	1158				5	2		3						X	X	X	X		4.27 pH

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	8/27/20	0930	A. Rucker / PACE / AVL	8-28-20	1135	1.9	Y	Y	Y
							0.9	Y	Y	Y
							1.2	Y	Y	Y
							1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe Booth, Will Leaker, Kevin Stephenson, Veronica Fay

SIGNATURE of SAMPLER: Veronica Fay DATE Signed: 8/26/20

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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.

Page : 1 Of 2

Section A
Required Client Information:
Company: Georgia Power
Address: 1003 Weatherstone Parkway
Suite 320, Woodstock, GA 30188
Email: veronica.fay@resoluteenv.com
Phone: (404)358-8469 Fax:
Requested Due Date:

Section B
Required Project Information:
Report To: Veronica Fay
Copy To: Stephen Wilson @Resoluteenv.com
Purchase Order #:
Project Name: McManus Ash Pond Scan
Project #:

Section C
Invoice Information:
Attention:
Company Name:
Address:
Pace Quote:
Pace Project Manager: kevin.herring@pacelabs.com,
Pace Profile #: 10768

Regulatory Agency

State / Location: GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	RAD 9315/9320	Metals App III & IV	TDS	Cl, F, SO4	Residual Chlorine (Y/N)	92493014
1	MCM-19			8/26/20	1430				5	2		3							X	X	X	X		
2	MCM-20			8/26/20	1548				5	2		3							X	X	X	X		5.25 pH
3	FBL082620			8/26/20	1649				5	2		3							X	X	X	X		3.78 pH
4	EQBL082620			8/26/20	1655				5	2		3							X	X	X	X		
5	DUP-1			8/26/20	—				5	2		3							X	X	X	X		
6	DUP-2			8/26/20	—				5	2		3							X	X	X	X		
7																								
8																								
9																								
10																								
11																								
12																								

AR 8-28-20

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	8/27/20	0930	A Rucker / PACE / ATL	8-28-20	~~8-28-20~~ 1135	1.9	Y	Y	Y
							0.9	Y	Y	Y
							1.2	Y	Y	Y
							1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Joe Booth, Will Laaker, Stephen Stephenson, Veronica Fay
SIGNATURE of SAMPLER: Veronica Fay
DATE Signed: 8/26/20

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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.

Page : 1 Of 1

Section A
Required Client Information:
Company: Georgia Power
Address: 1003 Weatherstone Parkway
Suite 320, Woodstock, GA 30188
Email: veronica.fay@resoluteenv.com
Phone: (404)358-8469 Fax:
Requested Due Date:

Section B
Required Project Information:
Report To: Veronica Fay
Copy To: StephenWilson@ResoluteEnv.com
Purchase Order #:
Project Name: McManus Ash Pond Scan
Project #:

Section C
Invoice Information:
Attention:
Company Name:
Address:
Pace Quote:
Pace Project Manager: kevin.herring@pacelabs.com,
Pace Profile #: 10768

Regulatory Agency:
State / Location: GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	RAD 9315/9320	Metals App III & IV	TDS	Cl, F, SO4	Residual Chlorine (Y/N)	
1	MCM-06	WT	G	8/26/20	1608				5	2		3							X	X	X	X		92493014
2																								6.88 pH
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	8/27/20	0930	A. Rucker / PACE / AVL	8-28-20	1135	1.9	Y	Y	Y
							0.9	Y	Y	Y
							1.2	Y	Y	Y
							1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Joe Booth, Will Lawker, Kevin Stephenson, Veronica Fay
SIGNATURE of SAMPLER: Veronica Fay
DATE Signed: 8/26/20

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

September 22, 2020

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

RE: Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 28, 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,

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

Enclosures

cc: Veronica Fay
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Ms. Lauren Petty, Southern Co. Services
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

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Peachtree Corners, GA 30092
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CERTIFICATIONS

Project:	MCMANUS ASH POND SCAN RADS
Pace Project No.:	92493016

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

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

SAMPLE SUMMARY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92493016001	**MCM-01**	Water	08/26/20 13:38	08/28/20 11:35
92493016002	**MCM-02**	Water	08/26/20 14:25	08/28/20 11:35
92493016003	**MCM-04**	Water	08/26/20 11:58	08/28/20 11:35
92493016004	**MCM-05**	Water	08/26/20 12:47	08/28/20 11:35
92493016005	**MCM-07**	Water	08/26/20 11:21	08/28/20 11:35
92493016006	**MCM-11**	Water	08/26/20 10:26	08/28/20 11:35
92493016007	**MCM-12**	Water	08/26/20 10:29	08/28/20 11:35
92493016008	**MCM-14**	Water	08/26/20 11:48	08/28/20 11:35
92493016009	**MCM-15**	Water	08/26/20 14:49	08/28/20 11:35
92493016010	**MCM-16**	Water	08/26/20 16:52	08/28/20 11:35
92493016011	**MCM-17**	Water	08/26/20 15:56	08/28/20 11:35
92493016012	**MCM-18**	Water	08/26/20 11:58	08/28/20 11:35
92493016013	**MCM-19**	Water	08/26/20 14:30	08/28/20 11:35
92493016014	**MCM-20**	Water	08/26/20 15:48	08/28/20 11:35
92493016015	**FBL082620**	Water	08/26/20 16:49	08/28/20 11:35
92493016016	**EQBL082620**	Water	08/26/20 16:55	08/28/20 11:35
92493016017	**DUP-1**	Water	08/26/20 00:00	08/28/20 11:35
92493016018	**DUP-2**	Water	08/26/20 00:00	08/28/20 11:35
92493016019	**MCM-06**	Water	08/26/20 16:08	08/28/20 11:35

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SAMPLE ANALYTE COUNT

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92493016001	**MCM-01**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92493016002	**MCM-02**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92493016003	**MCM-04**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92493016004	**MCM-05**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92493016005	**MCM-07**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92493016006	**MCM-11**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92493016007	**MCM-12**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92493016008	**MCM-14**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92493016009	**MCM-15**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92493016010	**MCM-16**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92493016011	**MCM-17**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92493016012	**MCM-18**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92493016013	**MCM-19**	EPA 9315	LAL	1	PASI-PA

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92493016014	**MCM-20**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92493016015	**FBL082620**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92493016016	**EQBL082620**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92493016017	**DUP-1**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92493016018	**DUP-2**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92493016019	**MCM-06**	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

REPORT OF LABORATORY ANALYSIS

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

SUMMARY OF DETECTION

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92493016001	**MCM-01**					
EPA 9315	Radium-226	0.491 ± 0.342 (0.598) C:91% T:NA	pCi/L		09/11/20 08:55	
EPA 9320	Radium-228	-0.676 ± 0.474 (1.19) C:60% T:88%	pCi/L		09/15/20 15:05	
Total Radium Calculation	Total Radium	0.491 ± 0.816 (1.79)	pCi/L		09/16/20 10:12	
92493016002	**MCM-02**					
EPA 9315	Radium-226	0.470 ± 0.151 (0.169) C:88% T:NA	pCi/L		09/10/20 18:20	
EPA 9320	Radium-228	0.00000000000000044 5 ± 0.513 (1.18) C:67% T:76%	pCi/L		09/15/20 15:06	
Total Radium Calculation	Total Radium	0.470 ± 0.664 (1.35)	pCi/L		09/16/20 10:12	
92493016003	**MCM-04**					
EPA 9315	Radium-226	3.63 ± 0.624 (0.268) C:90% T:NA	pCi/L		09/10/20 18:20	
EPA 9320	Radium-228	1.65 ± 0.714 (1.19) C:64% T:73%	pCi/L		09/15/20 15:06	
Total Radium Calculation	Total Radium	5.28 ± 1.34 (1.46)	pCi/L		09/16/20 10:12	
92493016004	**MCM-05**					
EPA 9315	Radium-226	0.690 ± 0.202 (0.201) C:69% T:NA	pCi/L		09/10/20 18:20	
EPA 9320	Radium-228	0.151 ± 0.495 (1.11) C:65% T:83%	pCi/L		09/15/20 15:06	
Total Radium Calculation	Total Radium	0.841 ± 0.697 (1.31)	pCi/L		09/16/20 10:12	

REPORT OF LABORATORY ANALYSIS

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

SUMMARY OF DETECTION

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92493016005	**MCM-07**					
EPA 9315	Radium-226	5.35 ± 0.937 (0.255) C:87% T:NA	pCi/L		09/21/20 07:31	
EPA 9320	Radium-228	6.49 ± 1.44 (1.05) C:66% T:81%	pCi/L		09/15/20 15:03	
Total Radium Calculation	Total Radium	11.8 ± 2.38 (1.31)	pCi/L		09/21/20 10:18	
92493016006	**MCM-11**					
EPA 9315	Radium-226	0.424 ± 0.267 (0.371) C:90% T:NA	pCi/L		09/11/20 07:02	
EPA 9320	Radium-228	-0.184 ± 0.421 (1.00) C:65% T:90%	pCi/L		09/15/20 15:06	
Total Radium Calculation	Total Radium	0.424 ± 0.688 (1.37)	pCi/L		09/16/20 10:12	
92493016007	**MCM-12**					
EPA 9315	Radium-226	1.11 ± 0.413 (0.390) C:99% T:NA	pCi/L		09/11/20 07:03	
EPA 9320	Radium-228	1.03 ± 0.567 (1.03) C:62% T:82%	pCi/L		09/15/20 15:06	
Total Radium Calculation	Total Radium	2.14 ± 0.980 (1.42)	pCi/L		09/16/20 10:12	
92493016008	**MCM-14**					
EPA 9315	Radium-226	3.76 ± 0.852 (0.356) C:98% T:NA	pCi/L		09/11/20 07:04	
EPA 9320	Radium-228	5.84 ± 1.35 (1.08) C:66% T:78%	pCi/L		09/15/20 15:06	
Total Radium Calculation	Total Radium	9.60 ± 2.20 (1.44)	pCi/L		09/16/20 10:12	
92493016009	**MCM-15**					
EPA 9315	Radium-226	0.865 ± 0.422 (0.607) C:90% T:NA	pCi/L		09/11/20 07:04	

REPORT OF LABORATORY ANALYSIS

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

SUMMARY OF DETECTION

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92493016009	**MCM-15**					
EPA 9320	Radium-228	0.425 ± 0.557 (1.19) C:62% T:80%	pCi/L		09/15/20 15:06	
Total Radium Calculation	Total Radium	1.29 ± 0.979 (1.80)	pCi/L		09/16/20 10:12	
92493016010	**MCM-16**					
EPA 9315	Radium-226	0.643 ± 0.320 (0.368) C:95% T:NA	pCi/L		09/11/20 07:04	
EPA 9320	Radium-228	-0.250 ± 0.434 (1.05) C:62% T:90%	pCi/L		09/15/20 15:06	
Total Radium Calculation	Total Radium	0.643 ± 0.754 (1.42)	pCi/L		09/17/20 14:22	
92493016011	**MCM-17**					
EPA 9315	Radium-226	4.39 ± 0.877 (0.277) C:82% T:NA	pCi/L		09/14/20 11:38	
EPA 9320	Radium-228	4.12 ± 1.01 (0.820) C:63% T:75%	pCi/L		09/16/20 11:37	
Total Radium Calculation	Total Radium	8.51 ± 1.89 (1.10)	pCi/L		09/17/20 14:22	
92493016012	**MCM-18**					
EPA 9315	Radium-226	4.73 ± 0.928 (0.315) C:85% T:NA	pCi/L		09/14/20 11:38	
EPA 9320	Radium-228	5.77 ± 1.29 (0.833) C:62% T:81%	pCi/L		09/16/20 11:37	
Total Radium Calculation	Total Radium	10.5 ± 2.22 (1.15)	pCi/L		09/17/20 14:22	
92493016013	**MCM-19**					
EPA 9315	Radium-226	5.81 ± 1.02 (0.209) C:84% T:NA	pCi/L		09/21/20 07:29	
EPA 9320	Radium-228	16.8 ± 3.23 (0.765) C:62% T:84%	pCi/L		09/16/20 11:37	

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SUMMARY OF DETECTION

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92493016013	**MCM-19**					
Total Radium Calculation	Total Radium	22.6 ± 4.25 (0.974)	pCi/L		09/21/20 10:18	
92493016014	**MCM-20**					
EPA 9315	Radium-226	6.00 ± 1.04 (0.193) C:84% T:NA	pCi/L		09/21/20 07:29	
EPA 9320	Radium-228	30.7 ± 5.71 (0.761) C:63% T:81%	pCi/L		09/16/20 11:37	
Total Radium Calculation	Total Radium	36.7 ± 6.75 (0.954)	pCi/L		09/21/20 10:18	
92493016015	**FBL082620**					
EPA 9315	Radium-226	0.0158 ± 0.121 (0.324) C:86% T:NA	pCi/L		09/14/20 07:28	
EPA 9320	Radium-228	1.09 ± 0.541 (0.913) C:57% T:75%	pCi/L		09/16/20 11:37	
Total Radium Calculation	Total Radium	1.11 ± 0.662 (1.24)	pCi/L		09/17/20 14:22	
92493016016	**EQBL082620**					
EPA 9315	Radium-226	0.108 ± 0.142 (0.294) C:86% T:NA	pCi/L		09/14/20 07:28	
EPA 9320	Radium-228	1.56 ± 0.640 (1.02) C:61% T:75%	pCi/L		09/16/20 11:37	
Total Radium Calculation	Total Radium	1.67 ± 0.782 (1.31)	pCi/L		09/17/20 14:22	
92493016017	**DUP-1**					
EPA 9315	Radium-226	3.74 ± 0.806 (0.445) C:80% T:NA	pCi/L		09/14/20 07:28	
EPA 9320	Radium-228	2.76 ± 0.795 (0.880) C:64% T:70%	pCi/L		09/16/20 11:37	
Total Radium Calculation	Total Radium	6.50 ± 1.60 (1.33)	pCi/L		09/17/20 14:22	

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110 Technology Parkway
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(770)734-4200

SUMMARY OF DETECTION

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92493016018	**DUP-2**					
EPA 9315	Radium-226	6.17 ± 1.07 (0.262) C:83% T:NA	pCi/L		09/21/20 07:31	
EPA 9320	Radium-228	33.9 ± 6.30 (0.840) C:61% T:79%	pCi/L		09/16/20 11:37	
Total Radium Calculation	Total Radium	40.1 ± 7.37 (1.10)	pCi/L		09/21/20 10:18	
92493016019	**MCM-06**					
EPA 9315	Radium-226	4.83 ± 0.958 (0.337) C:81% T:NA	pCi/L		09/14/20 07:28	
EPA 9320	Radium-228	3.23 ± 0.991 (1.24) C:64% T:57%	pCi/L		09/16/20 11:37	
Total Radium Calculation	Total Radium	8.06 ± 1.95 (1.58)	pCi/L		09/17/20 14:22	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-01 **Lab ID: 92493016001** Collected: 08/26/20 13:38 Received: 08/28/20 11:35 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	**0.491 ± 0.342 (0.598) C:91% T:NA**	pCi/L	09/11/20 08:55	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**-0.676 ± 0.474 (1.19) C:60% T:88%**	pCi/L	09/15/20 15:05	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.491 ± 0.816 (1.79)**	pCi/L	09/16/20 10:12	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-02 **Lab ID: 92493016002** Collected: 08/26/20 14:25 Received: 08/28/20 11:35 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	**0.470 ± 0.151 (0.169) C:88% T:NA**	pCi/L	09/10/20 18:20	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.000000000000000445 ± 0.513 (1.18) C:67% T:76%**	pCi/L	09/15/20 15:06	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.470 ± 0.664 (1.35)**	pCi/L	09/16/20 10:12	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS

Pace Project No.: 92493016

Sample: MCM-04 **Lab ID: 92493016003** Collected: 08/26/20 11:58 Received: 08/28/20 11:35 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	**3.63 ± 0.624 (0.268) C:90% T:NA**	pCi/L	09/10/20 18:20	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**1.65 ± 0.714 (1.19) C:64% T:73%**	pCi/L	09/15/20 15:06	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**5.28 ± 1.34 (1.46)**	pCi/L	09/16/20 10:12	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-05 | **Lab ID: 92493016004** | Collected: 08/26/20 12:47 | Received: 08/28/20 11:35 | 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	**0.690 ± 0.202 (0.201) C:69% T:NA**	pCi/L	09/10/20 18:20	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.151 ± 0.495 (1.11) C:65% T:83%**	pCi/L	09/15/20 15:06	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.841 ± 0.697 (1.31)**	pCi/L	09/16/20 10:12	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-07 | **Lab ID: 92493016005** | Collected: 08/26/20 11:21 | Received: 08/28/20 11:35 | 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	**5.35 ± 0.937 (0.255) C:87% T:NA**	pCi/L	09/21/20 07:31	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**6.49 ± 1.44 (1.05) C:66% T:81%**	pCi/L	09/15/20 15:03	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**11.8 ± 2.38 (1.31)**	pCi/L	09/21/20 10:18	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-11 **Lab ID: 92493016006** Collected: 08/26/20 10:26 Received: 08/28/20 11:35 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	**0.424 ± 0.267 (0.371) C:90% T:NA**	pCi/L	09/11/20 07:02	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**-0.184 ± 0.421 (1.00) C:65% T:90%**	pCi/L	09/15/20 15:06	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.424 ± 0.688 (1.37)**	pCi/L	09/16/20 10:12	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-12 **Lab ID: 92493016007** Collected: 08/26/20 10:29 Received: 08/28/20 11:35 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	**1.11 ± 0.413 (0.390) C:99% T:NA**	pCi/L	09/11/20 07:03	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**1.03 ± 0.567 (1.03) C:62% T:82%**	pCi/L	09/15/20 15:06	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**2.14 ± 0.980 (1.42)**	pCi/L	09/16/20 10:12	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-14 **Lab ID: 92493016008** Collected: 08/26/20 11:48 Received: 08/28/20 11:35 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	**3.76 ± 0.852 (0.356) C:98% T:NA**	pCi/L	09/11/20 07:04	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**5.84 ± 1.35 (1.08) C:66% T:78%**	pCi/L	09/15/20 15:06	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**9.60 ± 2.20 (1.44)**	pCi/L	09/16/20 10:12	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-15 **Lab ID: 92493016009** Collected: 08/26/20 14:49 Received: 08/28/20 11:35 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	**0.865 ± 0.422 (0.607) C:90% T:NA**	pCi/L	09/11/20 07:04	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.425 ± 0.557 (1.19) C:62% T:80%**	pCi/L	09/15/20 15:06	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.29 ± 0.979 (1.80)**	pCi/L	09/16/20 10:12	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-16 | **Lab ID: 92493016010** | Collected: 08/26/20 16:52 | Received: 08/28/20 11:35 | 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	**0.643 ± 0.320 (0.368) C:95% T:NA**	pCi/L	09/11/20 07:04	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**-0.250 ± 0.434 (1.05) C:62% T:90%**	pCi/L	09/15/20 15:06	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.643 ± 0.754 (1.42)**	pCi/L	09/17/20 14:22	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-17 | **Lab ID: 92493016011** | Collected: 08/26/20 15:56 | Received: 08/28/20 11:35 | 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	**4.39 ± 0.877 (0.277) C:82% T:NA**	pCi/L	09/14/20 11:38	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**4.12 ± 1.01 (0.820) C:63% T:75%**	pCi/L	09/16/20 11:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**8.51 ± 1.89 (1.10)**	pCi/L	09/17/20 14:22	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-18 **Lab ID: 92493016012** Collected: 08/26/20 11:58 Received: 08/28/20 11:35 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	**4.73 ± 0.928 (0.315) C:85% T:NA**	pCi/L	09/14/20 11:38	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**5.77 ± 1.29 (0.833) C:62% T:81%**	pCi/L	09/16/20 11:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**10.5 ± 2.22 (1.15)**	pCi/L	09/17/20 14:22	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-19 | **Lab ID: 92493016013** | Collected: 08/26/20 14:30 | Received: 08/28/20 11:35 | 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	**5.81 ± 1.02 (0.209) C:84% T:NA**	pCi/L	09/21/20 07:29	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**16.8 ± 3.23 (0.765) C:62% T:84%**	pCi/L	09/16/20 11:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**22.6 ± 4.25 (0.974)**	pCi/L	09/21/20 10:18	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-20 | **Lab ID: 92493016014** | Collected: 08/26/20 15:48 | Received: 08/28/20 11:35 | 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	**6.00 ± 1.04 (0.193) C:84% T:NA**	pCi/L	09/21/20 07:29	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**30.7 ± 5.71 (0.761) C:63% T:81%**	pCi/L	09/16/20 11:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**36.7 ± 6.75 (0.954)**	pCi/L	09/21/20 10:18	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: FBL082620 | **Lab ID: 92493016015** | Collected: 08/26/20 16:49 | Received: 08/28/20 11:35 | 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	**0.0158 ± 0.121 (0.324) C:86% T:NA**	pCi/L	09/14/20 07:28	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**1.09 ± 0.541 (0.913) C:57% T:75%**	pCi/L	09/16/20 11:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.11 ± 0.662 (1.24)**	pCi/L	09/17/20 14:22	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: EQBL082620 **Lab ID: 92493016016** Collected: 08/26/20 16:55 Received: 08/28/20 11:35 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	**0.108 ± 0.142 (0.294) C:86% T:NA**	pCi/L	09/14/20 07:28	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**1.56 ± 0.640 (1.02) C:61% T:75%**	pCi/L	09/16/20 11:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.67 ± 0.782 (1.31)**	pCi/L	09/17/20 14:22	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS

Pace Project No.: 92493016

Sample: DUP-1 | **Lab ID: 92493016017** | Collected: 08/26/20 00:00 | Received: 08/28/20 11:35 | 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	**3.74 ± 0.806 (0.445) C:80% T:NA**	pCi/L	09/14/20 07:28	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**2.76 ± 0.795 (0.880) C:64% T:70%**	pCi/L	09/16/20 11:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**6.50 ± 1.60 (1.33)**	pCi/L	09/17/20 14:22	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: DUP-2 | **Lab ID: 92493016018** | Collected: 08/26/20 00:00 | Received: 08/28/20 11:35 | 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	**6.17 ± 1.07 (0.262) C:83% T:NA**	pCi/L	09/21/20 07:31	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**33.9 ± 6.30 (0.840) C:61% T:79%**	pCi/L	09/16/20 11:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**40.1 ± 7.37 (1.10)**	pCi/L	09/21/20 10:18	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Sample: MCM-06 | **Lab ID: 92493016019** | Collected: 08/26/20 16:08 | Received: 08/28/20 11:35 | 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	**4.83 ± 0.958 (0.337) C:81% T:NA**	pCi/L	09/14/20 07:28	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**3.23 ± 0.991 (1.24) C:64% T:57%**	pCi/L	09/16/20 11:37	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**8.06 ± 1.95 (1.58)**	pCi/L	09/17/20 14:22	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

QC Batch:	412356	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 92493016011, 92493016012, 92493016013, 92493016014, 92493016015, 92493016016, 92493016017, 92493016018, 92493016019

METHOD BLANK: 1994515 Matrix: Water

Associated Lab Samples: 92493016011, 92493016012, 92493016013, 92493016014, 92493016015, 92493016016, 92493016017, 92493016018, 92493016019

Parameter	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	

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REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

QC Batch: 412345 | Analysis Method: EPA 9320
QC Batch Method: EPA 9320 | Analysis Description: 9320 Radium 228
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92493016001, 92493016002, 92493016003, 92493016004, 92493016005, 92493016006, 92493016007, 92493016008, 92493016009, 92493016010

METHOD BLANK: 1994499 Matrix: Water

Associated Lab Samples: 92493016001, 92493016002, 92493016003, 92493016004, 92493016005, 92493016006, 92493016007, 92493016008, 92493016009, 92493016010

Parameter	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	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

QC Batch:	412352	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 92493016001, 92493016002, 92493016003, 92493016004, 92493016005, 92493016006, 92493016007, 92493016008, 92493016009, 92493016010

METHOD BLANK: 1994514 Matrix: Water

Associated Lab Samples: 92493016001, 92493016002, 92493016003, 92493016004, 92493016005, 92493016006, 92493016007, 92493016008, 92493016009, 92493016010

Parameter	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	

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

QC Batch: 412346 | Analysis Method: EPA 9320
QC Batch Method: EPA 9320 | Analysis Description: 9320 Radium 228
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92493016011, 92493016012, 92493016013, 92493016014, 92493016015, 92493016016, 92493016017, 92493016018, 92493016019

METHOD BLANK: 1994501 | Matrix: Water

Associated Lab Samples: 92493016011, 92493016012, 92493016013, 92493016014, 92493016015, 92493016016, 92493016017, 92493016018, 92493016019

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.749 ± 0.397 (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.

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

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.

Pace Analytical
www.pacelabs.com

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Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92493016001	**MCM-01**	EPA 9315	412352		
92493016002	**MCM-02**	EPA 9315	412352		
92493016003	**MCM-04**	EPA 9315	412352		
92493016004	**MCM-05**	EPA 9315	412352		
92493016005	**MCM-07**	EPA 9315	412352		
92493016006	**MCM-11**	EPA 9315	412352		
92493016007	**MCM-12**	EPA 9315	412352		
92493016008	**MCM-14**	EPA 9315	412352		
92493016009	**MCM-15**	EPA 9315	412352		
92493016010	**MCM-16**	EPA 9315	412352		
92493016011	**MCM-17**	EPA 9315	412356		
92493016012	**MCM-18**	EPA 9315	412356		
92493016013	**MCM-19**	EPA 9315	412356		
92493016014	**MCM-20**	EPA 9315	412356		
92493016015	**FBL082620**	EPA 9315	412356		
92493016016	**EQBL082620**	EPA 9315	412356		
92493016017	**DUP-1**	EPA 9315	412356		
92493016018	**DUP-2**	EPA 9315	412356		
92493016019	**MCM-06**	EPA 9315	412356		
92493016001	**MCM-01**	EPA 9320	412345		
92493016002	**MCM-02**	EPA 9320	412345		
92493016003	**MCM-04**	EPA 9320	412345		
92493016004	**MCM-05**	EPA 9320	412345		
92493016005	**MCM-07**	EPA 9320	412345		
92493016006	**MCM-11**	EPA 9320	412345		
92493016007	**MCM-12**	EPA 9320	412345		
92493016008	**MCM-14**	EPA 9320	412345		
92493016009	**MCM-15**	EPA 9320	412345		
92493016010	**MCM-16**	EPA 9320	412345		
92493016011	**MCM-17**	EPA 9320	412346		
92493016012	**MCM-18**	EPA 9320	412346		
92493016013	**MCM-19**	EPA 9320	412346		
92493016014	**MCM-20**	EPA 9320	412346		
92493016015	**FBL082620**	EPA 9320	412346		
92493016016	**EQBL082620**	EPA 9320	412346		
92493016017	**DUP-1**	EPA 9320	412346		
92493016018	**DUP-2**	EPA 9320	412346		
92493016019	**MCM-06**	EPA 9320	412346		
92493016001	**MCM-01**	Total Radium Calculation	414090		
92493016002	**MCM-02**	Total Radium Calculation	414090		
92493016003	**MCM-04**	Total Radium Calculation	414090		
92493016004	**MCM-05**	Total Radium Calculation	414090		
92493016005	**MCM-07**	Total Radium Calculation	414777		
92493016006	**MCM-11**	Total Radium Calculation	414090		
92493016007	**MCM-12**	Total Radium Calculation	414090		
92493016008	**MCM-14**	Total Radium Calculation	414090		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MCMANUS ASH POND SCAN RADS
Pace Project No.: 92493016

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92493016009	**MCM-15**	Total Radium Calculation	414090		
92493016010	**MCM-16**	Total Radium Calculation	414422		
92493016011	**MCM-17**	Total Radium Calculation	414422		
92493016012	**MCM-18**	Total Radium Calculation	414422		
92493016013	**MCM-19**	Total Radium Calculation	414777		
92493016014	**MCM-20**	Total Radium Calculation	414777		
92493016015	**FBL082620**	Total Radium Calculation	414422		
92493016016	**EQBL082620**	Total Radium Calculation	414422		
92493016017	**DUP-1**	Total Radium Calculation	414422		
92493016018	**DUP-2**	Total Radium Calculation	414777		
92493016019	**MCM-06**	Total Radium Calculation	414422		

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☒ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐

Sample Condition Upon Receipt

Client Name: Georgia Power

Project #

WO#: 92493016

92493016

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

Custody Seal Present? ☒ Yes ☐ No Seals Intact? ☒ Yes ☐ No

Date/Initials Person Examining Contents: 8-28-20 AR

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

Biological Tissue Frozen? ☐ Yes ☐ No ☒ N/A

Thermometer: ☒ IR Gun ID: 93-T061

Type of Ice: ☒ Wet ☐ Blue ☐ None

Cooler Temp (°C): 1.9, 0.9, 1.2, 1.4 Correction Factor: Add/Subtract (°C) 0

Cooler Temp Corrected (°C): 1.9, 0.9, 1.2, 1.4

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (☒ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☒ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☒ No

				Comments/Discrepancy:
Chain of Custody Present?	☒ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☒ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☒ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☒ No	☐ N/A	4.
Sufficient Volume?	☒ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☒ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☒ Yes	☐ No	☐ N/A	
Containers Intact?	☒ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☒ N/A	8.
Sample Labels Match COC?	☒ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☒ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☒ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☒ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: ______________ Date/Time: ______________

Project Manager SCURF Review: ______________ Date: ______________

Project Manager SRF Review: ______________ Date: ______________

Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project # **WO#:92493016**

PM: KLH1 Due Date: 09/14/20

CLIENT: GA-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP1N	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		1	1		✓ 1																			2				
2		1	1		✓ 1																			2				
3		1	1		✓ 1																			2				
4		1	1		✓ 1																			2				
5		1	1		✓ 1																			2				
6		1	1		✓ 1																			2				
7		1	1		✓ 1																			2				
8		1	1		✓ 1																			2				
9		1	1		✓ 1																			2				
10		1	1		✓ 1																			2				
11		1	1		✓ 1																			2				
12		1	1		✓ 1																			2				

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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.

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

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Project # **WO#:92493016**

PM: KLH1 Due Date: 09/14/20

CLIENT: GA-GA Power

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1		1	1			✓ 1																		2				
2		1	1			✓ 1																		2				
3		1	1			✓ 1																		2				
4		1	1			✓ 1																		2				
5		1	1			✓ 1																		2				
6		1	1			✓ 1																		2				
7																												
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9																												
10																												
11																												
12																												

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Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

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Project #

WO#: 92493016

PM: KLH1 Due Date: 09/14/20

CLIENT: GA-GA Power

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1		1	1			✓ 1																		2				
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Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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Pace Analytical
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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 2

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Veronica Fay	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Stephen.Wilson@Resoluteenv.com	Company Name:	
	Suite 320, Woodstock, GA 30188			Address:	
Email:	veronica.fay@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(404)358-8469 Fax	Project Name:	McManus Ash Pond Scan	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	10768

Regulatory Agency:

State / Location: GA

Requested Analysis Filtered (Y/N)

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

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

9249306

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	RAD 9315/9320	Metals App III & IV	TDS	Cl, F, SO4	Residual Chlorine (Y/N)	
1	MCM-01	WT	G	8/26/20	1338				5	2		3							X	X	X	X		5.79 pH
2	MCM-02	WT	G	8/26/20	1425				5	2		3							X	X	X	X		5.03 pH
3	MCM-04	WT	G	8/26/20	1158				5	2		3							X	X	X	X		4.95 pH
4	MCM-05	WT	G	8/26/20	1247				5	2		3							X	X	X	X		6.50 pH
5	MCM-07	WT	G	8/26/20	1121				5	2		3							X	X	X	X		6.32 pH
6	MCM-11	WT	G	8/26/20	1026				5	2		3							X	X	X	X		4.96 pH
7	MCM-12	WT	G	8/26/20	1029				5	2		3							X	X	X	X		6.32 pH
8	MCM-14	WT	G	8/26/20	1148				5	2		3							X	X	X	X		~~4.4~~ 6.62 pH
9	MCM-15	WT	G	8/26/20	1449				5	2		3							X	X	X	X		5.33 pH
10	MCM-16	WT	G	8/26/20	1652				5	2		3							X	X	X	X		4.92 pH
11	MCM-17	WT	G	8/26/20	1556				5	2		3							X	X	X	X		6.65 pH
12	MCM-18	WT	G	8/26/20	1158				5	2		3							X	X	X	X		4.27 pH

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	8/27/20	0930	A. Ruckard/PACE/AVL	8-28-20	1135	1.9	Y	Y	Y
							0.9	Y	Y	Y
							1.2	Y	Y	Y
							1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe Booth, Will Laaker, Kevin Stephenson, Veronica Fay

SIGNATURE of SAMPLER: Veronica Fay

DATE Signed: 8/26/20

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 2

Section A — Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Ste 320, Woodstock, GA 30188
Email:	veronica.fay@resoluteenv.com
Phone:	(404)358-8469 Fax:
Requested Due Date:	

Section B — Required Project Information:

Report To:	Veronica Fay
Copy To:	Stephen.wilson@Resoluteenv.com
Purchase Order #:	
Project Name:	McManus Ash Pond Scan
Project #:	

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	10768

Regulatory Agency	
State / Location	GA

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

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

Requested Analysis Filtered (Y/N)

92493016

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	RAD 9315/9320	Metals App III & IV	TDS	Cl, F, SO4	Residual Chlorine (Y/N)	
1	MCM-19			8/26/20	1430				5	2		3							X	X	X	X		5.25 pH
2	MCM-20			8/26/20	1548				5	2		3							X	X	X	X		3.78 pH
3	FBL082620			8/26/20	1649				5	2		3							X	X	X	X		
4	EQBL082620			8/26/20	1655				5	2		3							X	X	X	X		
5	DUP-1			8/26/20	—				5	2		3							X	X	X	X		
6	DUP-2			8/26/20	—				5	2		3							X	X	X	X		
7																								
8																								
9																								
10																								
11																								
12																								AR 8-28-20

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[illegible]	8/27/20	0930	A Rucker/PACE/Atl	8-28-20	~~[illegible]~~	1.9	Y	Y	Y
						1135	0.9	Y	Y	Y
							1.2	Y	Y	Y
							1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe Booth, Will Laaker, ~~Step~~ Kevin Stephenson, Veronica Fay

SIGNATURE of SAMPLER: Veronica Fay DATE Signed: 8/26/20

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A
Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Ste 320, Woodstock, GA 30188
Email:	veronica.fay@resoluteenv.com
Phone:	(404)358-8469 Fax
Requested Due Date:	

Section B
Required Project Information:

Report To:	Veronica Fay
Copy To:	Stephen Wilson @ Resolute Env. com
Purchase Order #:	
Project Name:	McManus Ash Pond Scan
Project #:	

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	10768

Regulatory Agency
State / Location
GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	RAD 9315/9320	Metals App III & IV	TDS	Cl, F, SO4	Residual Chlorine (Y/N)	92493016
1	MCM-OG	WT	G	8/26/20	1608				5	2		3							X	X	X	X		6.88 pH
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	8/27/20	0930	A. Rucker / PACE / AVL	8-28-20	1135	1.9	Y	Y	Y
							0.9	Y	Y	Y
							1.2	Y	Y	Y
							1.9	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe Bucith, Will Lawker, Kevin Stephenson, Veronica Fay

SIGNATURE of SAMPLER: Veronica Fay

DATE Signed: 8/26/20

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Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test:	Ra-226
Analyst:	LAL
Date:	9/10/2020
Worklist:	55959
Matrix:	DW

Method Blank Assessment	
MB Sample ID	1994514
MB concentration:	0.206
M/B Counting Uncertainty:	0.098
MB MDC:	0.149
MB Numerical Performance Indicator:	4.13
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	See Comment*

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCS55959	LCSD55959
Count Date:	9/11/2020	
Spike I.D.:	19-033	
Decay Corrected Spike Concentration (pCi/mL):	24.045	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.507	
Target Conc. (pCi/L, g, F):	4.740	
Uncertainty (Calculated):	0.057	
Result (pCi/L, g, F):	4.372	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.792	
Numerical Performance Indicator:	-0.91	
Percent Recovery:	92.23%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	125%	
Lower % Recovery Limits:	75%	

Duplicate Sample Assessment		
Sample I.D.:	92492559006	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	92492559006DUP	
Sample Result (pCi/L, g, F):	0.288	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.138	
Sample Duplicate Result (pCi/L, g, F):	0.063	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.153	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	2.147	92492559006
Duplicate RPD:	128.44%	92492559006DUP
Duplicate Status vs Numerical Indicator:	N/A	
Duplicate Status vs RPD:	Fail***	
% RPD Limit:	25%	

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 (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 (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 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/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:		

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.

***~~Batch must be re-prepped due to unacceptable precision.~~ N/A VM 9/11/2020

VAM 9/11/2020

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Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test:	Ra-226
Analyst:	LAL
Date:	9/10/2020
Worklist:	55959
Matrix:	DW

Method Blank Assessment	
MB Sample ID	1994514
MB concentration:	0.206
M/B Counting Uncertainty:	0.098
MB MDC:	0.149
MB Numerical Performance Indicator:	4.13
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	See Comment*

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCS55959	LCSD55959
Count Date:	9/11/2020	
Spike I.D.:	19-033	
Decay Corrected Spike Concentration (pCi/mL):	24.045	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.507	
Target Conc. (pCi/L, g, F):	4.740	
Uncertainty (Calculated):	0.057	
Result (pCi/L, g, F):	4.372	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.792	
Numerical Performance Indicator:	-0.91	
Percent Recovery:	92.23%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	125%	
Lower % Recovery Limits:	75%	

Duplicate Sample Assessment		
Sample I.D.:	92492559007	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	92492559007DUP	
Sample Result (pCi/L, g, F):	0.269	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.118	
Sample Duplicate Result (pCi/L, g, F):	0.234	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.201	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	0.291	92492559007
Duplicate RPD:	13.77%	92492559007DUP
Duplicate Status vs Numerical Indicator:	N/A	
Duplicate Status vs RPD:	Pass	
% RPD Limit:	25%	

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 (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 (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 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/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:		

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.

LAM 9/11/2020

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Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test:	Ra-226
Analyst:	LAL
Date:	9/11/2020
Worklist:	55960
Matrix:	DW

Method Blank Assessment	
MB Sample ID	1994515
MB concentration:	0.060
M/B Counting Uncertainty:	0.133
MB MDC:	0.265
MB Numerical Performance Indicator:	0.88
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCS55960	LCSD55960
Count Date:	9/14/2020	
Spike I.D.:	19-033	
Decay Corrected Spike Concentration (pCi/mL):	24.044	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.505	
Target Conc. (pCi/L, g, F):	4.759	
Uncertainty (Calculated):	0.057	
Result (pCi/L, g, F):	5.322	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.689	
Numerical Performance Indicator:	1.60	
Percent Recovery:	111.84%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	125%	
Lower % Recovery Limits:	75%	

Duplicate Sample Assessment		
Sample I.D.:	92493016012	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	92493016012DUP	
Sample Result (pCi/L, g, F):	4.731	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.626	
Sample Duplicate Result (pCi/L, g, F):	5.414	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.692	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	-1.435	92493016012
Duplicate RPD:	13.47%	92493016012DUP
Duplicate Status vs Numerical Indicator:	N/A	
Duplicate Status vs RPD:	Pass	
% RPD Limit:	25%	

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 (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 (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 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/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:		

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

Comments:

DMW 9/14/2020

VAM 9/14/2020

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Quality Control Sample Performance Assessment

Test:	Ra-226
Analyst:	LAL
Date:	9/11/2020
Worklist:	55960
Matrix:	DW

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1994515
MB concentration:	0.060
M/B Counting Uncertainty:	0.133
MB MDC:	0.265
MB Numerical Performance Indicator:	0.88
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	N
	LCS55960	LCSD55960
Count Date:	9/14/2020	
Spike I.D.:	19-033	
Decay Corrected Spike Concentration (pCi/mL):	24.044	
Volume Used (mL):	0.10	
Aliquot Volume (L, g, F):	0.505	
Target Conc. (pCi/L, g, F):	4.759	
Uncertainty (Calculated):	0.057	
Result (pCi/L, g, F):	5.322	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.689	
Numerical Performance Indicator:	1.60	
Percent Recovery:	111.84%	
Status vs Numerical Indicator:	N/A	
Status vs Recovery:	Pass	
Upper % Recovery Limits:	125%	
Lower % Recovery Limits:	75%	

Duplicate Sample Assessment		
Sample I.D.:	92493016013	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	92493016013DUP	
Sample Result (pCi/L, g, F):	6.412	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.759	
Sample Duplicate Result (pCi/L, g, F):	5.852	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.718	
Are sample and/or duplicate results below RL?	See Below ##	
Duplicate Numerical Performance Indicator:	1.050	92493016013
Duplicate RPD:	9.13%	92493016013DUP
Duplicate Status vs Numerical Indicator:	N/A	
Duplicate Status vs RPD:	Pass	
% RPD Limit:	25%	

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 (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 (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 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/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:		

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

Comments:

DR 9/14/2020

LMM 9/14/2020

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Quality Control Sample Performance Assessment

Test:	Ra-228
Analyst:	VAL
Date:	9/9/2020
Worklist:	55954
Matrix:	WT

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	1994499
MB concentration:	0.357
M/B 2 Sigma CSU:	0.355
MB MDC:	0.727
MB Numerical Performance Indicator:	1.97
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	Y
	LCS55954	LCSD55954
Count Date:	9/15/2020	9/15/2020
Spike I.D.:	20-030	20-030
Decay Corrected Spike Concentration (pCi/mL):	38.394	38.394
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.808	0.829
Target Conc. (pCi/L, g, F):	4.752	4.632
Uncertainty (Calculated):	0.233	0.227
Result (pCi/L, g, F):	5.042	4.838
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.200	1.149
Numerical Performance Indicator:	0.46	0.34
Percent Recovery:	106.10%	104.44%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	135%	135%
Lower % Recovery Limits:	60%	60%

Duplicate Sample Assessment		
Sample I.D.:	LCS55954	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	LCSD55954	
Sample Result (pCi/L, g, F):	5.042	
Sample Result 2 Sigma CSU (pCi/L, g, F):	1.200	
Sample Duplicate Result (pCi/L, g, F):	4.838	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.149	
Are sample and/or duplicate results below RL?	NO	
Duplicate Numerical Performance Indicator:	0.241	
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	1.57%	
Duplicate Status vs Numerical Indicator:	Pass	
Duplicate Status vs RPD:	Pass	
% RPD Limit:	36%	

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 (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 2 Sigma CSU (pCi/L, g, F):		
Sample Matrix Spike Result:		
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):		
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (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/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 2 Sigma CSU (pCi/L, g, F):		
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (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:		

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

Comments:

JJY 9-16-20

Au 9-16-20

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Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test:	Ra-228
Analyst:	VAL
Date:	9/10/2020
Worklist:	55955
Matrix:	WT

Method Blank Assessment	
MB Sample ID	1994501
MB concentration:	0.749
M/B 2 Sigma CSU:	0.397
MB MDC:	0.699
MB Numerical Performance Indicator:	3.70
MB Status vs Numerical Indicator:	Fail*
MB Status vs. MDC:	See Comment*

Laboratory Control Sample Assessment	LCSD (Y or N)?	Y
	LCS55955	LCSD55955
Count Date:	9/16/2020	9/16/2020
Spike I.D.:	20-030	20-030
Decay Corrected Spike Concentration (pCi/mL):	38.383	38.383
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.811	0.800
Target Conc. (pCi/L, g, F):	4.730	4.796
Uncertainty (Calculated):	0.232	0.235
Result (pCi/L, g, F):	5.530	6.376
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.311	1.417
Numerical Performance Indicator:	1.18	2.16
Percent Recovery:	116.90%	132.93%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	135%	135%
Lower % Recovery Limits:	60%	60%

Duplicate Sample Assessment		
Sample I.D.:	LCS55955	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	LCSD55955	
Sample Result (pCi/L, g, F):	5.530	
Sample Result 2 Sigma CSU (pCi/L, g, F):	1.311	
Sample Duplicate Result (pCi/L, g, F):	6.376	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.417	
Are sample and/or duplicate results below RL?	NO	
Duplicate Numerical Performance Indicator:	-0.860	
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	12.84%	
Duplicate Status vs Numerical Indicator:	Pass	
Duplicate Status vs RPD:	Pass	
% RPD Limit:	36%	

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 (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 2 Sigma CSU (pCi/L, g, F):		
Sample Matrix Spike Result:		
Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):		
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (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/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 2 Sigma CSU (pCi/L, g, F):		
Sample Matrix Spike Duplicate Result:		
Matrix Spike Duplicate Result 2 Sigma CSU (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:		

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.

TW 9-17-20

Cu 9.17.20

APPENDIX F

Technical Memo: Surface Water Sampling Results, Georgia Power Plant McManus

Resolute
Environmental & Water Resources Consulting

1003 Weatherstone Parkway, Suite 320
Woodstock, GA 30188
Telephone: 678-398-9942
Fax: 888-881-8219

May 8, 2020

Memorandum: Surface Water Sampling Results
Georgia Power Company Plant McManus
Crispen Island Drive, Brunswick, Georgia

To: Ben Hodges, Environmental Affairs
Georgia Power Company

From: Stephen K. Wilson, P.G.
Resolute Environmental & Water Resources Consulting

1.0 PROJECT BACKGROUND

Site Location and Background

The Site is located at 1 Crispen Island Drive in Glynn County, Georgia, approximately 5 miles northwest of the city of Brunswick. The former ash pond 1 (AP-1) is located on the northeastern portion of the plant property (Figure 1). The former AP-1 was constructed in the late 1950's and encompassed approximately 80 acres. Coal ash sluicing operations at former AP-1 commenced in 1959 and ceased in 1972. Excavation and removal of ash from AP-1 commenced in 2016 and was completed in 2019. Since the completion of closure activities, the former AP-1 has filled with water, and the free water elevation within the footprint is currently approximately 2 (two) feet (NAVD88).

Preliminary statistics on the results from background groundwater monitoring, the first annual Appendix IV scan event (August 2019), and the first semiannual assessment monitoring event (November 2019) indicated one or more potentially-elevated levels of arsenic, cobalt, and lithium in groundwater detection monitoring network wells either adjacent to (MCM-05, MCM-06, MCM-07, and MCM-14) or near (MCM-04 and MCM-08) the tidal marshes located on and adjoining the site. On April 10, 2020, pursuant to the Coal Combustion Residuals (CCR) Rule, Georgia Power completed a statistical analysis of the groundwater results, which indicates that cobalt does not exceed the site-specific groundwater protection standard (GWPS) and arsenic and lithium exceed the GWPS in monitoring well MCM-06.

At the request of Georgia Power, Resolute Environmental & Water Resources Consulting, LLC (Resolute) collected surface water and groundwater samples to evaluate concentrations of arsenic, cobalt and lithium in surface water in the tidal salt marsh, free water in the footprint of former AP-1, and in groundwater monitoring wells MCM-04, MCM-05, MCM-06, MCM-07, MMC-08, and MCM-14. Samples were collected to evaluate nature and extent at the Site. To support this evaluation, samples were collected from locations shown in Figure 1. This memorandum presents the assessment approach, sampling methodology, and results and conclusions of the sampling activities in surface water and groundwater at the Site.

2.0 ASSESSMENT APPROACH

Due to space limitations on the dikes, additional monitoring wells could not be installed between the existing detection monitoring network wells (MCM-04, MCM-05, MCM-06, MCM-07, MCM-08, and MCM-14) and the tidal marsh to evaluate the nature and extent of arsenic, cobalt, and lithium. Consistent with Georgia Power's proactive and comprehensive monitoring approach, additional sampling was completed to assess concentrations of arsenic, cobalt, and lithium in surface water in the tidal salt marsh. Resolute developed 16 sampling points divided equally among four transects (T1 through T4) adjacent to wells MCM-05, MCM-06, MCM-07, and MCM-14. Samples were also collected from groundwater monitoring wells MCM-04, MCM-05, MCM-06, MCM-07, MCM-08, and MCM-14, free water from the top of the water column in the former AP-1 adjacent to these wells, and two upstream surface water sample locations to establish background or natural conditions. To account for potential variability in water quality from tides, samples were collected at both high and low tide. Sampling locations are shown on Figure 1.

Surface water samples collected along transects T1 through T4 were collected from the top of the water column, approximately zero to six inches below the surface of the water, at both high and low tides and also from the bottom of the water column, approximately 12 inches above the marsh bottom, at high tide for the second, third, and fourth locations along each transect (e.g., T1-2, T1-3, T1-4 for transect T1).

Two background surface water sampling locations were identified and sampled to establish a dataset of naturally occurring levels of arsenic, cobalt, and lithium in surface water in the tidal marsh. The low tide background sample location (BG-1LT) was selected in Cowpen Creek, at a point which is hydraulically upgradient of both the junction with Burnett Creek and Crispen Island. At low tide, surface water flow is south from Cowpen Creek, toward the junctions with Burnett Creek and the Turtle River. The high tide background sample location (BG-2HT) was selected in the Turtle River, at a point which is upstream of Crispen Island during the incoming high tide.

Samples were initially submitted under Chain-of-Custody (COC) protocol to Pace Laboratories in Atlanta, Georgia on February 3, 2020, except for samples from transect T4, which were collected at a later date. Pace subsequently transferred the initial samples to their Asheville, North Carolina laboratory as further explained in Section 4.0 below, and the samples from transect T4, which were collected on March 18, 2020 were submitted directly to Pace's Ashville, North Carolina laboratory on March 20, 2020. Samples were analyzed for total and dissolved arsenic, cobalt, and lithium using EPA SW-846 Method 6020B.

To evaluate the data, surface water sample results for arsenic were compared to Georgia's In-Stream Water Quality Standard (ISWQS) for marine estuary environments, and groundwater samples were compared to the USEPA Maximum Contaminant Level (MCL) and the site-specific Groundwater Protection Standard (GWPS). Cobalt and lithium do not have ISWQS or recommended national ambient water quality criteria to compare surface water sample results or an MCL to compare groundwater results. Due to lack of surface water screening criteria for cobalt, surface water sample results were compared to both the observed background concentrations in surface water and the USEPA Regional Screening Level (RSL), which is a conservative approach for surface water comparison and is typically used to evaluate groundwater results.. Groundwater sample results for cobalt and lithium were compared to the RSL and site-specific GWPS since neither have an MCL.

3.0 SAMPLING METHODOLOGY

Surface water and groundwater samples were collected in accordance with the *Work Plan for Surface Water Sampling, Georgia Power Company Plant McManus, Former Ash Pond AP-1, Brunswick, Georgia*, dated January 2020, and prepared by Resolute (Work Plan) (Appendix 1). The Work Plan referenced USEPA Region 4 *Science and Ecosystem Support Division (SESD), Operating Procedure, Surface Water Sampling* SESDPROC-201-R3 (February 28, 2013) as a guide for surface water sampling.

The fourth surface water location in each transect (e.g., T1-4) was generally the farthest point from the ash pond dike along each transect that contained sufficient water for sampling at low tide. The first three surface water locations on each transect (e.g., T1-1 through T1-3) had insufficient water for sampling at low tide, and the samples from these locations were collected when the minimum level of surface water sufficient for sampling and access was present (approximately six inches to one foot) near low tide.

At each surface water sample location (tidal salt marsh, background, and free water in former AP-1), one bottle preserved with nitric acid was collected for total metals analysis, and a separate unpreserved bottle was collected for dissolved metals analysis. The unpreserved sample was filtered by the laboratory prior to analysis.

Groundwater sampling was conducted using the site Groundwater Monitoring Plan (GWMP) and USEPA Region 4 Field Quality and Technical Procedures as guides. Groundwater samples were collected for total metals analysis, and a sample for dissolved metals analysis was collected if sample turbidity exceeded 10 Nephelometric Turbidity Units (NTUs), in accordance with the site GWMP. Groundwater samples were collected at low and high tides in wells which were immediately adjacent to corresponding transects (MCM-05, -06, -07, and -14) and were collected at low tide in wells which were not immediately adjacent to transects (MCM-04 and -08). The latter were collected at low tide as a conservative approach based on groundwater flow toward the tidal marsh at low tide.

4.0 RESULTS

The total and dissolved metals samples were analyzed by Pace Atlanta in separate batches. Surface water samples contained high concentrations of total dissolved solids (TDS) (i.e., high concentrations of non-target ions such as sodium and chloride) because the surface water in the marsh is brackish. The laboratory reported that the high concentrations of non-target ions in the samples caused instrumentation interference problems and presented difficulty in reading the low concentrations of the arsenic, lithium, and cobalt target analytes for the instrumentation available in Pace's Atlanta laboratory.

The initial laboratory analytical results also showed the dissolved (filtered) concentrations being several times greater than the total concentrations. The elevated concentrations observed in the dissolved (filtered) results were not accurate, as the total samples collected at the same time were collected into an acidified bottle designed to preserve metals concentrations, including those potentially adsorbed to suspended solids in water. The turbidities of the samples were low, with many less than 10 NTUs; therefore, the total and dissolved concentrations should have been similar. For these reasons, the initial laboratory results were deemed to be suspect, but could not be checked by data validation procedures because the total and dissolved samples had been analyzed as separate laboratory batches. As a result, the remaining volumes of the samples were sent to Pace's laboratory in Asheville, NC for analysis using Method 6020B/3010A on a new mass spectrometer instrument which utilizes both collision cell technology and dual gas mode to make it less susceptible to interference caused by the high concentrations of non-target ions (e.g., salts) in the samples.

Samples collected along transect T4 submitted to Pace's laboratory in Asheville, NC on March 20, 2020 and did not require reanalysis.

The results of the analysis from Pace's Asheville laboratory are summarized on Tables 1 and 2, and the laboratory analytical reports are provided in Appendix 2. The total and dissolved concentrations are similar, as would be expected for samples with low turbidities such as these.

Arsenic

Arsenic was detected at low levels ranging from 0.0013 J to 0.0035 milligrams per liter (mg/L) in surface water samples, including both background samples. These results are well below the Georgia ISWQS chronic standard for dissolved arsenic (0.036 mg/L) for marine estuary environments. Arsenic in samples collected from background surface water sample locations ranged from 0.0014 J to 0.0023 mg/L. Surface water concentrations along transects T1 through T4 ranged from not detected (<0.0012 mg/L) to 0.0035 mg/L. Similar concentrations were detected in the free water samples in former AP-1 at both high and low tides ranging from 0.0013 J to 0.0025 mg/L.

Arsenic was detected in groundwater samples collected from MCM-06 (0.400 to 0.480 mg/L), above the MCL (0.010 mg/L) and site-specific GWPS (0.031 mg/L), and in MCM-07 (0.016 to

0.020 mg/L), above the MCL, but below the site-specific GWPS. Arsenic was detected at trace values between the laboratory method detection and reporting limit in MCM-04, MCM-05, and MCM-08, well below the MCL and site-specific GWPS. Arsenic was not detected in MCM-14. Concentrations in each well do not appear to be significantly affected by tidal stage.

Cobalt

Cobalt was detected at concentrations ranging from 0.0013 J to 0.0049 mg/L in surface water samples, which are slightly above background (<0.0010 mg/L), but below the RSL of 0.006 mg/L. As stated above the RSL is typically used to evaluate groundwater results and is a conservative approach for surface water comparison.

Cobalt detections in groundwater ranged from 0.0015 J to 0.0031 mg/L, which are below the RSL and site-specific GWPS of 0.031 mg/L. Concentrations in each well do not appear to be significantly affected by tidal stage. As documented in the introduction, cobalt is not an SSL in groundwater. Observed surface water data is substantially lower than cobalt in background groundwater (0.031 mg/L) and below the RSL; therefore, cobalt is no longer a constituent of interest in surface water.

Lithium

Lithium in background surface water samples ranged from 0.090 to 0.099 mg/L, which is higher than the RSL of 0.040 mg/L, which is typically used to evaluate groundwater results and is a conservative approach for surface water comparison. Lithium was detected at concentrations from 0.019 J to 0.11 mg/L in surface water samples, with the highest dissolved analysis at 0.10 mg/L in T3-4HT, which is above the RSL, but consistent with background. In comparing the 0.099 mg/L background to the 0.10 mg/L detection, the results are almost identical with a 1% difference. The laboratory reported a Relative Percent Difference (RPD) of 10% in their quality control samples for this batch of samples. Therefore, the sole detection exceeding background by 1% is well within the laboratory's repeatability range of 10%.

Lithium was detected at trace values ranging from 0.012 J to 0.022 J mg/L in free water samples in the former AP-1 and did not appear to vary at high and low tides.

In general, observed lithium concentration in background and transect surface water samples at high tide were greater than those observed at low tide. Lithium is a naturally-occurring element in seawater, and concentrations of lithium in seawater are documented to range from 0.1 to 0.2 mg/L[1]. The increased concentrations observed at high tide in surface water are likely attributable to natural variability from the influx of seawater at high tide.

Lithium was detected in groundwater samples collected from MCM-06 (0.094 to 0.11 mg/L), MCM-07 (0.044 J to 0.062 mg/L), and MCM-14 (0.035 J to 0.055 mg/L), above the RSL (0.04 mg/L). Lithium was detected at trace values (between the laboratory method detection and

[1] "Lithium Occurrence", Institute of Ocean Energy, Saga University, Japan

reporting limit) in MCM-05, below the RSL. Lithium was not detected in MCM-04 or MCM-08. Concentrations in MCM-06 well appear to exhibit higher concentrations at high tide and lower concentrations at low tide. Other wells do not appear to be significantly affected by tidal stage. Lithium results in groundwater are generally consistent with previous sampling results.

5.0 CONCLUSIONS

Preliminary statistics on results from background groundwater monitoring and subsequent groundwater monitoring events (August and November 2019) indicated one or more potentially-elevated levels of arsenic, cobalt, and lithium in groundwater detection monitoring network wells adjacent to (MCM-05, MCM-06, MCM-07, and MCM-14) or near (MCM-08 and MCM-14) the tidal marshes located on and adjoining the site. Due to space limitations on the dikes, additional monitoring wells could not be installed between the existing detection monitoring network wells (MCM-04, MCM-05, MCM-06, MCM-07, MCM-08, and MCM-14) and the tidal marsh to evaluate the nature and extent of arsenic, cobalt, and lithium. Consistent with Georgia Power's proactive and comprehensive monitoring approach, surface water, groundwater, and free water sampling was completed to assess concentrations of arsenic, cobalt, and lithium in surface water in the tidal salt marsh.

Surface water sampling provided data that arsenic, cobalt, and lithium concentrations are below surface water comparison criteria or within the range of background levels observed in background surface water samples. Arsenic, cobalt, and lithium concentrations in free water samples from within the pond are below surface water comparison criteria and below levels observed in background surface water samples. On April 10, 2020, pursuant to the CCR Rule, Georgia Power completed a statistical analysis of the groundwater results, which indicates that cobalt does not exceed the site-specific GWPS and arsenic and lithium exceed the site-specific GWPS in monitoring well MCM-06. Based on the data collected, groundwater exceeding the site-specific GWPS in MCM-06 does not indicate impacts to free water quality in former AP-1 or surface water quality adjacent to Georgia Power's Plant McManus property.

TABLES

Table 1
Surface Water and Pond Water Sample Results
Georgia Power Company Plant McManus, Brunswick, Georgia

Location	Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Cobalt (mg/l)	Dissolved Cobalt (mg/l)	Lithium (mg/l)	Dissolved Lithium (mg/l)
Surface Water Samples						
ISWQS (Non-drinking water uses)	N/A	0.050	N/A	N/A	N/A	N/A
ISWQS (Estuarine Waters)	N/A	0.069 (Acute) 0.036 (Chronic)	N/A	N/A	N/A	N/A
Site Specific Background *(highest of BG-1LT and BG-2HT)*	0.0023	0.0016J	<0.0010	<0.0010	0.099	0.099
Background Surface Water						
BG-1LT	0.0019J	0.0014J	<0.0010	<0.0010	0.09	0.098
BG-2HT	0.0023	0.0016J	<0.0010	<0.0010	0.099	0.099
Surface Water Transects						
T1-1HT	0.0016J	<0.0012	<0.0010	<0.0010	0.039J	0.038J
T1-1LT	<0.0012	<0.0012	<0.0010	<0.0010	0.024J	0.022J
T1-2HT	<0.0012	0.0015J	<0.0010	<0.0010	0.11	0.088
T1-2HTS	<0.0012	0.0015J	<0.0010	<0.0010	0.055	0.061
T1-2LT	<0.0012	<0.0012	<0.0010	<0.0010	0.022J	0.024J
T1-3HT	<0.0012	0.0016J	<0.0010	<0.0010	0.092	0.08
T1-3HTS	<0.0012	0.0015J	<0.0010	<0.0010	0.067	0.072
T1-3LT	<0.0012	<0.0012	<0.0010	<0.0010	0.022J	0.019J
T1-4HT	<0.0012	0.0019J	<0.0010	<0.0010	0.08	0.086
T1-4HTS	0.0014J	0.0016J	<0.0010	<0.0010	0.081	0.083
T1-4LT	0.0016J	0.0016J	<0.0010	<0.0010	0.09	0.09
T2-1HT	0.0014	0.0014J	<0.00050	<0.0010	0.052	0.059
T2-2HT	0.0019	0.0015J	<0.00050	<0.0010	0.1	0.084
T2-2HTS	0.0019	0.0014J	<0.00050	<0.0010	0.073	0.06
T2-2LT	0.0018	0.0016J	<0.00050	<0.0010	0.063	0.057
T2-3HT	0.0016J	0.0015J	<0.0010	<0.0010	0.099	0.093
T2-3HTS	0.0018J	0.0015J	<0.0010	<0.0010	0.11	0.094
T2-3LT	0.002	0.0012J	<0.0010	<0.0010	0.049J	0.041J
T2-4HT	0.0016J	0.0020J	<0.0010	<0.0010	0.091	0.092
T2-4HTS	0.0015J	0.0016J	<0.0010	<0.0010	0.085	0.088
T2-4LT	0.0015J	0.0015J	<0.0010	<0.0010	0.075	0.077
T3-1HT	0.0018J	0.0016J	<0.0010	<0.0010	0.076	0.075
T3-2HT	0.0015J	0.0017J	<0.0010	<0.0010	0.097	0.087
T3-2HTS	0.0013J	0.0017J	<0.0010	<0.0010	0.075	0.078
T3-2LT	0.0029	0.0017J	<0.0010	<0.0010	0.077	0.079
T3-3HT	0.0021	0.0017J	<0.0010	<0.0010	0.081	0.088
T3-3HTS	0.0018J	0.0019J	<0.0010	<0.0010	0.08	0.081
T3-3LT	0.0018J	0.0016J	<0.0010	<0.0010	0.084	0.078
T3-4HT	0.0018J	0.0019J	<0.0010	<0.0010	0.087	0.1
T3-4HTS	0.0014J	0.0016J	<0.0010	<0.0010	0.085	0.09
T3-4LT	0.0012J	0.0015J	<0.0010	<0.0010	0.072	0.072
T4-1L	0.0034	0.0018J	<0.0010	<0.0010	0.076	0.056
T4-2L	0.0014J	0.0012J	<0.0010	<0.0010	0.043J	0.061
T4-3L	0.0035	0.0021	0.002	<0.0010	0.053	0.037J

Location	Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Cobalt (mg/l)	Dissolved Cobalt (mg/l)	Lithium (mg/l)	Dissolved Lithium (mg/l)
T4-4L	0.0031	<0.0012	<0.0010	<0.0010	0.062	0.036J
T4-1HS	0.0012J	<0.0012	<0.0010	<0.0010	0.042J	0.058
T4-2HS	<0.0012	0.0013J	<0.0010	<0.0010	0.043J	0.064
T4-3HS	<0.0012	<0.0012	<0.0010	<0.0010	0.035J	0.051
T4-4HS	<0.0012	<0.0012	<0.0010	<0.0010	0.047J	0.041J
T4-1HB	<0.0012	<0.0012	<0.0010	<0.0010	0.036J	0.033J
T4-2HB	0.0015J	<0.0012	<0.0010	<0.0010	0.048J	0.042J
T4-3HB	<0.0012	0.0023	<0.0010	0.0049	0.036J	0.064
T4-4HB	<0.0012	0.0017J	<0.0010	0.0036	0.035J	0.066
Ash Pond Water						
MCM-05HT ASHPOND	0.0019J	0.0013J	<0.0010	<0.0010	0.018J	0.020J
MCM-05LT ASHPOND	0.0017J	<0.0012	<0.0010	<0.0010	0.012J	0.021J
MCM-06HT ASHPOND	0.0025	0.0012J	<0.0010	<0.0010	0.020J	0.021J
MCM-06LT ASHPOND	0.0017J	0.0013J	<0.0010	<0.0010	0.012J	0.022J
MCM-07HT ASHPOND	0.0019J	<0.0012	<0.0010	<0.0010	0.020J	0.020J
MCM-07LT ASHPOND	0.0022	<0.0012	<0.0010	<0.0010	0.019J	0.019J
POND 4L	0.0015J	0.0013J	<0.0010	0.0013J	0.022J	0.022J
POND 4H	0.0012J	0.0013J	<0.0010	0.0016J	0.016J	0.020J

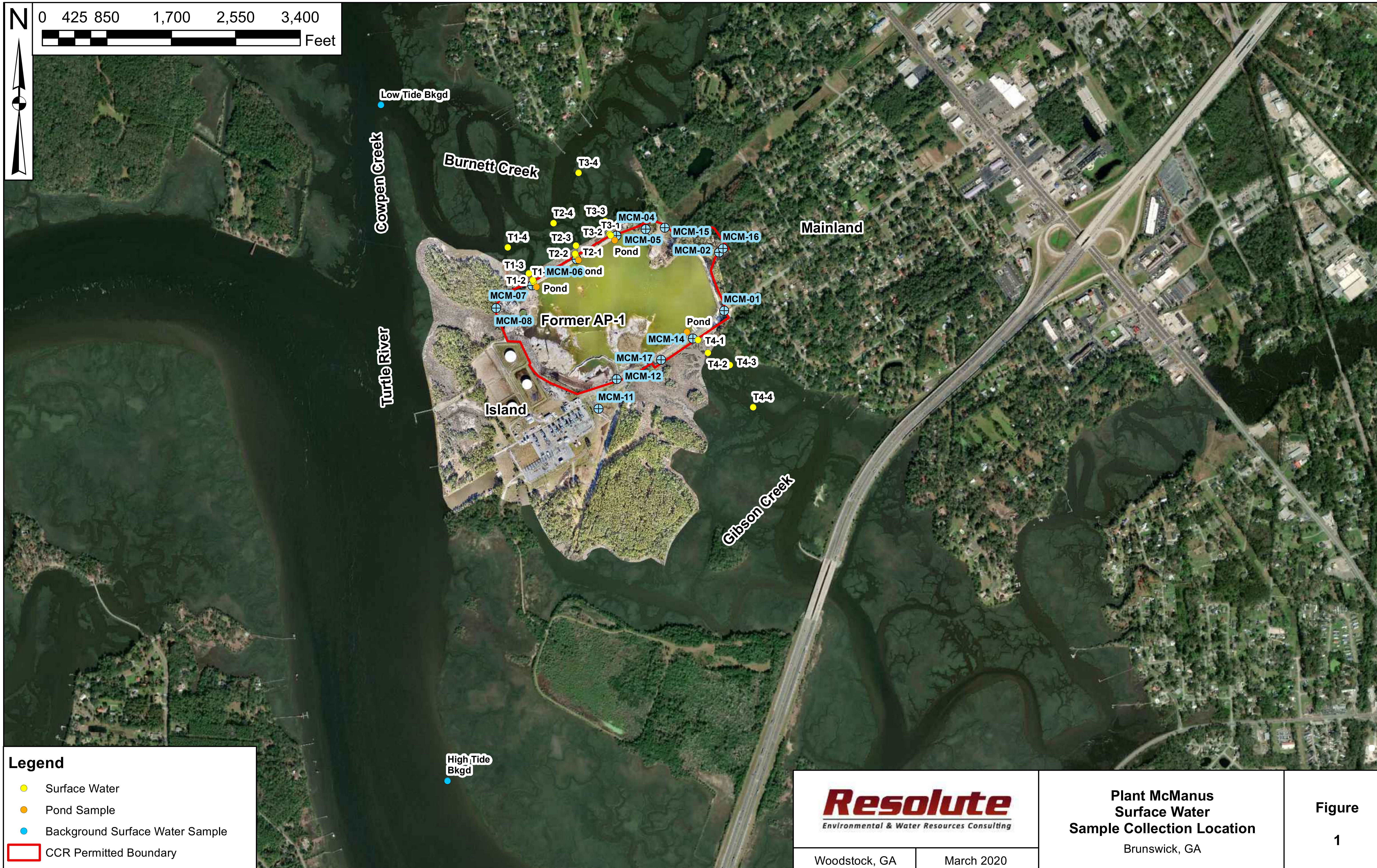
Notes: N/A - Not Applicable or Not Available
GWPS - Groundwater Protection Standard
ISWQS - Georgia In-Stream Water Quality Standard
Results shown in milligrams per liter (mg/l)
"<" - Not detected at the laboratory's Method Detection Limit (MDL) shown
"J" - Estimated concentration greater than the laboratory's MDL, but less than the laboratory's Reporting Limit

Table 2
Groundwater Wells Sample Results
Georgia Power Company Plant McManus, Brunswick, Georgia

Location	Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Cobalt (mg/l)	Dissolved Cobalt (mg/l)	Lithium (mg/l)	Dissolved Lithium (mg/l)
Groundwater Samples						
MCL or RSL GWPS	0.010 MCL	N/A	0.006 RSL	N/A	0.04 RSL	N/A
Site Specific Background GWPS	0.031	N/A	0.031	N/A	<RSL	N/A
MCM-04LT	0.0016J	<0.0012	0.003	0.0026	<0.0084	<0.0084
MCM-05HT	0.0013J	<0.0012	<0.0010	<0.0010	0.017J	0.024J
MCM-05LT	0.0016J	<0.0012	<0.0010	<0.0010	0.023J	0.021J
MCM-06HT	0.4	0.48	<0.0010	<0.0010	0.096	0.11
MCM-06LT	0.44	0.47	<0.0010	<0.0010	0.094	0.094
MCM-07HT	0.018	0.02	<0.0010	<0.0010	0.047J	0.048J
MCM-07LT	0.016	0.018	<0.0010	<0.0010	0.044J	0.062
MCM-08LT	0.0019J	0.0013J	0.0020J	0.0020J	<0.0084	<0.0084
MCM-14L	<0.0012	<0.0012	<0.0010	0.0015J	0.040J	0.055
MCM-14H	<0.0012	<0.0012	<0.0010	0.0031	0.035J	0.044J

Notes: N/A - Not Applicable or Not Available
GWPS - Groundwater Protection Standard
ISWQS - Georgia In-Stream Water Quality Standard
Results shown in milligrams per liter (mg/l)
"<" - Not detected at the laboratory's Method Detection Limit (MDL) shown
"J" - Estimated concentration greater than the laboratory's MDL, but less than the laboratory's Reporting Limit

FIGURES



X:\ArcGIS\McManus\ASD2020\AlternateSourceDemonstrationSamplingLocations

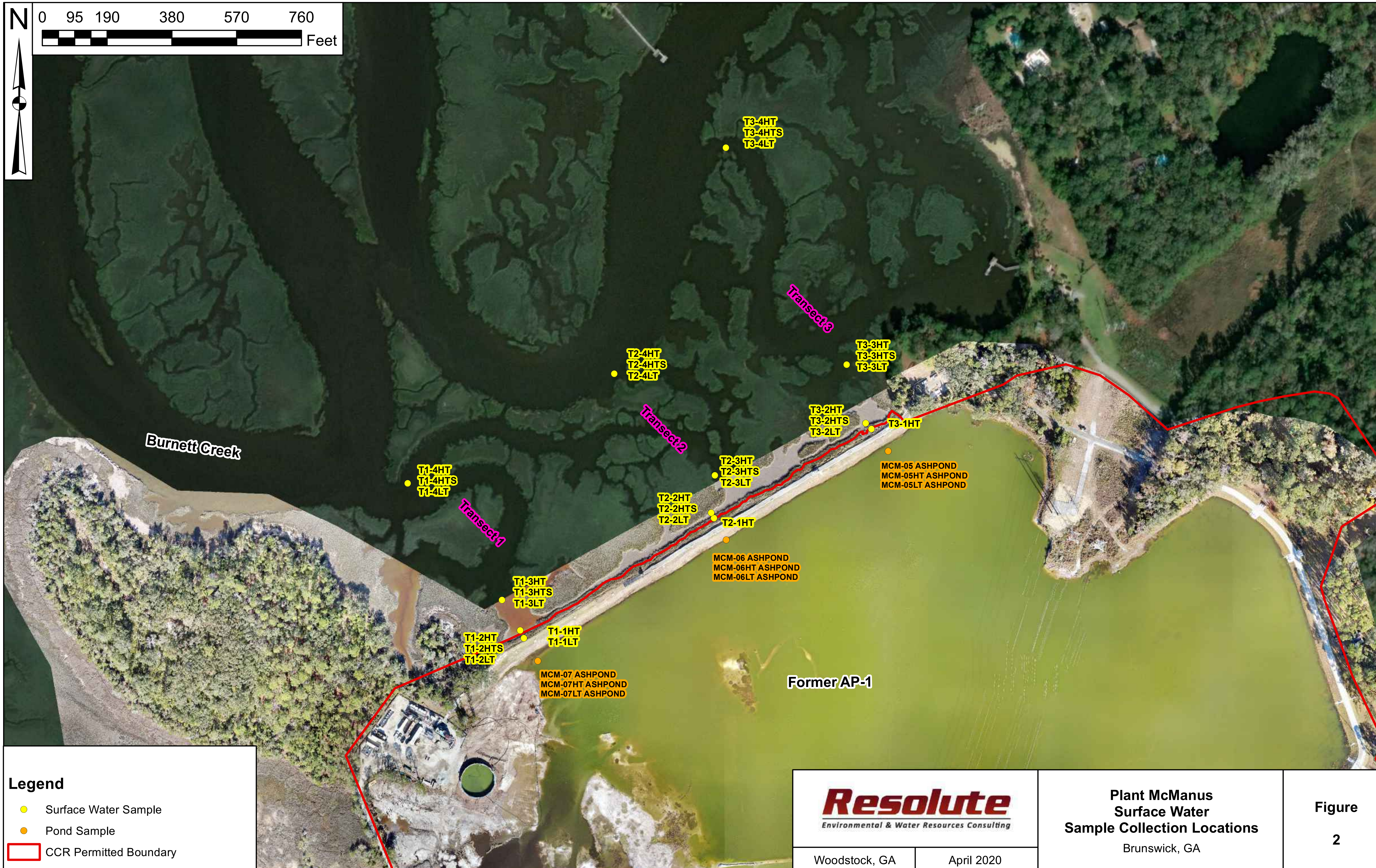
Resolute Environmental & Water Resources Consulting

Woodstock, GA | March 2020

Plant McManus Surface Water Sample Collection Location

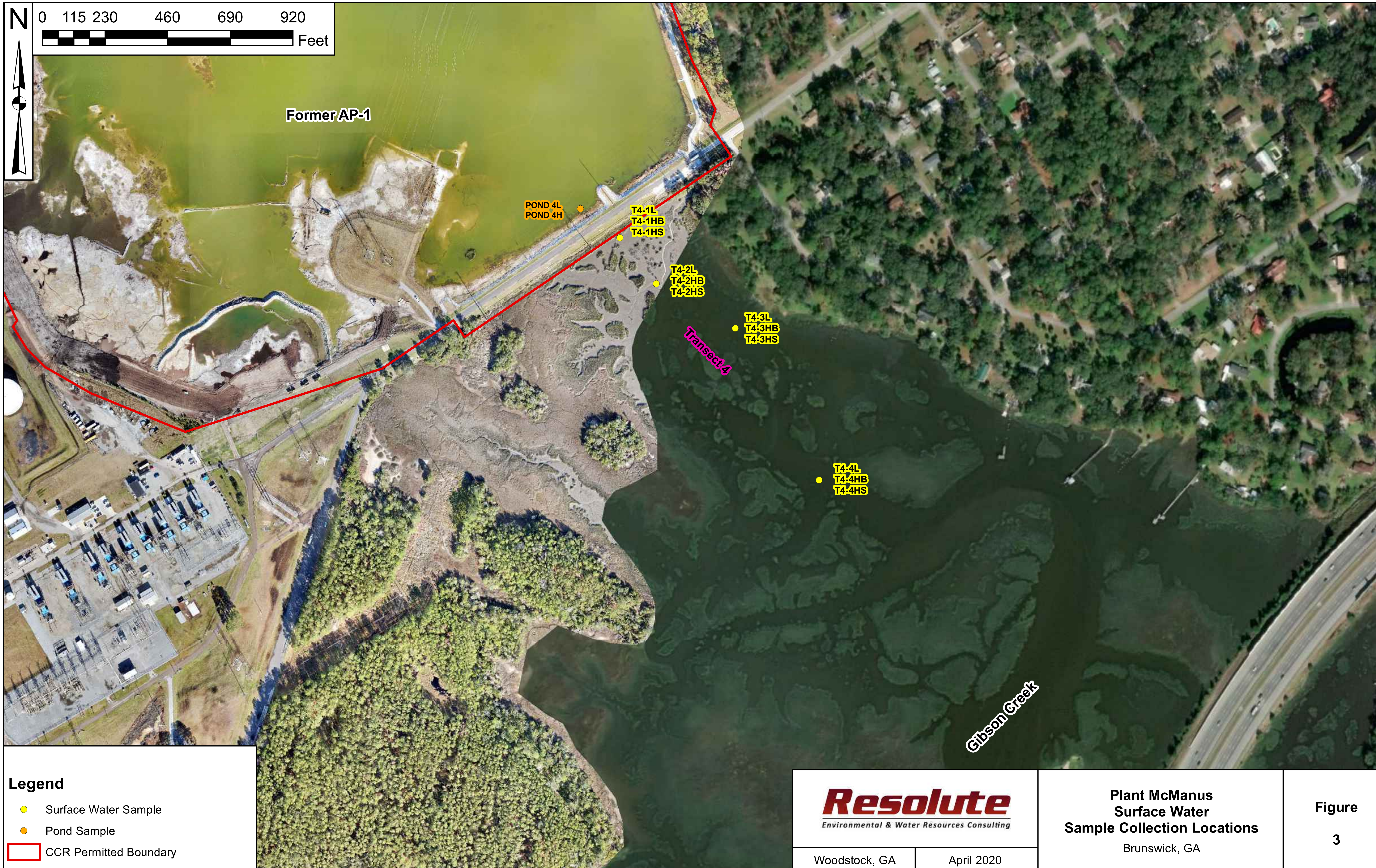
Brunswick, GA

Figure 1



Resolute
Environmental & Water Resources Consulting

Woodstock, GA	April 2020	Plant McManus Surface Water Sample Collection Locations Brunswick, GA	Figure 2



Resolute
Environmental & Water Resources Consulting

Woodstock, GA | April 2020

Plant McManus
Surface Water
Sample Collection Locations
Brunswick, GA

Figure
3

APPENDIX: LABORATORY ANALYTICAL REPORTS

Final Laboratory Reports - Pace Analytical Services, Asheville (Huntersville), NC

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

March 31, 2020

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

RE: Project: Plant McManus
Pace Project No.: 92466089

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 04, 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

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

Sincerely,

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

Enclosures

cc: Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Ms. Lauren Petty, Southern Co. Services
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

CERTIFICATIONS

Project:	Plant McManus
Pace Project No.:	92466089

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: Plant McManus
Pace Project No.: 92466089

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92466089001	**T2-1HT**	Water	02/01/20 13:55	02/04/20 08:00
92466089002	**T2-2HT**	Water	02/01/20 14:32	02/04/20 08:00
92466089003	**T2-2HTS**	Water	02/01/20 14:28	02/04/20 08:00
92466089004	**T2-2LT**	Water	02/02/20 13:38	02/04/20 08:00
92466089005	**T2-3HT**	Water	02/01/20 14:50	02/04/20 08:00
92466089006	**T2-3HTS**	Water	02/01/20 14:46	02/04/20 08:00
92466089007	**T2-3LT**	Water	02/02/20 11:20	02/04/20 08:00
92466089008	**T2-4HT**	Water	02/01/20 15:14	02/04/20 08:00
92466089009	**T2-4HTS**	Water	02/01/20 15:00	02/04/20 08:00
92466089010	**T2-4LT**	Water	02/02/20 09:46	02/04/20 08:00
92466089011	**T1-1HT**	Water	02/01/20 14:08	02/04/20 08:00
92466089012	**T1-1LT**	Water	02/01/20 09:50	02/04/20 08:00
92466089013	**T1-2HT**	Water	02/01/20 14:20	02/04/20 08:00
92466089014	**T1-2HTS**	Water	02/01/20 14:16	02/04/20 08:00
92466089015	**T1-2LT**	Water	02/01/20 10:16	02/04/20 08:00
92466089016	**T1-3HT**	Water	02/01/20 13:56	02/04/20 08:00
92466089017	**T1-3HTS**	Water	02/01/20 13:52	02/04/20 08:00
92466089018	**T1-3LT**	Water	02/01/20 10:06	02/04/20 08:00
92466089019	**T1-4HT**	Water	02/01/20 13:40	02/04/20 08:00
92466089020	**T1-4HTS**	Water	02/01/20 13:34	02/04/20 08:00
92466089021	**T1-4LT**	Water	02/01/20 09:56	02/04/20 08:00
92466089022	**T3-1HT**	Water	02/02/20 14:35	02/04/20 08:00
92466089023	**T3-2HT**	Water	02/02/20 14:34	02/04/20 08:00
92466089024	**T3-2HTS**	Water	02/02/20 14:28	02/04/20 08:00
92466089025	**T3-2LT**	Water	02/03/20 13:30	02/04/20 08:00
92466089026	**T3-3HT**	Water	02/02/20 14:10	02/04/20 08:00
92466089027	**T3-3HTS**	Water	02/02/20 14:08	02/04/20 08:00
92466089028	**T3-3LT**	Water	02/03/20 12:12	02/04/20 08:00
92466089029	**T3-4HT**	Water	02/02/20 13:50	02/04/20 08:00
92466089030	**T3-4HTS**	Water	02/02/20 13:44	02/04/20 08:00
92466089031	**T3-4LT**	Water	02/03/20 10:40	02/04/20 08:00
92466089032	**MCM-05HT**	Water	02/02/20 14:46	02/04/20 08:00
92466089033	**MCM-05LT**	Water	02/03/20 09:47	02/04/20 08:00
92466089034	**MCM-06HT**	Water	02/01/20 13:55	02/04/20 08:00
92466089035	**MCM-06LT**	Water	02/02/20 09:00	02/04/20 08:00
92466089036	**MCM-07HT**	Water	02/01/20 14:20	02/04/20 08:00
92466089037	**MCM-07LT**	Water	02/01/20 10:15	02/04/20 08:00

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SAMPLE SUMMARY

Project: Plant McManus
Pace Project No.: 92466089

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92466089038	**DUP-01**	Water	02/03/20 00:00	02/04/20 08:00
92466089039	**MCM-05HT ASHPOND**	Water	02/02/20 14:30	02/04/20 08:00
92466089040	**MCM-06LT ASHPOND**	Water	02/02/20 08:50	02/04/20 08:00
92466089041	**MCM-05LT ASHPOND**	Water	02/03/20 09:45	02/04/20 08:00
92466089042	**MCM-07HT ASHPOND**	Water	02/01/20 14:20	02/04/20 08:00
92466089043	**MCM-07LT ASHPOND**	Water	02/01/20 09:40	02/04/20 08:00
92466089044	**MCM-06HT ASHPOND**	Water	02/01/20 13:55	02/04/20 08:00
92466089045	**BG-1LT**	Water	02/02/20 08:58	02/04/20 08:00
92466089046	**BG-2HT**	Water	02/02/20 15:04	02/04/20 08:00
92466089047	**MCM-04LT**	Water	02/03/20 11:35	02/04/20 10:48
92466089048	**MCM-08LT**	Water	02/03/20 12:41	02/04/20 10:48

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SAMPLE ANALYTE COUNT

Project: Plant McManus
Pace Project No.: 92466089

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92466089001	**T2-1HT**	EPA 6020B	BG2	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089002	**T2-2HT**	EPA 6020B	BG2	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089003	**T2-2HTS**	EPA 6020B	BG2	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089004	**T2-2LT**	EPA 6020B	BG2	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089005	**T2-3HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089006	**T2-3HTS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089007	**T2-3LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089008	**T2-4HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089009	**T2-4HTS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089010	**T2-4LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089011	**T1-1HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089012	**T1-1LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089013	**T1-2HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089014	**T1-2HTS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2	3	PASI-A
92466089015	**T1-2LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089016	**T1-3HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089017	**T1-3HTS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089018	**T1-3LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089019	**T1-4HT**	EPA 6020B	JOR	3	PASI-A

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SAMPLE ANALYTE COUNT

Project: Plant McManus
Pace Project No.: 92466089

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020B	JOR	3	PASI-A
92466089020	**T1-4HTS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089021	**T1-4LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089022	**T3-1HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089023	**T3-2HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089024	**T3-2HTS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089025	**T3-2LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089026	**T3-3HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089027	**T3-3HTS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089028	**T3-3LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089029	**T3-4HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089030	**T3-4HTS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089031	**T3-4LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089032	**MCM-05HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089033	**MCM-05LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089034	**MCM-06HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089035	**MCM-06LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089036	**MCM-07HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089037	**MCM-07LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A

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SAMPLE ANALYTE COUNT

Project: Plant McManus
Pace Project No.: 92466089

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92466089038	**DUP-01**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089039	**MCM-05HT ASHPOND**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089040	**MCM-06LT ASHPOND**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089041	**MCM-05LT ASHPOND**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92466089042	**MCM-07HT ASHPOND**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2, JOR	3	PASI-A
92466089043	**MCM-07LT ASHPOND**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2, JOR	3	PASI-A
92466089044	**MCM-06HT ASHPOND**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2, JOR	3	PASI-A
92466089045	**BG-1LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2, JOR	3	PASI-A
92466089046	**BG-2HT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2, JOR	3	PASI-A
92466089047	**MCM-04LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2, JOR	3	PASI-A
92466089048	**MCM-08LT**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	BG2	3	PASI-A

PASI-A = Pace Analytical Services - Asheville

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SUMMARY OF DETECTION

Project: Plant McManus
Pace Project No.: 92466089

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92466089001	**T2-1HT**					
EPA 6020B	Arsenic	0.0014	mg/L	0.0010	02/25/20 10:30	
EPA 6020B	Lithium	0.052	mg/L	0.025	02/25/20 10:30	
EPA 6020B	Arsenic, Dissolved	0.0014J	mg/L	0.0020	02/26/20 15:45	D3
EPA 6020B	Lithium, Dissolved	0.059	mg/L	0.050	02/26/20 15:45	
92466089002	**T2-2HT**					
EPA 6020B	Arsenic	0.0019	mg/L	0.0010	02/25/20 10:39	
EPA 6020B	Lithium	0.10	mg/L	0.025	02/25/20 10:39	
EPA 6020B	Arsenic, Dissolved	0.0015J	mg/L	0.0020	02/26/20 18:39	D3
EPA 6020B	Lithium, Dissolved	0.084	mg/L	0.050	02/26/20 18:39	
92466089003	**T2-2HTS**					
EPA 6020B	Arsenic	0.0019	mg/L	0.0010	02/25/20 10:52	
EPA 6020B	Lithium	0.073	mg/L	0.025	02/25/20 10:52	
EPA 6020B	Arsenic, Dissolved	0.0014J	mg/L	0.0020	02/26/20 18:53	D3
EPA 6020B	Lithium, Dissolved	0.060	mg/L	0.050	02/26/20 18:53	
92466089004	**T2-2LT**					
EPA 6020B	Arsenic	0.0018	mg/L	0.0010	02/25/20 11:01	
EPA 6020B	Lithium	0.063	mg/L	0.025	02/25/20 11:01	
EPA 6020B	Arsenic, Dissolved	0.0016J	mg/L	0.0020	02/26/20 19:06	D3
EPA 6020B	Lithium, Dissolved	0.057	mg/L	0.050	02/26/20 19:06	
92466089005	**T2-3HT**					
EPA 6020B	Arsenic	0.0016J	mg/L	0.0020	03/05/20 23:55	
EPA 6020B	Lithium	0.099	mg/L	0.050	03/05/20 23:55	
EPA 6020B	Arsenic, Dissolved	0.0015J	mg/L	0.0020	02/26/20 19:15	D3
EPA 6020B	Lithium, Dissolved	0.093	mg/L	0.050	02/26/20 19:15	
92466089006	**T2-3HTS**					
EPA 6020B	Arsenic	0.0018J	mg/L	0.0020	03/06/20 00:16	
EPA 6020B	Lithium	0.11	mg/L	0.050	03/06/20 00:16	
EPA 6020B	Arsenic, Dissolved	0.0015J	mg/L	0.0020	02/26/20 19:23	D3
EPA 6020B	Lithium, Dissolved	0.094	mg/L	0.050	02/26/20 19:23	
92466089007	**T2-3LT**					
EPA 6020B	Arsenic	0.0020	mg/L	0.0020	03/06/20 00:42	
EPA 6020B	Lithium	0.049J	mg/L	0.050	03/06/20 00:42	
EPA 6020B	Arsenic, Dissolved	0.0012J	mg/L	0.0020	02/26/20 19:32	D3
EPA 6020B	Lithium, Dissolved	0.041J	mg/L	0.050	02/26/20 19:32	
92466089008	**T2-4HT**					
EPA 6020B	Arsenic	0.0016J	mg/L	0.0020	03/06/20 00:48	
EPA 6020B	Lithium	0.091	mg/L	0.050	03/06/20 00:48	
EPA 6020B	Arsenic, Dissolved	0.0020J	mg/L	0.0020	02/26/20 20:15	D3
EPA 6020B	Lithium, Dissolved	0.092	mg/L	0.050	02/26/20 20:15	
92466089009	**T2-4HTS**					
EPA 6020B	Arsenic	0.0015J	mg/L	0.0020	03/06/20 00:58	
EPA 6020B	Lithium	0.085	mg/L	0.050	03/06/20 00:58	

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SUMMARY OF DETECTION

Project: Plant McManus
Pace Project No.: 92466089

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92466089009	**T2-4HTS**					
EPA 6020B	Arsenic, Dissolved	0.0016J	mg/L	0.0020	02/26/20 20:24	D3
EPA 6020B	Lithium, Dissolved	0.088	mg/L	0.050	02/26/20 20:24	
92466089010	**T2-4LT**					
EPA 6020B	Arsenic	0.0015J	mg/L	0.0020	03/06/20 01:03	
EPA 6020B	Lithium	0.075	mg/L	0.050	03/06/20 01:03	
EPA 6020B	Arsenic, Dissolved	0.0015J	mg/L	0.0020	02/26/20 20:37	D3
EPA 6020B	Lithium, Dissolved	0.077	mg/L	0.050	02/26/20 20:37	
92466089011	**T1-1HT**					
EPA 6020B	Arsenic	0.0016J	mg/L	0.0020	03/06/20 01:19	
EPA 6020B	Lithium	0.039J	mg/L	0.050	03/06/20 01:19	
EPA 6020B	Lithium, Dissolved	0.038J	mg/L	0.050	02/26/20 20:46	
92466089012	**T1-1LT**					
EPA 6020B	Lithium	0.024J	mg/L	0.050	03/06/20 01:51	
EPA 6020B	Lithium, Dissolved	0.022J	mg/L	0.050	02/26/20 20:59	
92466089013	**T1-2HT**					
EPA 6020B	Lithium	0.11	mg/L	0.050	03/06/20 01:56	
EPA 6020B	Arsenic, Dissolved	0.0015J	mg/L	0.0020	02/26/20 21:04	D3
EPA 6020B	Lithium, Dissolved	0.088	mg/L	0.050	02/26/20 21:04	
92466089014	**T1-2HTS**					
EPA 6020B	Lithium	0.055	mg/L	0.050	03/06/20 02:01	
EPA 6020B	Arsenic, Dissolved	0.0015J	mg/L	0.0020	02/26/20 21:17	D3
EPA 6020B	Lithium, Dissolved	0.061	mg/L	0.050	02/26/20 21:17	
92466089015	**T1-2LT**					
EPA 6020B	Lithium	0.022J	mg/L	0.050	03/06/20 02:06	
EPA 6020B	Lithium, Dissolved	0.024J	mg/L	0.050	02/26/20 21:39	
92466089016	**T1-3HT**					
EPA 6020B	Lithium	0.092	mg/L	0.050	03/06/20 02:12	
EPA 6020B	Arsenic, Dissolved	0.0016J	mg/L	0.0020	02/26/20 21:48	D3
EPA 6020B	Lithium, Dissolved	0.080	mg/L	0.050	02/26/20 21:48	
92466089017	**T1-3HTS**					
EPA 6020B	Lithium	0.067	mg/L	0.050	03/06/20 02:17	
EPA 6020B	Arsenic, Dissolved	0.0015J	mg/L	0.0020	02/26/20 22:01	D3
EPA 6020B	Lithium, Dissolved	0.072	mg/L	0.050	02/26/20 22:01	
92466089018	**T1-3LT**					
EPA 6020B	Lithium	0.022J	mg/L	0.050	03/06/20 02:22	
EPA 6020B	Lithium, Dissolved	0.019J	mg/L	0.050	02/26/20 22:35	
92466089019	**T1-4HT**					
EPA 6020B	Lithium	0.080	mg/L	0.050	03/06/20 02:27	
EPA 6020B	Arsenic, Dissolved	0.0019J	mg/L	0.0020	02/26/20 22:40	D3
EPA 6020B	Lithium, Dissolved	0.086	mg/L	0.050	02/26/20 22:40	

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SUMMARY OF DETECTION

Project: Plant McManus
Pace Project No.: 92466089

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92466089020	**T1-4HTS**					
EPA 6020B	Arsenic	0.0014J	mg/L	0.0020	03/06/20 02:33	
EPA 6020B	Lithium	0.081	mg/L	0.050	03/06/20 02:33	
EPA 6020B	Arsenic, Dissolved	0.0016J	mg/L	0.0020	02/26/20 22:56	D3
EPA 6020B	Lithium, Dissolved	0.083	mg/L	0.050	02/26/20 22:56	
92466089021	**T1-4LT**					
EPA 6020B	Arsenic	0.0016J	mg/L	0.0020	03/06/20 02:48	
EPA 6020B	Lithium	0.090	mg/L	0.050	03/06/20 02:48	
EPA 6020B	Arsenic, Dissolved	0.0016J	mg/L	0.0020	02/26/20 23:01	D3
EPA 6020B	Lithium, Dissolved	0.090	mg/L	0.050	02/26/20 23:01	
92466089022	**T3-1HT**					
EPA 6020B	Arsenic	0.0018J	mg/L	0.0020	03/06/20 02:54	
EPA 6020B	Lithium	0.076	mg/L	0.050	03/06/20 02:54	
EPA 6020B	Arsenic, Dissolved	0.0016J	mg/L	0.0020	02/27/20 00:09	D3
EPA 6020B	Lithium, Dissolved	0.075	mg/L	0.050	02/27/20 00:09	
92466089023	**T3-2HT**					
EPA 6020B	Arsenic	0.0015J	mg/L	0.0020	03/06/20 02:59	
EPA 6020B	Lithium	0.097	mg/L	0.050	03/06/20 02:59	
EPA 6020B	Arsenic, Dissolved	0.0017J	mg/L	0.0020	02/27/20 00:14	D3
EPA 6020B	Lithium, Dissolved	0.087	mg/L	0.050	02/27/20 00:14	
92466089024	**T3-2HTS**					
EPA 6020B	Arsenic	0.0013J	mg/L	0.0020	03/06/20 03:04	
EPA 6020B	Lithium	0.075	mg/L	0.050	03/06/20 03:04	
EPA 6020B	Arsenic, Dissolved	0.0017J	mg/L	0.0020	02/27/20 00:18	D3
EPA 6020B	Lithium, Dissolved	0.078	mg/L	0.050	02/27/20 00:18	
92466089025	**T3-2LT**					
EPA 6020B	Arsenic	0.0029	mg/L	0.0020	03/06/20 03:20	BC
EPA 6020B	Lithium	0.077	mg/L	0.050	03/06/20 03:20	
EPA 6020B	Arsenic, Dissolved	0.0017J	mg/L	0.0020	02/27/20 00:27	D3
EPA 6020B	Lithium, Dissolved	0.079	mg/L	0.050	02/27/20 00:27	
92466089026	**T3-3HT**					
EPA 6020B	Arsenic	0.0021	mg/L	0.0020	03/06/20 03:25	BC
EPA 6020B	Lithium	0.081	mg/L	0.050	03/06/20 03:25	
EPA 6020B	Arsenic, Dissolved	0.0017J	mg/L	0.0020	02/27/20 00:31	D3
EPA 6020B	Lithium, Dissolved	0.088	mg/L	0.050	02/27/20 00:31	
92466089027	**T3-3HTS**					
EPA 6020B	Arsenic	0.0018J	mg/L	0.0020	03/06/20 04:02	BC
EPA 6020B	Lithium	0.080	mg/L	0.050	03/06/20 04:02	
EPA 6020B	Arsenic, Dissolved	0.0019J	mg/L	0.0020	02/27/20 00:36	D3
EPA 6020B	Lithium, Dissolved	0.081	mg/L	0.050	02/27/20 00:36	
92466089028	**T3-3LT**					
EPA 6020B	Arsenic	0.0018J	mg/L	0.0020	03/06/20 04:07	BC
EPA 6020B	Lithium	0.084	mg/L	0.050	03/06/20 04:07	

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SUMMARY OF DETECTION

Project: Plant McManus
Pace Project No.: 92466089

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92466089028	**T3-3LT**					
EPA 6020B	Arsenic, Dissolved	0.0016J	mg/L	0.0020	02/27/20 00:44	D3
EPA 6020B	Lithium, Dissolved	0.078	mg/L	0.050	02/27/20 00:44	
92466089029	**T3-4HT**					
EPA 6020B	Arsenic	0.0018J	mg/L	0.0020	03/06/20 04:12	BC
EPA 6020B	Lithium	0.087	mg/L	0.050	03/06/20 04:12	
EPA 6020B	Arsenic, Dissolved	0.0019J	mg/L	0.0020	02/27/20 00:49	D3
EPA 6020B	Lithium, Dissolved	0.10	mg/L	0.050	02/27/20 00:49	
92466089030	**T3-4HTS**					
EPA 6020B	Arsenic	0.0014J	mg/L	0.0020	03/06/20 04:18	BC
EPA 6020B	Lithium	0.085	mg/L	0.050	03/06/20 04:18	
EPA 6020B	Arsenic, Dissolved	0.0016J	mg/L	0.0020	02/27/20 00:58	D3
EPA 6020B	Lithium, Dissolved	0.090	mg/L	0.050	02/27/20 00:58	
92466089031	**T3-4LT**					
EPA 6020B	Arsenic	0.0012J	mg/L	0.0020	03/06/20 04:23	BC
EPA 6020B	Lithium	0.072	mg/L	0.050	03/06/20 04:23	
EPA 6020B	Arsenic, Dissolved	0.0015J	mg/L	0.0020	02/27/20 01:02	D3
EPA 6020B	Lithium, Dissolved	0.072	mg/L	0.050	02/27/20 01:02	
92466089032	**MCM-05HT**					
EPA 6020B	Arsenic	0.0013J	mg/L	0.0020	03/06/20 04:28	BC
EPA 6020B	Lithium	0.017J	mg/L	0.050	03/06/20 04:28	
EPA 6020B	Lithium, Dissolved	0.024J	mg/L	0.050	02/27/20 01:20	
92466089033	**MCM-05LT**					
EPA 6020B	Arsenic	0.0016J	mg/L	0.0020	03/06/20 04:34	BC
EPA 6020B	Lithium	0.023J	mg/L	0.050	03/06/20 04:34	
EPA 6020B	Lithium, Dissolved	0.021J	mg/L	0.050	02/27/20 01:24	
92466089034	**MCM-06HT**					
EPA 6020B	Arsenic	0.40	mg/L	0.0020	03/06/20 04:39	BC
EPA 6020B	Lithium	0.096	mg/L	0.050	03/06/20 04:39	
EPA 6020B	Arsenic, Dissolved	0.48	mg/L	0.0020	02/27/20 01:28	
EPA 6020B	Lithium, Dissolved	0.11	mg/L	0.050	02/27/20 01:28	
92466089035	**MCM-06LT**					
EPA 6020B	Arsenic	0.44	mg/L	0.0020	03/06/20 05:00	BC
EPA 6020B	Lithium	0.094	mg/L	0.050	03/06/20 05:00	
EPA 6020B	Arsenic, Dissolved	0.47	mg/L	0.0020	02/27/20 01:37	
EPA 6020B	Lithium, Dissolved	0.094	mg/L	0.050	02/27/20 01:37	
92466089036	**MCM-07HT**					
EPA 6020B	Arsenic	0.018	mg/L	0.0020	03/06/20 05:05	BC
EPA 6020B	Lithium	0.047J	mg/L	0.050	03/06/20 05:05	
EPA 6020B	Arsenic, Dissolved	0.020	mg/L	0.0020	02/27/20 01:42	
EPA 6020B	Lithium, Dissolved	0.048J	mg/L	0.050	02/27/20 01:42	
92466089037	**MCM-07LT**					
EPA 6020B	Arsenic	0.016	mg/L	0.0020	03/06/20 05:10	BC

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Plant McManus
Pace Project No.: 92466089

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92466089037	**MCM-07LT**					
EPA 6020B	Lithium	0.044J	mg/L	0.050	03/06/20 05:10	
EPA 6020B	Arsenic, Dissolved	0.018	mg/L	0.0020	02/27/20 01:46	
EPA 6020B	Lithium, Dissolved	0.062	mg/L	0.050	02/27/20 01:46	
92466089038	**DUP-01**					
EPA 6020B	Arsenic	0.0018J	mg/L	0.0020	03/06/20 05:15	BC
EPA 6020B	Lithium	0.073	mg/L	0.050	03/06/20 05:15	
EPA 6020B	Arsenic, Dissolved	0.0018J	mg/L	0.0020	02/27/20 01:51	D3
EPA 6020B	Lithium, Dissolved	0.080	mg/L	0.050	02/27/20 01:51	
92466089039	**MCM-05HT ASHPOND**					
EPA 6020B	Arsenic	0.0019J	mg/L	0.0020	03/06/20 05:21	BC
EPA 6020B	Lithium	0.018J	mg/L	0.050	03/06/20 05:21	
EPA 6020B	Arsenic, Dissolved	0.0013J	mg/L	0.0020	02/27/20 01:59	D3
EPA 6020B	Lithium, Dissolved	0.020J	mg/L	0.050	02/27/20 01:59	
92466089040	**MCM-06LT ASHPOND**					
EPA 6020B	Arsenic	0.0017J	mg/L	0.0020	03/06/20 05:26	BC
EPA 6020B	Lithium	0.012J	mg/L	0.050	03/06/20 05:26	
EPA 6020B	Arsenic, Dissolved	0.0013J	mg/L	0.0020	02/27/20 02:04	D3
EPA 6020B	Lithium, Dissolved	0.022J	mg/L	0.050	02/27/20 02:04	
92466089041	**MCM-05LT ASHPOND**					
EPA 6020B	Arsenic	0.0017J	mg/L	0.0020	03/06/20 05:31	BC
EPA 6020B	Lithium	0.012J	mg/L	0.050	03/06/20 05:31	
EPA 6020B	Lithium, Dissolved	0.021J	mg/L	0.050	02/27/20 02:08	
92466089042	**MCM-07HT ASHPOND**					
EPA 6020B	Arsenic	0.0019J	mg/L	0.0020	03/06/20 05:37	BC
EPA 6020B	Lithium	0.020J	mg/L	0.050	03/06/20 05:37	
EPA 6020B	Lithium, Dissolved	0.020J	mg/L	0.050	02/27/20 02:48	
92466089043	**MCM-07LT ASHPOND**					
EPA 6020B	Arsenic	0.0022	mg/L	0.0020	03/06/20 05:42	BC
EPA 6020B	Lithium	0.019J	mg/L	0.050	03/06/20 05:42	
EPA 6020B	Lithium, Dissolved	0.019J	mg/L	0.050	02/27/20 02:52	
92466089044	**MCM-06HT ASHPOND**					
EPA 6020B	Arsenic	0.0025	mg/L	0.0020	03/06/20 05:47	BC
EPA 6020B	Lithium	0.020J	mg/L	0.050	03/06/20 05:47	
EPA 6020B	Arsenic, Dissolved	0.0012J	mg/L	0.0020	02/27/20 15:55	D3
EPA 6020B	Lithium, Dissolved	0.021J	mg/L	0.050	02/27/20 02:57	
92466089045	**BG-1LT**					
EPA 6020B	Arsenic	0.0019J	mg/L	0.0020	03/06/20 06:45	
EPA 6020B	Lithium	0.090	mg/L	0.050	03/06/20 06:45	
EPA 6020B	Arsenic, Dissolved	0.0014J	mg/L	0.0020	02/27/20 16:00	D3
EPA 6020B	Lithium, Dissolved	0.098	mg/L	0.050	02/27/20 03:06	
92466089046	**BG-2HT**					
EPA 6020B	Arsenic	0.0023	mg/L	0.0020	03/06/20 07:06	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Plant McManus
Pace Project No.: 92466089

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92466089046	**BG-2HT**					
EPA 6020B	Lithium	0.099	mg/L	0.050	03/06/20 07:06	
EPA 6020B	Arsenic, Dissolved	0.0016J	mg/L	0.0020	02/27/20 16:08	D3
EPA 6020B	Lithium, Dissolved	0.099	mg/L	0.050	02/27/20 03:10	
92466089047	**MCM-04LT**					
EPA 6020B	Arsenic	0.0016J	mg/L	0.0020	03/06/20 06:13	
EPA 6020B	Cobalt	0.0030	mg/L	0.0020	03/06/20 06:13	
EPA 6020B	Cobalt, Dissolved	0.0026	mg/L	0.0020	02/27/20 16:17	
92466089048	**MCM-08LT**					
EPA 6020B	Arsenic	0.0019J	mg/L	0.0020	03/06/20 06:19	
EPA 6020B	Cobalt	0.0020J	mg/L	0.0020	03/06/20 06:19	
EPA 6020B	Arsenic, Dissolved	0.0013J	mg/L	0.0020	02/27/20 16:22	D3
EPA 6020B	Cobalt, Dissolved	0.0020J	mg/L	0.0020	02/27/20 16:22	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T2-1HT **Lab ID: 92466089001** Collected: 02/01/20 13:55 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0014**	mg/L	0.0010	0.00060	10	02/25/20 02:03	02/25/20 10:30	7440-38-2	
Cobalt	ND	mg/L	0.0010	0.00050	10	02/25/20 02:03	02/25/20 10:30	7440-48-4	
Lithium	**0.052**	mg/L	0.025	0.0042	10	02/25/20 02:03	02/25/20 10:30	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0014J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 15:45	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 15:45	7440-48-4	
Lithium, Dissolved	**0.059**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 15:45	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T2-2HT **Lab ID: 92466089002** Collected: 02/01/20 14:32 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0019**	mg/L	0.0010	0.00060	10	02/25/20 02:03	02/25/20 10:39	7440-38-2	
Cobalt	ND	mg/L	0.0010	0.00050	10	02/25/20 02:03	02/25/20 10:39	7440-48-4	
Lithium	**0.10**	mg/L	0.025	0.0042	10	02/25/20 02:03	02/25/20 10:39	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0015J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 18:39	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 18:39	7440-48-4	
Lithium, Dissolved	**0.084**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 18:39	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T2-2HTS **Lab ID: 92466089003** Collected: 02/01/20 14:28 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0019**	mg/L	0.0010	0.00060	10	02/25/20 02:03	02/25/20 10:52	7440-38-2	
Cobalt	ND	mg/L	0.0010	0.00050	10	02/25/20 02:03	02/25/20 10:52	7440-48-4	
Lithium	**0.073**	mg/L	0.025	0.0042	10	02/25/20 02:03	02/25/20 10:52	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0014J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 18:53	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 18:53	7440-48-4	
Lithium, Dissolved	**0.060**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 18:53	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T2-2LT **Lab ID: 92466089004** Collected: 02/02/20 13:38 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0018**	mg/L	0.0010	0.00060	10	02/25/20 02:03	02/25/20 11:01	7440-38-2	
Cobalt	ND	mg/L	0.0010	0.00050	10	02/25/20 02:03	02/25/20 11:01	7440-48-4	
Lithium	**0.063**	mg/L	0.025	0.0042	10	02/25/20 02:03	02/25/20 11:01	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0016J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 19:06	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 19:06	7440-48-4	
Lithium, Dissolved	**0.057**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 19:06	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T2-3HT **Lab ID: 92466089005** Collected: 02/01/20 14:50 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0016J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/05/20 23:55	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/05/20 23:55	7440-48-4	
Lithium	**0.099**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/05/20 23:55	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0015J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 19:15	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 19:15	7440-48-4	
Lithium, Dissolved	**0.093**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 19:15	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T2-3HTS **Lab ID: 92466089006** Collected: 02/01/20 14:46 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0018J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 00:16	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 00:16	7440-48-4	
Lithium	**0.11**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 00:16	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0015J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 19:23	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 19:23	7440-48-4	
Lithium, Dissolved	**0.094**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 19:23	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T2-3LT **Lab ID: 92466089007** Collected: 02/02/20 11:20 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0020**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 00:42	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 00:42	7440-48-4	
Lithium	**0.049J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 00:42	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0012J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 19:32	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 19:32	7440-48-4	
Lithium, Dissolved	**0.041J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 19:32	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T2-4HT **Lab ID: 92466089008** Collected: 02/01/20 15:14 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0016J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 00:48	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 00:48	7440-48-4	
Lithium	**0.091**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 00:48	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0020J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 20:15	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 20:15	7440-48-4	
Lithium, Dissolved	**0.092**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 20:15	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T2-4HTS **Lab ID: 92466089009** Collected: 02/01/20 15:00 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0015J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 00:58	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 00:58	7440-48-4	
Lithium	**0.085**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 00:58	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0016J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 20:24	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 20:24	7440-48-4	
Lithium, Dissolved	**0.088**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 20:24	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T2-4LT **Lab ID: 92466089010** Collected: 02/02/20 09:46 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0015J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 01:03	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 01:03	7440-48-4	
Lithium	**0.075**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 01:03	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0015J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 20:37	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 20:37	7440-48-4	
Lithium, Dissolved	**0.077**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 20:37	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T1-1HT **Lab ID: 92466089011** Collected: 02/01/20 14:08 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0016J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 01:19	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 01:19	7440-48-4	
Lithium	**0.039J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 01:19	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 20:46	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 20:46	7440-48-4	
Lithium, Dissolved	**0.038J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 20:46	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T1-1LT **Lab ID: 92466089012** Collected: 02/01/20 09:50 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 01:51	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 01:51	7440-48-4	
Lithium	**0.024J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 01:51	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 20:59	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 20:59	7440-48-4	
Lithium, Dissolved	**0.022J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 20:59	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T1-2HT **Lab ID: 92466089013** Collected: 02/01/20 14:20 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 01:56	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 01:56	7440-48-4	
Lithium	**0.11**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 01:56	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0015J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 21:04	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 21:04	7440-48-4	
Lithium, Dissolved	**0.088**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 21:04	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T1-2HTS **Lab ID: 92466089014** Collected: 02/01/20 14:16 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 02:01	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 02:01	7440-48-4	
Lithium	**0.055**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 02:01	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0015J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 21:17	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 21:17	7440-48-4	
Lithium, Dissolved	**0.061**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 21:17	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T1-2LT **Lab ID: 92466089015** Collected: 02/01/20 10:16 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 02:06	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 02:06	7440-48-4	
Lithium	**0.022J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 02:06	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 21:39	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 21:39	7440-48-4	
Lithium, Dissolved	**0.024J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 21:39	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T1-3HT **Lab ID: 92466089016** Collected: 02/01/20 13:56 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 02:12	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 02:12	7440-48-4	
Lithium	**0.092**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 02:12	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0016J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 21:48	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 21:48	7440-48-4	
Lithium, Dissolved	**0.080**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 21:48	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T1-3HTS **Lab ID: 92466089017** Collected: 02/01/20 13:52 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 02:17	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 02:17	7440-48-4	
Lithium	**0.067**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 02:17	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0015J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 22:01	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 22:01	7440-48-4	
Lithium, Dissolved	**0.072**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 22:01	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T1-3LT **Lab ID: 92466089018** Collected: 02/01/20 10:06 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 02:22	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 02:22	7440-48-4	
Lithium	**0.022J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 02:22	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 22:35	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 22:35	7440-48-4	
Lithium, Dissolved	**0.019J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 22:35	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T1-4HT **Lab ID: 92466089019** Collected: 02/01/20 13:40 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 02:27	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 02:27	7440-48-4	
Lithium	**0.080**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 02:27	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0019J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 22:40	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 22:40	7440-48-4	
Lithium, Dissolved	**0.086**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 22:40	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T1-4HTS **Lab ID: 92466089020** Collected: 02/01/20 13:34 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0014J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 02:33	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 02:33	7440-48-4	
Lithium	**0.081**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 02:33	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0016J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 22:56	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 22:56	7440-48-4	
Lithium, Dissolved	**0.083**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 22:56	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T1-4LT **Lab ID: 92466089021** Collected: 02/01/20 09:56 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0016J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 02:48	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 02:48	7440-48-4	
Lithium	**0.090**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 02:48	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0016J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/26/20 23:01	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/26/20 23:01	7440-48-4	
Lithium, Dissolved	**0.090**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/26/20 23:01	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T3-1HT **Lab ID: 92466089022** Collected: 02/02/20 14:35 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0018J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 02:54	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 02:54	7440-48-4	
Lithium	**0.076**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 02:54	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0016J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 00:09	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 00:09	7440-48-4	
Lithium, Dissolved	**0.075**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 00:09	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T3-2HT **Lab ID: 92466089023** Collected: 02/02/20 14:34 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0015J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 02:59	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 02:59	7440-48-4	
Lithium	**0.097**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 02:59	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0017J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 00:14	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 00:14	7440-48-4	
Lithium, Dissolved	**0.087**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 00:14	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T3-2HTS **Lab ID: 92466089024** Collected: 02/02/20 14:28 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0013J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 03:04	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 03:04	7440-48-4	
Lithium	**0.075**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 03:04	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0017J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 00:18	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 00:18	7440-48-4	
Lithium, Dissolved	**0.078**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 00:18	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T3-2LT **Lab ID: 92466089025** Collected: 02/03/20 13:30 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0029**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 03:20	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 03:20	7440-48-4	
Lithium	**0.077**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 03:20	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0017J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 00:27	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 00:27	7440-48-4	
Lithium, Dissolved	**0.079**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 00:27	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T3-3HT **Lab ID: 92466089026** Collected: 02/02/20 14:10 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0021**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 03:25	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 03:25	7440-48-4	
Lithium	**0.081**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 03:25	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0017J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 00:31	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 00:31	7440-48-4	
Lithium, Dissolved	**0.088**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 00:31	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T3-3HTS **Lab ID: 92466089027** Collected: 02/02/20 14:08 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0018J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 04:02	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 04:02	7440-48-4	
Lithium	**0.080**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 04:02	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0019J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 00:36	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 00:36	7440-48-4	
Lithium, Dissolved	**0.081**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 00:36	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T3-3LT **Lab ID: 92466089028** Collected: 02/03/20 12:12 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0018J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 04:07	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 04:07	7440-48-4	
Lithium	**0.084**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 04:07	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0016J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 00:44	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 00:44	7440-48-4	
Lithium, Dissolved	**0.078**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 00:44	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T3-4HT **Lab ID: 92466089029** Collected: 02/02/20 13:50 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0018J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 04:12	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 04:12	7440-48-4	
Lithium	**0.087**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 04:12	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0019J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 00:49	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 00:49	7440-48-4	
Lithium, Dissolved	**0.10**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 00:49	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T3-4HTS **Lab ID: 92466089030** Collected: 02/02/20 13:44 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0014J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 04:18	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 04:18	7440-48-4	
Lithium	**0.085**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 04:18	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0016J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 00:58	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 00:58	7440-48-4	
Lithium, Dissolved	**0.090**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 00:58	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: T3-4LT **Lab ID: 92466089031** Collected: 02/03/20 10:40 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0012J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 04:23	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 04:23	7440-48-4	
Lithium	**0.072**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 04:23	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0015J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 01:02	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 01:02	7440-48-4	
Lithium, Dissolved	**0.072**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 01:02	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-05HT **Lab ID: 92466089032** Collected: 02/02/20 14:46 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0013J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 04:28	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 04:28	7440-48-4	
Lithium	**0.017J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 04:28	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 01:20	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 01:20	7440-48-4	
Lithium, Dissolved	**0.024J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 01:20	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-05LT **Lab ID: 92466089033** Collected: 02/03/20 09:47 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0016J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 04:34	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 04:34	7440-48-4	
Lithium	**0.023J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 04:34	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 01:24	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 01:24	7440-48-4	
Lithium, Dissolved	**0.021J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 01:24	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-06HT **Lab ID: 92466089034** Collected: 02/01/20 13:55 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.40**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 04:39	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 04:39	7440-48-4	
Lithium	**0.096**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 04:39	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.48**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 01:28	7440-38-2	
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 01:28	7440-48-4	
Lithium, Dissolved	**0.11**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 01:28	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-06LT **Lab ID: 92466089035** Collected: 02/02/20 09:00 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.44**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 05:00	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 05:00	7440-48-4	
Lithium	**0.094**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 05:00	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.47**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 01:37	7440-38-2	
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 01:37	7440-48-4	
Lithium, Dissolved	**0.094**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 01:37	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-07HT **Lab ID: 92466089036** Collected: 02/01/20 14:20 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.018**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 05:05	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 05:05	7440-48-4	
Lithium	**0.047J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 05:05	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.020**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 01:42	7440-38-2	
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 01:42	7440-48-4	
Lithium, Dissolved	**0.048J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 01:42	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-07LT **Lab ID: 92466089037** Collected: 02/01/20 10:15 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.016**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 05:10	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 05:10	7440-48-4	
Lithium	**0.044J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 05:10	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.018**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 01:46	7440-38-2	
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 01:46	7440-48-4	
Lithium, Dissolved	**0.062**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 01:46	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: DUP-01 **Lab ID: 92466089038** Collected: 02/03/20 00:00 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0018J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 05:15	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 05:15	7440-48-4	
Lithium	**0.073**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 05:15	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0018J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 01:51	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 01:51	7440-48-4	
Lithium, Dissolved	**0.080**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 01:51	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-05HT ASHPOND **Lab ID: 92466089039** Collected: 02/02/20 14:30 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0019J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 05:21	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 05:21	7440-48-4	
Lithium	**0.018J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 05:21	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0013J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 01:59	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 01:59	7440-48-4	
Lithium, Dissolved	**0.020J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 01:59	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-06LT ASHPOND **Lab ID: 92466089040** Collected: 02/02/20 08:50 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0017J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 05:26	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 05:26	7440-48-4	
Lithium	**0.012J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 05:26	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0013J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 02:04	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 02:04	7440-48-4	
Lithium, Dissolved	**0.022J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 02:04	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-05LT ASHPOND **Lab ID: 92466089041** Collected: 02/03/20 09:45 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0017J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 05:31	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 05:31	7440-48-4	
Lithium	**0.012J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 05:31	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 02:08	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 02:08	7440-48-4	
Lithium, Dissolved	**0.021J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 02:08	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-07HT ASHPOND **Lab ID: 92466089042** Collected: 02/01/20 14:20 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0019J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 05:37	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 05:37	7440-48-4	
Lithium	**0.020J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 05:37	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 15:46	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 15:46	7440-48-4	
Lithium, Dissolved	**0.020J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 02:48	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-07LT ASHPOND **Lab ID: 92466089043** Collected: 02/01/20 09:40 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0022**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 05:42	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 05:42	7440-48-4	
Lithium	**0.019J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 05:42	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 15:51	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 15:51	7440-48-4	
Lithium, Dissolved	**0.019J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 02:52	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-06HT ASHPOND **Lab ID: 92466089044** Collected: 02/01/20 13:55 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0025**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 05:47	7440-38-2	BC
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 05:47	7440-48-4	
Lithium	**0.020J**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 05:47	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0012J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 15:55	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 15:55	7440-48-4	
Lithium, Dissolved	**0.021J**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 02:57	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: BG-1LT **Lab ID: 92466089045** Collected: 02/02/20 08:58 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0019J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 06:45	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 06:45	7440-48-4	
Lithium	**0.090**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 06:45	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0014J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 16:00	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 16:00	7440-48-4	
Lithium, Dissolved	**0.098**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 03:06	7439-93-2	

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: BG-2HT **Lab ID: 92466089046** Collected: 02/02/20 15:04 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0023**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 07:06	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 07:06	7440-48-4	
Lithium	**0.099**	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 07:06	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0016J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 16:08	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 16:08	7440-48-4	
Lithium, Dissolved	**0.099**	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 03:10	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-04LT **Lab ID: 92466089047** Collected: 02/03/20 11:35 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0016J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 06:13	7440-38-2	
Cobalt	**0.0030**	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 06:13	7440-48-4	
Lithium	ND	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 06:13	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 16:17	7440-38-2	D3
Cobalt, Dissolved	**0.0026**	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 16:17	7440-48-4	
Lithium, Dissolved	ND	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 03:14	7439-93-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus
Pace Project No.: 92466089

Sample: MCM-08LT **Lab ID: 92466089048** Collected: 02/03/20 12:41 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0019J**	mg/L	0.0020	0.0012	2	03/04/20 02:26	03/06/20 06:19	7440-38-2	
Cobalt	**0.0020J**	mg/L	0.0020	0.0010	2	03/04/20 02:26	03/06/20 06:19	7440-48-4	
Lithium	ND	mg/L	0.050	0.0084	2	03/04/20 02:26	03/06/20 06:19	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0013J**	mg/L	0.0020	0.0012	20	02/26/20 11:47	02/27/20 16:22	7440-38-2	D3
Cobalt, Dissolved	**0.0020J**	mg/L	0.0020	0.0010	20	02/26/20 11:47	02/27/20 16:22	7440-48-4	
Lithium, Dissolved	ND	mg/L	0.050	0.0084	20	02/26/20 11:47	02/27/20 16:22	7439-93-2	

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QUALITY CONTROL DATA

Project: Plant McManus
Pace Project No.: 92466089

QC Batch: 526783
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92466089001, 92466089002, 92466089003, 92466089004

METHOD BLANK: 2814966 Matrix: Water
Associated Lab Samples: 92466089001, 92466089002, 92466089003, 92466089004, 92466089005, 92466089006, 92466089007, 92466089008, 92466089009, 92466089010, 92466089011, 92466089012, 92466089013, 92466089014, 92466089015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.00010	0.000060	02/25/20 10:17	
Cobalt	mg/L	ND	0.00010	0.000050	02/25/20 10:17	
Lithium	mg/L	ND	0.0025	0.00042	02/25/20 10:17	

LABORATORY CONTROL SAMPLE: 2814967

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.0099	99	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2814968 2814969

Parameter	Units	92465431003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	2.6 ug/L	0.01	0.01	0.012	0.013	97	100	75-125	2	20	
Cobalt	mg/L	0.11 ug/L	0.01	0.01	0.010	0.010	100	101	75-125	0	20	
Lithium	mg/L	2.6 ug/L	0.05	0.05	0.051	0.054	98	103	75-125	5	20	

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QUALITY CONTROL DATA

Project: Plant McManus
Pace Project No.: 92466089

QC Batch: 528310 | Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A | Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92466089005, 92466089006, 92466089007, 92466089008, 92466089009, 92466089010, 92466089011, 92466089012, 92466089013, 92466089014, 92466089015, 92466089016, 92466089017, 92466089018, 92466089019, 92466089020, 92466089021, 92466089022, 92466089023, 92466089024

METHOD BLANK: 2822122 Matrix: Water

Associated Lab Samples: 92466089005, 92466089006, 92466089007, 92466089008, 92466089009, 92466089010, 92466089011, 92466089012, 92466089013, 92466089014, 92466089015, 92466089016, 92466089017, 92466089018, 92466089019, 92466089020, 92466089021, 92466089022, 92466089023, 92466089024

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.00010	0.000060	03/05/20 23:45	
Cobalt	mg/L	ND	0.00010	0.000050	03/05/20 23:45	
Lithium	mg/L	ND	0.0025	0.00042	03/05/20 23:45	

LABORATORY CONTROL SAMPLE: 2822123

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.010	104	80-120	
Cobalt	mg/L	0.01	0.010	103	80-120	
Lithium	mg/L	0.05	0.056	113	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2822124 2822125

Parameter	Units	92466089006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0018J	0.1	0.1	0.12	0.11	119	109	75-125	8	20	
Cobalt	mg/L	ND	0.1	0.1	0.11	0.11	114	107	75-125	7	20	
Lithium	mg/L	0.11	0.5	0.5	0.68	0.62	114	102	75-125	10	20	

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QUALITY CONTROL DATA

Project: Plant McManus
Pace Project No.: 92466089

QC Batch: 528311
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92466089025, 92466089026, 92466089027, 92466089028, 92466089029, 92466089030, 92466089031, 92466089032, 92466089033, 92466089034, 92466089035, 92466089036, 92466089037, 92466089038, 92466089039, 92466089040, 92466089041, 92466089042, 92466089043, 92466089044

METHOD BLANK: 2822126 Matrix: Water
Associated Lab Samples: 92466089025, 92466089026, 92466089027, 92466089028, 92466089029, 92466089030, 92466089031, 92466089032, 92466089033, 92466089034, 92466089035, 92466089036, 92466089037, 92466089038, 92466089039, 92466089040, 92466089041, 92466089042, 92466089043, 92466089044

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	0.000086J	0.00010	0.000060	03/06/20 03:09	BC
Cobalt	mg/L	ND	0.00010	0.000050	03/06/20 03:09	
Lithium	mg/L	ND	0.0025	0.00042	03/06/20 03:09	

LABORATORY CONTROL SAMPLE: 2822127

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.0099	99	80-120	BC
Cobalt	mg/L	0.01	0.010	100	80-120	
Lithium	mg/L	0.05	0.052	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2822128 2822129

Parameter	Units	92466089026 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0021	0.1	0.1	0.11	0.12	107	113	75-125	6	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.12	104	116	75-125	10	20	
Lithium	mg/L	0.081	0.5	0.5	0.58	0.63	99	110	75-125	9	20	

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QUALITY CONTROL DATA

Project: Plant McManus
Pace Project No.: 92466089

QC Batch: 528312
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92466089045, 92466089046, 92466089047, 92466089048

METHOD BLANK: 2822130 Matrix: Water
Associated Lab Samples: 92466089045, 92466089046, 92466089047, 92466089048

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.00010	0.000060	03/06/20 06:03	
Cobalt	mg/L	ND	0.00010	0.000050	03/06/20 06:03	
Lithium	mg/L	ND	0.0025	0.00042	03/06/20 06:03	

LABORATORY CONTROL SAMPLE: 2822131

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.0098	98	80-120	
Cobalt	mg/L	0.01	0.010	101	80-120	
Lithium	mg/L	0.05	0.050	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2822132 2822133

Parameter	Units	92466089048 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0019J	0.1	0.1	0.11	0.10	104	100	75-125	4	20	
Cobalt	mg/L	0.0020J	0.1	0.1	0.11	0.10	107	100	75-125	7	20	
Lithium	mg/L	ND	0.5	0.5	0.53	0.51	106	103	75-125	3	20	

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Plant McManus
Pace Project No.: 92466089

QC Batch: 527145 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET Dissolved
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92466089001, 92466089002, 92466089003, 92466089004, 92466089005, 92466089006, 92466089007, 92466089008, 92466089009, 92466089010, 92466089011, 92466089012, 92466089013, 92466089014, 92466089015, 92466089016, 92466089017, 92466089018, 92466089019, 92466089020

METHOD BLANK: 2816511 Matrix: Water

Associated Lab Samples: 92466089001, 92466089002, 92466089003, 92466089004, 92466089005, 92466089006, 92466089007, 92466089008, 92466089009, 92466089010, 92466089011, 92466089012, 92466089013, 92466089014, 92466089015, 92466089016, 92466089017, 92466089018, 92466089019, 92466089020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	mg/L	ND	0.00010	0.000060	02/26/20 16:11	
Cobalt, Dissolved	mg/L	ND	0.00010	0.000050	02/26/20 16:11	
Lithium, Dissolved	mg/L	ND	0.0025	0.00042	02/26/20 16:11	

LABORATORY CONTROL SAMPLE: 2816512

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	mg/L	0.01	0.0096	96	80-120	
Cobalt, Dissolved	mg/L	0.01	0.0098	98	80-120	
Lithium, Dissolved	mg/L	0.05	0.047	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2816513 2816514

Parameter	Units	92466089001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	mg/L	0.0014J	0.01	0.01	0.012	0.012	106	105	75-125	2	20	
Cobalt, Dissolved	mg/L	ND	0.01	0.01	0.011	0.011	109	108	75-125	1	20	
Lithium, Dissolved	mg/L	0.059	0.05	0.05	0.10	0.10	83	86	75-125	2	20	

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Pace Analytical Services, LLC
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(704)875-9092

QUALITY CONTROL DATA

Project: Plant McManus
Pace Project No.: 92466089

QC Batch: 527147
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET Dissolved
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92466089021, 92466089022, 92466089023, 92466089024, 92466089025, 92466089026, 92466089027, 92466089028, 92466089029, 92466089030, 92466089031, 92466089032, 92466089033, 92466089034, 92466089035, 92466089036, 92466089037, 92466089038, 92466089039, 92466089040

METHOD BLANK: 2816517 Matrix: Water

Associated Lab Samples: 92466089021, 92466089022, 92466089023, 92466089024, 92466089025, 92466089026, 92466089027, 92466089028, 92466089029, 92466089030, 92466089031, 92466089032, 92466089033, 92466089034, 92466089035, 92466089036, 92466089037, 92466089038, 92466089039, 92466089040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	mg/L	ND	0.00010	0.000060	02/26/20 16:02	
Cobalt, Dissolved	mg/L	ND	0.00010	0.000050	02/26/20 16:02	
Lithium, Dissolved	mg/L	ND	0.0025	0.00042	02/26/20 16:02	

LABORATORY CONTROL SAMPLE: 2816518

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	mg/L	0.01	0.0098	98	80-120	
Cobalt, Dissolved	mg/L	0.01	0.010	103	80-120	
Lithium, Dissolved	mg/L	0.05	0.045	91	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2816519 2816520

Parameter	Units	92466089021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	mg/L	0.0016J	0.01	0.01	0.012	0.013	105	111	75-125	5	20	
Cobalt, Dissolved	mg/L	ND	0.01	0.01	0.011	0.011	106	109	75-125	3	20	
Lithium, Dissolved	mg/L	0.090	0.05	0.05	0.14	0.14	104	103	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Plant McManus
Pace Project No.: 92466089

QC Batch: 527148 | Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A | Analysis Description: 6020 MET Dissolved
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92466089041, 92466089042, 92466089043, 92466089044, 92466089045, 92466089046, 92466089047, 92466089048

METHOD BLANK: 2816523 Matrix: Water

Associated Lab Samples: 92466089041, 92466089042, 92466089043, 92466089044, 92466089045, 92466089046, 92466089047, 92466089048

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	mg/L	ND	0.00010	0.000060	02/26/20 15:54	
Cobalt, Dissolved	mg/L	ND	0.00010	0.000050	02/26/20 15:54	
Lithium, Dissolved	mg/L	ND	0.0025	0.00042	02/26/20 15:54	

LABORATORY CONTROL SAMPLE: 2816524

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	mg/L	0.01	0.0098	98	80-120	
Cobalt, Dissolved	mg/L	0.01	0.010	100	80-120	
Lithium, Dissolved	mg/L	0.05	0.047	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2816525 2816526

Parameter	Units	92466089041 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	mg/L	ND	0.01	0.01	0.011	0.011	99	100	75-125	1	20	
Cobalt, Dissolved	mg/L	ND	0.01	0.01	0.0097	0.0094	96	94	75-125	3	20	
Lithium, Dissolved	mg/L	0.021J	0.05	0.05	0.065	0.072	89	102	75-125	10	20	

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QUALIFIERS

Project: Plant McManus
Pace Project No.: 92466089

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

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

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

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McManus
Pace Project No.: 92466089

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92466089001	**T2-1HT**	EPA 3010A	526783	EPA 6020B	526805
92466089002	**T2-2HT**	EPA 3010A	526783	EPA 6020B	526805
92466089003	**T2-2HTS**	EPA 3010A	526783	EPA 6020B	526805
92466089004	**T2-2LT**	EPA 3010A	526783	EPA 6020B	526805
92466089005	**T2-3HT**	EPA 3010A	528310	EPA 6020B	528347
92466089006	**T2-3HTS**	EPA 3010A	528310	EPA 6020B	528347
92466089007	**T2-3LT**	EPA 3010A	528310	EPA 6020B	528347
92466089008	**T2-4HT**	EPA 3010A	528310	EPA 6020B	528347
92466089009	**T2-4HTS**	EPA 3010A	528310	EPA 6020B	528347
92466089010	**T2-4LT**	EPA 3010A	528310	EPA 6020B	528347
92466089011	**T1-1HT**	EPA 3010A	528310	EPA 6020B	528347
92466089012	**T1-1LT**	EPA 3010A	528310	EPA 6020B	528347
92466089013	**T1-2HT**	EPA 3010A	528310	EPA 6020B	528347
92466089014	**T1-2HTS**	EPA 3010A	528310	EPA 6020B	528347
92466089015	**T1-2LT**	EPA 3010A	528310	EPA 6020B	528347
92466089016	**T1-3HT**	EPA 3010A	528310	EPA 6020B	528347
92466089017	**T1-3HTS**	EPA 3010A	528310	EPA 6020B	528347
92466089018	**T1-3LT**	EPA 3010A	528310	EPA 6020B	528347
92466089019	**T1-4HT**	EPA 3010A	528310	EPA 6020B	528347
92466089020	**T1-4HTS**	EPA 3010A	528310	EPA 6020B	528347
92466089021	**T1-4LT**	EPA 3010A	528310	EPA 6020B	528347
92466089022	**T3-1HT**	EPA 3010A	528310	EPA 6020B	528347
92466089023	**T3-2HT**	EPA 3010A	528310	EPA 6020B	528347
92466089024	**T3-2HTS**	EPA 3010A	528310	EPA 6020B	528347
92466089025	**T3-2LT**	EPA 3010A	528311	EPA 6020B	528348
92466089026	**T3-3HT**	EPA 3010A	528311	EPA 6020B	528348
92466089027	**T3-3HTS**	EPA 3010A	528311	EPA 6020B	528348
92466089028	**T3-3LT**	EPA 3010A	528311	EPA 6020B	528348
92466089029	**T3-4HT**	EPA 3010A	528311	EPA 6020B	528348
92466089030	**T3-4HTS**	EPA 3010A	528311	EPA 6020B	528348
92466089031	**T3-4LT**	EPA 3010A	528311	EPA 6020B	528348
92466089032	**MCM-05HT**	EPA 3010A	528311	EPA 6020B	528348
92466089033	**MCM-05LT**	EPA 3010A	528311	EPA 6020B	528348
92466089034	**MCM-06HT**	EPA 3010A	528311	EPA 6020B	528348
92466089035	**MCM-06LT**	EPA 3010A	528311	EPA 6020B	528348
92466089036	**MCM-07HT**	EPA 3010A	528311	EPA 6020B	528348
92466089037	**MCM-07LT**	EPA 3010A	528311	EPA 6020B	528348
92466089038	**DUP-01**	EPA 3010A	528311	EPA 6020B	528348
92466089039	**MCM-05HT ASHPOND**	EPA 3010A	528311	EPA 6020B	528348
92466089040	**MCM-06LT ASHPOND**	EPA 3010A	528311	EPA 6020B	528348
92466089041	**MCM-05LT ASHPOND**	EPA 3010A	528311	EPA 6020B	528348
92466089042	**MCM-07HT ASHPOND**	EPA 3010A	528311	EPA 6020B	528348
92466089043	**MCM-07LT ASHPOND**	EPA 3010A	528311	EPA 6020B	528348
92466089044	**MCM-06HT ASHPOND**	EPA 3010A	528311	EPA 6020B	528348
92466089045	**BG-1LT**	EPA 3010A	528312	EPA 6020B	528350
92466089046	**BG-2HT**	EPA 3010A	528312	EPA 6020B	528350
92466089047	**MCM-04LT**	EPA 3010A	528312	EPA 6020B	528350

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McManus
Pace Project No.: 92466089

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92466089048	**MCM-08LT**	EPA 3010A	528312	EPA 6020B	528350
92466089001	**T2-1HT**	EPA 3010A	527145	EPA 6020B	527187
92466089002	**T2-2HT**	EPA 3010A	527145	EPA 6020B	527187
92466089003	**T2-2HTS**	EPA 3010A	527145	EPA 6020B	527187
92466089004	**T2-2LT**	EPA 3010A	527145	EPA 6020B	527187
92466089005	**T2-3HT**	EPA 3010A	527145	EPA 6020B	527187
92466089006	**T2-3HTS**	EPA 3010A	527145	EPA 6020B	527187
92466089007	**T2-3LT**	EPA 3010A	527145	EPA 6020B	527187
92466089008	**T2-4HT**	EPA 3010A	527145	EPA 6020B	527187
92466089009	**T2-4HTS**	EPA 3010A	527145	EPA 6020B	527187
92466089010	**T2-4LT**	EPA 3010A	527145	EPA 6020B	527187
92466089011	**T1-1HT**	EPA 3010A	527145	EPA 6020B	527187
92466089012	**T1-1LT**	EPA 3010A	527145	EPA 6020B	527187
92466089013	**T1-2HT**	EPA 3010A	527145	EPA 6020B	527187
92466089014	**T1-2HTS**	EPA 3010A	527145	EPA 6020B	527187
92466089015	**T1-2LT**	EPA 3010A	527145	EPA 6020B	527187
92466089016	**T1-3HT**	EPA 3010A	527145	EPA 6020B	527187
92466089017	**T1-3HTS**	EPA 3010A	527145	EPA 6020B	527187
92466089018	**T1-3LT**	EPA 3010A	527145	EPA 6020B	527187
92466089019	**T1-4HT**	EPA 3010A	527145	EPA 6020B	527187
92466089020	**T1-4HTS**	EPA 3010A	527145	EPA 6020B	527187
92466089021	**T1-4LT**	EPA 3010A	527147	EPA 6020B	527190
92466089022	**T3-1HT**	EPA 3010A	527147	EPA 6020B	527190
92466089023	**T3-2HT**	EPA 3010A	527147	EPA 6020B	527190
92466089024	**T3-2HTS**	EPA 3010A	527147	EPA 6020B	527190
92466089025	**T3-2LT**	EPA 3010A	527147	EPA 6020B	527190
92466089026	**T3-3HT**	EPA 3010A	527147	EPA 6020B	527190
92466089027	**T3-3HTS**	EPA 3010A	527147	EPA 6020B	527190
92466089028	**T3-3LT**	EPA 3010A	527147	EPA 6020B	527190
92466089029	**T3-4HT**	EPA 3010A	527147	EPA 6020B	527190
92466089030	**T3-4HTS**	EPA 3010A	527147	EPA 6020B	527190
92466089031	**T3-4LT**	EPA 3010A	527147	EPA 6020B	527190
92466089032	**MCM-05HT**	EPA 3010A	527147	EPA 6020B	527190
92466089033	**MCM-05LT**	EPA 3010A	527147	EPA 6020B	527190
92466089034	**MCM-06HT**	EPA 3010A	527147	EPA 6020B	527190
92466089035	**MCM-06LT**	EPA 3010A	527147	EPA 6020B	527190
92466089036	**MCM-07HT**	EPA 3010A	527147	EPA 6020B	527190
92466089037	**MCM-07LT**	EPA 3010A	527147	EPA 6020B	527190
92466089038	**DUP-01**	EPA 3010A	527147	EPA 6020B	527190
92466089039	**MCM-05HT ASHPOND**	EPA 3010A	527147	EPA 6020B	527190
92466089040	**MCM-06LT ASHPOND**	EPA 3010A	527147	EPA 6020B	527190
92466089041	**MCM-05LT ASHPOND**	EPA 3010A	527148	EPA 6020B	527192
92466089042	**MCM-07HT ASHPOND**	EPA 3010A	527148	EPA 6020B	527192
92466089043	**MCM-07LT ASHPOND**	EPA 3010A	527148	EPA 6020B	527192
92466089044	**MCM-06HT ASHPOND**	EPA 3010A	527148	EPA 6020B	527192
92466089045	**BG-1LT**	EPA 3010A	527148	EPA 6020B	527192
92466089046	**BG-2HT**	EPA 3010A	527148	EPA 6020B	527192

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McManus
Pace Project No.: 92466089

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92466089047	**MCM-04LT**	EPA 3010A	527148	EPA 6020B	527192
92466089048	**MCM-08LT**	EPA 3010A	527148	EPA 6020B	527192

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields mu

WO# : 2628570

2628570

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Georgia Power	Report To: Millet, Lea	Attention:
Address: 1003 Weatherstone Parkway	Copy To:	Company Name:
Suite 320, Woodstock, GA 30188		Address:
Email: lea.millet@resoluteenv.com	Purchase Order #:	Pace Quote:
Phone: (251)776-2760 Fax:	Project Name: Plant McManus SW	Pace Project Manager: kevin.herring@pacelabs.com,
Requested Due Date:	Project #:	Pace Profile #: 2919

State / Location: GA

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Collected Start DATE	Collected Start TIME	Collected End DATE	Collected End TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020 Ca, Li	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	MCM-DL-HT	[illegible]	G	2/1/20	1355				1			1							1		
2	T1-3HT	[illegible]	G	2/1/20	1356				1			1							1		
3	T1-1HT	[illegible]	G	2/1/20	1408				1			1							1		
4	T1-2HTS	[illegible]	G	2/1/20	1416				1			1							1		
5	MCM-07HT Ashpond	[illegible]	G	2/1/20	1420				1			1							1		
6	MCM-07HT	[illegible]	G	2/1/20	1420				1			1							1		
7	T1-2HT	[illegible]	G	2/1/20	1420				1			1							1		
8	T2-2HTS	[illegible]	G	2/1/20	1428				1			1							1		
9	T2-2HT	[illegible]	G	2/1/20	1432				1			1							1		
10	T2-3HTS	[illegible]	G	2/1/20	1446				1			1							1		
11	T2-3HT	[illegible]	G	2/1/20	1450				1			1							1		
12	T2-4HTS	[illegible]	G	2/1/20	1500				1			1							1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Ca, Li Only	Kevin Stephenson	2/3/20	1446	FedEx						
				R. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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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.

Page : 1 Of 1

Section A — Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resoluteenv.com / Stephen Wilson@ [illegible]
Phone:	(251)776-2760
Fax:	[illegible]
Requested Due Date:	

Section B — Required Project Information:

Report To:	Millet, Lea
Copy To:	Wilson, Stephen
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com
Pace Profile #:	2919

Regulatory Agency	State / Location
	GA

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

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

Requested Analysis Filtered (Y/N): Metals by 6020 — N; Dissolved Metals by 6020 — Y; *See Comments

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020	Dissolved Metals by 6020	Residual Chlorine (Y/N)	
1	MCM-04LT	WT	G	2/3/20	1135				[illegible]			1										HOLD
2	MCM-08LT	WT	G	2/3/20	1241				[illegible]			1										HOLD
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*As Cr,Li Only!	Kevin Stephenson	2/3/20	1638	[signature]	2/3/20	1638		Y	Y	Y
	[signature]	2/4/20	1048	Romero Doko / Pace	2/4/20	1048				
	Romero Doko / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	1216	3.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Cawn

SIGNATURE of SAMPLER: [signature] DATE Signed: 2/3/20

WO# : 2628593

2628593

CHAIN-OF-CUSTODY / Analytical Request Document

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Page : 1 Of 1

Section A — Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resoluteenv.com
Phone:	(251)776-2760 Fax:
Requested Due Date:	

Section B — Required Project Information:

Report To:	Millet, Lea
Copy To:	Wilson, Stephen Stephen.Wilson@ResoluteEnv.com
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	2919

Regulatory Agency	
State / Location	GA

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

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

Requested Analysis Filtered (Y/N): Metals by 6020 — N; Dissolved Metals by 6020 — Y; See Comment

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Start DATE	Start TIME	End DATE	End TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals by 6020	Dissolved Metals by 6020	Residual Chlorine (Y/N)	
1	BG-1HT	WG	G	2/2/20	0958				2	1		1									HOLD
2	BG-2HT	WG	G	2/2/20	1504				2	1		1									HOLD
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Call Only!	Kevin Stephenson	2/3/20	1638	[illegible signature]	2/3/20	1638		Y	Y	Y
	[illegible signature]	2/4/20	1048	Romero Dicks / Pace	2/4/20	10:48				
	Romero Dicks / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	1216	3.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Glenn

SIGNATURE of SAMPLER: [illegible signature] DATE Signed: 2/3/20

WO# : 2628594

2628594

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CHAIN-OF-CUSTODY / Analytical Request D
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields mu

WO# : 2628595
PM: KH Due Date: 02/06/20
CLIENT: 26-GA Power

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:		Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resolutesenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:
State / Location: GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020 As	Dissolved Metals by 6020	See Comments	Residual Chlorine (Y/N)
1	MGM-07LT Ampond	WG	G	2/1/20	0940				1			1							1			
2	T1-1LT	WG	G	2/1/20	0950				1			1							1			
3	T1-4LT	WG	G	2/1/20	0956				1			1							1			
4	T1-3LT	WG	G	2/1/20	1006				1			1							1			
5	~~[illegible]~~	WG	G		—				1			1										
6	MGM-07LT	WG	G	2/1/20	1015				1			1							1			
7	T1-2LT	WG	G	2/1/20	1016				1			1							1			
8	T1-4HTS	WG	G	2/1/20	1334				1			1							1			
9	T1-4HT	WG	G	2/1/20	1340				1			1							1			
10	T1-3HTS	WG	G	2/1/20	1352				1			1							1			
11	T1-1HT	WG	G	2/1/20	1355				1			1							1			
12	MGM-06HT Ampond	WG	G	2/1/20	1355				1			1							1			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Only	Kevin Stephenson	2/3/20	1646	FedEx						
				K. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin Stephenson / Scott Glenn
SIGNATURE of SAMPLER: [signature]
DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Request Do

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WO# : 2628595
PM: KH Due Date: 02/06/20
CLIENT: 26-GA Power

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Wilson, Stephen	Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone: (251)776-2760	Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:
State / Location: GA

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

Requested Analysis Filtered (Y/N): Y (Dissolved Metals by 6020)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Metals by 6020	Dissolved Metals by 6020 Co, Li	Residual Chlorine (Y/N)
1	T3-2WT	GW	G	2/2/20	1430				1	1										1	
2	T3-1WT	GW	G	2/2/20	1435				1	1										1	
3	MCM-05WT	GW	G	2/2/20	1446				1	1										1	
4	MCM-05LT Aqueous	GW	G	2/3/20	0945				1	1										1	
5	MCM-05LT	GW	G	2/3/20	0843				1	1										1	
6	T3-4LT	GW	G	2/3/20	1040				1	1										1	
7	T3-3LT	GW	G	2/3/20	1212				1	1										1	
8	T3-2LT	GW	G	2/3/20	1330				1	1										1	
9	Dup-1	GW	G	2/3/20	–				1	1										1	
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Co, Li Only	Kevin Stephenson	2/3/20	1654	[signature]	2/3/20	1654	–	Y	Y	Y
	[signature]	2/4/20	1048	Romero Hicks / Pace	2/4/20	10:48				
	Romero Hicks / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	1816	4.0			

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin Stephenson / Scott Glover
SIGNATURE of SAMPLER: [signature]
DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Request Do[cument]

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WO# : 2628595

2628595

Section A
Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resoluteenv.com
Phone:	(251)776-2760 Fax:
Requested Due Date:	

Section B
Required Project Information:

Report To:	Millet, Lea
Copy To:	
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	2919

Regulatory Agency:

State / Location: GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020 AK	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	MCM-O6WT	WT	G	2/1/20	1355				1			1							1		
2	T1-3WT	WT	G	2/1/20	1356				1			1							1		
3	T1-1WT	WT	G	2/1/20	1408				1			1							1		
4	T1-2WTS	WT	G	2/1/20	1416				1			1							1		
5	MCM-O7WT Ashpond	WT	G	2/1/20	1420				1			1							1		
6	MCM-O7WT	WT	G	2/1/20	1420				1			1							1		
7	T1-2WT	WT	G	2/1/20	1420				1			1							1		
8	T2-2WTS	WT	G	2/1/20	1428				1			1							1		
9	T2-2WT	WT	G	2/1/20	1432				1			1							1		
10	T2-3WTS	WT	G	2/1/20	1446				1			1							1		
11	T2-3WT	WT	G	2/1/20	1450				1			1							1		
12	T2-4WTS	WT	G	2/1/20	1500				1			1							1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Only	Kevin Stephenson	2/3/20	1046	FedEx						
				K. Wellington / PACE	2/4/20	0800	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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WO#: 2628595

PM: KH Due Date: 02/06/20

CLIENT: 26-GA Power

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Wilson, Stephen	Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resolutenv.com	Purchase Order #:		Pace Quote:	
Phone: (251)776-2760	Fax	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	2919

State / Location: GA

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

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

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020 — Y

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020	Dissolved Metals by 6020	Co, Li	Residual Chlorine (Y/N)
1	T2-4HT	WG	G	2/1/20	1514				1	1										1		
2	MCM-06LT Adequate	WG	G	2/2/20	0850				1	1										1		
3	~~[illegible]~~ MCM-06LT	WG	G	2/2/20	0900				1	1										1		
4	T2-4LT	WG	G	2/2/20	0946				1	1										1		
5	T2-3LT	WG	G	2/2/20	1120				1	1										1		
6	T2-2LT	WG	G	2/2/20	1138				1	1										1		
7	T3-4HTS	WG	G	2/2/20	1344				1	1										1		
8	T3-4HT	WG	G	2/2/20	1350				1	1										1		
9	T3-3HTS	WG	G	2/2/20	1408				1	1										1		
10	T3-3HT	WG	G	2/2/20	1410				1	1										1		
11	T3-2HTS	WG	G	2/2/20	1428				1	1										1		
12	MCM-05HT Adequate	WG	G	2/2/20	1430				1	1										1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Co, Li Only	Kevin Stephenson	2/3/20	1654	[signature]	2/3/20	1654	-	Y	Y	Y
	[signature]	2/4/20	1047	Yomoro Dicks / Pace	2/4/20	10:48				
	Yomoro Dicks / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	1216	4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson | Scott Coleman

SIGNATURE of SAMPLER: [signature] DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Request Document

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WO#: 2628598

2628598

Section A — Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resolutoenv.com
Phone:	(251)776-2760 Fax:
Requested Due Date:	

Section B — Required Project Information:

Report To:	Millet, Lea
Copy To:	Wilson, Stephen
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	2919

Regulatory Agency:

State / Location: GA

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

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

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020: Y

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals by 6020	Dissolved Metals by 6020 *See Comment	Residual Chlorine (Y/N)
1	MCM-07 LT Assigned	GW	G	2/1/20	0940				1	1									1	
2	T1-1LT	GW	G	2/1/20	0950				1	1									1	
3	T1-4LT	GW	G	2/1/20	0956				1	1									1	
4	T1-3LT	GW	G	2/1/20	1000				1	1									1	
5	~~[illegible]~~	GW	G	—	—				1											
6	MCM-07LT	GW	G	2/1/20	1015				1	1									1	
7	T1-2LT	GW	G	2/1/20	1016				1	1									1	
8	T1-4HTS	GW	G	2/1/20	1334				1	1									1	
9	T1-4HT	GW	G	2/1/20	1340				1	1									1	
10	T1-3HTS	GW	G	2/1/20	1352				1	1									1	
11	T1-1HT	GW	G	2/1/20	1355				1	1									1	
12	MCM-06HT Assigned	GW	G	2/1/20	1355				1	1									1	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Only	Kevin Stephenson	2/3/20	1654	[signature]	2/3/20	1654	—	Y	Y	Y
	[signature]	2/4/20	1048	Romero Dickey / Pace	2/4/20	10:48				
	Romero Dickey / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	1216	4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Glenn

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

WO# : 2628598
PM: KH Due Date: 02/05/20
CLIENT: 26-GA Power

CHAIN-OF-CUSTODY / Analytical Request Document

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

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Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:		Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

State / Location: GA

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

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020 As	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T3-2WT	WT	G	2/1/20	1438				1			1							1		
2	T3-1WT	WT	G	2/1/20	1135				1			1							1		
3	MCM-05WT	WT	G	2/2/20	1446				1			1							1		
4	MCM-05LT Background	WT	G	2/3/20	0945				1			1							1		
5	MCM-05 LT	WT	G	2/3/20	0943				1			1							1		
6	T3-4LT	WT	G	2/3/20	1040				1			1							1		
7	T3-3LT	WT	G	2/3/20	1212				1			1							1		
8	T3-2LT	WT	G	2/3/20	1330				1			1							1		
9	Dup-1	WT	G	2/3/20	—				1			1							1		
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Only	Kevin Stephenson	2/3/20	1646	Fed Ex						
				R. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Glasson

SIGNATURE of SAMPLER:

DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Request Doc

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WO#: 2628598
PM: KH Due Date: 02/05/20
CLIENT: 26-GA Power

Section A — Required Client Information:		Section B — Required Project Information:		Section C — Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:		Company Name:	
	Suite 320, Woodstock, GA 30188			Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:
State / Location: GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T2-4HT	GW	G	2/1/20	1514				1			1							1		
2	MCM-06 LT Ambient	GW	G	2/2/20	0850				1			1							1		
3	MCM-06LT	GW	G	2/2/20	0900				1			1							1		
4	T2-4LT	GW	G	2/2/20	0946				1			1							1		
5	T2-3LT	GW	G	2/2/20	1210				1			1							1		
6	T2-2LT	GW	G	2/2/20	1138				1			1							1		
7	T3-4HTS	GW	G	2/2/20	1344				1			1							1		
8	T3-4HT	GW	G	2/2/20	1350				1			1							1		
9	T3-3HTS	GW	G	2/2/20	1408				1			1							1		
10	T3-3HT	GW	G	2/2/20	1410				1			1							1		
11	T3-2HTS	GW	G	2/2/20	1428				1			1							1		
12	MCM-05HT Ambient	GW	G	2/2/20	1430				1			1							1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Only	Kevin S[illegible]	2/3/20	1646	FedEx						
				K. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin S[illegible] | Scott C[illegible]
SIGNATURE of SAMPLER:
DATE Signed: 2/3/20

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

WO#: 2628598
PM: KH Due Date: 02/05/20
CLIENT: 26-GA Power

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Wilson, Stephen	Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resolutionenv.com	Purchase Order #:		Pace Quote:	
Phone: (251)776-2760	Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:
State / Location: GA

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

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

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020 — Y

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T3-2HT	WT	G	2/1/20	1428				1	1										1	
2	T3-1HT	WT	G	2/1/20	1435				1	1										1	
3	MCM-05HT	WT	G	2/2/20	1446				1	1										1	
4	MCM-05LT [illegible]	WT	G	2/2/20	0945				1	1										1	
5	MCM-05 LT	WT	G	2/3/20	0843				1	1										1	
6	T3-4LT	WT	G	2/3/20	1040				1	1										1	
7	T3-3LT	WT	G	2/3/20	1212				1	1										1	
8	T3-2LT	WT	G	2/3/20	1330				1	1										1	
9	Dup-1	WT	G	2/3/20	—				1	1										1	
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Ass Only	Kevin Stephenson	2/3/20	1654	[illegible signature]	2/3/20	1654	4	Y	Y	Y
	[signature]	2/4/20	1048	Yohannes Tekle / Pace	2/4/20	10:48				
	Yohannes Tekle / Pace	2/4/20	12:16	R. Willington / Pace	2/4/20	1216	4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin Stephenson / Scott Greene
SIGNATURE of SAMPLER: [signature] DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Request D

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WO# : 2628599

2628599

Section A — Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resoluteenv.com
Phone:	(251)776-2760 Fax:
Requested Due Date:	

Section B — Required Project Information:

Report To:	Millet, Lea
Copy To:	Wilson, Stephens
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	2919

State / Location: GA

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

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

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020 — Y

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals by 6020	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T2-4HT	WG	G	2/1/20	1514				1	1									1	
2	MCM-06LT Assigned	WG	G	2/2/20	0850				1	1									1	
3	MCM-06LT	WG	G	2/2/20	0900				1	1									1	
4	T2-4LT	WG	G	2/2/20	0946				1	1									1	
5	T2-3LT	WG	G	2/2/20	1120				1	1									1	
6	T2-2LT	WG	G	2/2/20	1138				1	1									1	
7	T3-4HTS	WG	G	2/2/20	1344				1	1									1	
8	T3-4HT	WG	G	2/2/20	1350				1	1									1	
9	T3-3HTS	WG	G	2/2/20	1408				1	1									1	
10	T3-3HT	WG	G	2/2/20	1410				1	1									1	
11	T3-2HTS	WG	G	2/2/20	1428				1	1									1	
12	MCM-05HT Assigned	WG	G	2/2/20	1430				1	1									1	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Ao Only	Kevin Stephenson	2/3/20	1654	[illegible]	2/3/20	1654	-	Y	Y	Y
	[illegible]	2/4/20	1048	Romero Ochoa / Pace	2/4/20	10:48				
	Romero Ochoa / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	12:16	4.0			
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Coleman

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Request Do

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WO#: 2628599

PM: KH Due Date: 02/07/20

CLIENT: 26-GA Power

Section A
Required Client Information:

Company: Georgia Power
Address: 1003 Weatherstone Parkway
Suite 320, Woodstock, GA 30188
Email: lea.millet@resoluteenv.com
Phone: (251)776-2760 Fax:

Requested Due Date:

Section B
Required Project Information:

Report To: Millet, Lea
Copy To: Wilber, Stephen
Purchase Order #:
Project Name: Plant McManus SW
Project #:

Section C
Invoice Information:

Attention:
Company Name:
Address:
Pace Quote:
Pace Project Manager: kevin.herring@pacelabs.com
Pace Profile #: 2919

Regulatory Agency:
State / Location: GA

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

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

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020 – Y

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020	Dissolved Metals by 6020	*See Comments	Residual Chlorine (Y/N)
1	MCM-07LT Aqueous	WT	G	2/1/20	0940				1	1										1		
2	T1-1LT	WT	G	2/1/20	0950				1	1										1		
3	T1-4LT	WT	G	2/1/20	0956				1	1										1		
4	T1-3LT	WT	G	2/1/20	1006				1	1										1		
5	~~[illegible]~~	WT	G	—	—				~~1~~													
6	MCM-07LT	WT	G	2/1/20	1015				1	1										1		
7	T1-2LT	WT	G	2/1/20	1016				1	1										1		
8	T1-4HTS	WT	G	2/1/20	1334				1	1										1		
9	T1-4HT	WT	G	2/1/20	1340				1	1										1		
10	T1-3HTS	WT	G	2/1/20	1352				1	1										1		
11	T1-1HT	WT	G	2/1/20	1355				1	1										1		
12	MCM-06HT Aqueous	WT	G	2/1/20	1355				1	1										1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Co, Li Only	Kevin Stephenson	2/3/20	1654	[signature]	2/3/20	1654	–	Y	Y	Y
	[signature]	2/4/20	1048	Romero Wicks / Pace	2/4/20	10:48				
	Romero Wicks / Pace	2/4/20	12:16	R Wellington / Pace	2/4/20	1216	4.0			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Colvin

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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

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CHAIN-OF-CUSTODY / Analytical Request Doc

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WO# : 2628599
PM: KH Due Date: 02/07/20
CLIENT: 26-GA Power

Section A — Required Client Information:	Section B — Required Project Information:	Section C — Invoice Information:
Company: Georgia Power	Report To: Millet, Lea	Attention:
Address: 1003 Weatherstone Parkway	Copy To: Wilkes Stephen	Company Name:
Suite 320, Woodstock, GA 30188		Address:
Email: lea.millet@resoluteenv.com	Purchase Order #:	Pace Quote:
Phone: (251)776-2760 Fax	Project Name: Plant McManus SW	Pace Project Manager: kevin.herring@pacelabs.com
Requested Due Date:	Project #:	Pace Profile #: 2919

Regulatory Agency:

State / Location: GA

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

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

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020 — Y

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analysis Test Y/N	Metals by 6020	Dissolved Metals by 6020 Co,Li	Residual Chlorine (Y/N)
1	MCM-[illegible]HT	WG	G	2/1/20	1355				1	1										1	
2	T1-3HT	WG	G	2/1/20	1356				1	1										1	
3	T1-1HT	WG	G	2/1/20	1408				1	1										1	
4	T1-2HTS	WG	G	2/1/20	1416				1	1										1	
5	MCM-07HT Ashpond	WG	G	2/1/20	1420				1	1										1	
6	MCM-07HT	WG	G	2/1/20	1420				1	1										1	
7	T1-2HT	WG	G	2/1/20	1420				1	1										1	
8	T2-2HTS	WG	G	2/1/20	1428				1	1										1	
9	T2-2HT	WG	G	2/1/20	1432				1	1										1	
10	T2-3HTS	WG	G	2/1/20	1446				1	1										1	
11	T2-3HT	WG	G	2/1/20	1450				1	1										1	
12	T2-4HTS	WG	G	2/1/20	1500				1	1										1	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Co, Li Only	Kevin Stephenson	2/3/20	1654	Stephen Wilkes	2/3/20	1654	-	Y	Y	Y
	Stephen Wilkes	2/4/20	1048	Romero Hicks / Pace	2/4/20	10:48				
	Romero Hicks / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	1216	4.0			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Reques

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WO# : 2628600

2628600

Section A
Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resoluteenv.com
Phone:	(251)776-2760 Fax:
Requested Due Date:	

Section B
Required Project Information:

Report To:	Millet, Lea
Copy To:	
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	2919

Regulatory Agency
State / Location
GA

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020 Co, Li	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T2-4HT	WT	G	2/1/20	1514				1			1							1		
2	MCM-06LT Ashpond	WT	G	2/2/20	0850				1			1							1		
3	MCM-06LT	WT	G	2/2/20	0900				1			1							1		
4	T2-4LT	WT	G	2/2/20	0946				1			1							1		
5	T2-3LT	WT	G	2/2/20	1120				1			1							1		
6	T2-2LT	WT	G	2/2/20	1138				1			1							1		
7	T3-4HTS	WT	G	2/2/20	1344				1			1							1		
8	T3-4HT	WT	G	2/2/20	1350				1			1							1		
9	T3-3HTS	WT	G	2/2/20	1408				1			1							1		
10	T3-3LT	WT	G	2/2/20	1410				1			1							1		
11	T3-2HTS	WT	G	2/2/20	1428				1			1							1		
12	MCM-05HT Ashpond	WT	G	2/2/20	1430				1			1							1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Co, Li Only	Kevin Stephenson	2/3/20	1446	FedEx						
				K. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson | Scott Coleman

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Request D

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WO# : 2628600
PM: KH Due Date: 02/11/20
CLIENT: 26-GA Power

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:		Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:

State / Location: GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020 Coll	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T3-2WT	WT	G	2/2/20	1434				1			1							1		
2	T3-1WT	WT	G	2/2/20	1425				1			1							1		
3	MCM-05WT	WT	G	2/2/20	1446				1			1							1		
4	MCM-05LT Ampound	WT	G	2/3/20	0945				1			1							1		
5	MCM-05LT	WT	G	2/3/20	0947				1			1							1		
6	T3-4LT	WT	G	2/3/20	1040				1			1							1		
7	T3-3LT	WT	G	2/3/20	1212				1			1							1		
8	T3-2LT	WT	G	2/3/20	1330				1			1							1		
9	Dup-1	WT	G	2/3/20	–				1			1							1		
10																					
11																					
12																					

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Coll Only	Kevin Stephenson	2/3/20	1646	FedEx						
				K. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson | Scott Glenn

SIGNATURE of SAMPLER: [signature] DATE Signed: 2/3/20

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

March 31, 2020

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

RE: Project: Plant McManus SW
Pace Project No.: 92470735

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 24, 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

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

Sincerely,

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

Enclosures

cc: Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Ms. Lauren Petty, Southern Co. Services
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project:	Plant McManus SW
Pace Project No.:	92470735

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Pace Analytical
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SAMPLE SUMMARY

Project: Plant McManus SW
Pace Project No.: 92470735

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92470735001	**T4-1L**	Water	03/18/20 14:18	03/24/20 12:20
92470735002	**T4-2L**	Water	03/18/20 13:50	03/24/20 12:20
92470735003	**T4-3L**	Water	03/18/20 13:06	03/24/20 12:20
92470735004	**T4-4L**	Water	03/18/20 11:55	03/24/20 12:20
92470735005	**T4-1HS**	Water	03/18/20 17:30	03/24/20 12:20
92470735006	**T4-2HS**	Water	03/18/20 17:50	03/24/20 12:20
92470735007	**T4-3HS**	Water	03/18/20 18:12	03/24/20 12:20
92470735008	**T4-4HS**	Water	03/18/20 18:40	03/24/20 12:20
92470735009	**T4-1HB**	Water	03/18/20 17:35	03/24/20 12:20
92470735010	**T4-2HB**	Water	03/18/20 17:55	03/24/20 12:20
92470735011	**T4-3HB**	Water	03/18/20 18:17	03/24/20 12:20
92470735012	**T4-4HB**	Water	03/18/20 18:45	03/24/20 12:20
92470735013	**POND 4L**	Water	03/18/20 11:14	03/24/20 12:20
92470735014	**MCM-14L**	Water	03/18/20 12:30	03/24/20 12:20
92470735015	**POND 4H**	Water	03/18/20 17:45	03/24/20 12:20
92470735016	**MCM-14H**	Water	03/18/20 19:27	03/24/20 12:20
92470735017	**DUP-1**	Water	03/18/20 00:00	03/24/20 12:20

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SAMPLE ANALYTE COUNT

Project: Plant McManus SW
Pace Project No.: 92470735

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92470735001	**T4-1L**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735002	**T4-2L**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735003	**T4-3L**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735004	**T4-4L**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735005	**T4-1HS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735006	**T4-2HS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735007	**T4-3HS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735008	**T4-4HS**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735009	**T4-1HB**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735010	**T4-2HB**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735011	**T4-3HB**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735012	**T4-4HB**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735013	**POND 4L**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735014	**MCM-14L**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735015	**POND 4H**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735016	**MCM-14H**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A
92470735017	**DUP-1**	EPA 6020B	JOR	3	PASI-A
		EPA 6020B	JOR	3	PASI-A

PASI-A = Pace Analytical Services - Asheville

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SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 92470735

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92470735001	**T4-1L**					
EPA 6020B	Arsenic	0.0034	mg/L	0.0020	03/27/20 20:19	
EPA 6020B	Lithium	0.076	mg/L	0.050	03/27/20 20:19	M6
EPA 6020B	Arsenic, Dissolved	0.0018J	mg/L	0.0020	03/28/20 01:09	1g
EPA 6020B	Lithium, Dissolved	0.056	mg/L	0.050	03/28/20 01:09	1g,M6
92470735002	**T4-2L**					
EPA 6020B	Arsenic	0.0014J	mg/L	0.0020	03/26/20 23:21	
EPA 6020B	Lithium	0.043J	mg/L	0.050	03/26/20 23:21	
EPA 6020B	Arsenic, Dissolved	0.0012J	mg/L	0.0020	03/26/20 20:58	1g
EPA 6020B	Lithium, Dissolved	0.061	mg/L	0.050	03/26/20 20:58	1g
92470735003	**T4-3L**					
EPA 6020B	Arsenic	0.0035	mg/L	0.0020	03/26/20 23:25	
EPA 6020B	Cobalt	0.0020	mg/L	0.0020	03/26/20 23:25	
EPA 6020B	Lithium	0.053	mg/L	0.050	03/26/20 23:25	
EPA 6020B	Arsenic, Dissolved	0.0021	mg/L	0.0020	03/26/20 21:02	1g
EPA 6020B	Lithium, Dissolved	0.037J	mg/L	0.050	03/26/20 21:02	1g
92470735004	**T4-4L**					
EPA 6020B	Arsenic	0.0031	mg/L	0.0020	03/26/20 23:39	
EPA 6020B	Lithium	0.062	mg/L	0.050	03/26/20 23:39	
EPA 6020B	Lithium, Dissolved	0.036J	mg/L	0.050	03/26/20 21:06	1g
92470735005	**T4-1HS**					
EPA 6020B	Arsenic	0.0012J	mg/L	0.0020	03/26/20 23:43	
EPA 6020B	Lithium	0.042J	mg/L	0.050	03/26/20 23:43	
EPA 6020B	Lithium, Dissolved	0.058	mg/L	0.050	03/26/20 21:11	1g
92470735006	**T4-2HS**					
EPA 6020B	Lithium	0.043J	mg/L	0.050	03/26/20 23:47	
EPA 6020B	Arsenic, Dissolved	0.0013J	mg/L	0.0020	03/26/20 21:15	1g
EPA 6020B	Lithium, Dissolved	0.064	mg/L	0.050	03/26/20 21:15	1g
92470735007	**T4-3HS**					
EPA 6020B	Lithium	0.035J	mg/L	0.050	03/26/20 23:52	
EPA 6020B	Lithium, Dissolved	0.051	mg/L	0.050	03/26/20 21:28	1g
92470735008	**T4-4HS**					
EPA 6020B	Lithium	0.047J	mg/L	0.050	03/26/20 23:56	
EPA 6020B	Lithium, Dissolved	0.041J	mg/L	0.050	03/26/20 21:32	1g
92470735009	**T4-1HB**					
EPA 6020B	Lithium	0.036J	mg/L	0.050	03/27/20 00:00	
EPA 6020B	Lithium, Dissolved	0.033J	mg/L	0.050	03/26/20 21:37	1g
92470735010	**T4-2HB**					
EPA 6020B	Arsenic	0.0015J	mg/L	0.0020	03/27/20 00:05	
EPA 6020B	Lithium	0.048J	mg/L	0.050	03/27/20 00:05	
EPA 6020B	Lithium, Dissolved	0.042J	mg/L	0.050	03/26/20 21:41	1g

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SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 92470735

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92470735011	**T4-3HB**					
EPA 6020B	Lithium	0.036J	mg/L	0.050	03/27/20 00:09	
EPA 6020B	Arsenic, Dissolved	0.0023	mg/L	0.0020	03/26/20 21:45	1g
EPA 6020B	Cobalt, Dissolved	0.0049	mg/L	0.0020	03/26/20 21:45	1g
EPA 6020B	Lithium, Dissolved	0.064	mg/L	0.050	03/26/20 21:45	1g
92470735012	**T4-4HB**					
EPA 6020B	Lithium	0.035J	mg/L	0.050	03/27/20 00:13	
EPA 6020B	Arsenic, Dissolved	0.0017J	mg/L	0.0020	03/26/20 21:50	1g
EPA 6020B	Cobalt, Dissolved	0.0036	mg/L	0.0020	03/26/20 21:50	1g
EPA 6020B	Lithium, Dissolved	0.066	mg/L	0.050	03/26/20 21:50	1g
92470735013	**POND 4L**					
EPA 6020B	Arsenic	0.0015J	mg/L	0.0020	03/27/20 00:18	
EPA 6020B	Lithium	0.022J	mg/L	0.050	03/27/20 00:18	
EPA 6020B	Arsenic, Dissolved	0.0013J	mg/L	0.0020	03/26/20 21:54	1g
EPA 6020B	Cobalt, Dissolved	0.0013J	mg/L	0.0020	03/26/20 21:54	1g
EPA 6020B	Lithium, Dissolved	0.022J	mg/L	0.050	03/26/20 21:54	1g
92470735014	**MCM-14L**					
EPA 6020B	Lithium	0.040J	mg/L	0.050	03/27/20 00:31	
EPA 6020B	Cobalt, Dissolved	0.0015J	mg/L	0.0020	03/26/20 21:58	1g
EPA 6020B	Lithium, Dissolved	0.055	mg/L	0.050	03/26/20 21:58	1g
92470735015	**POND 4H**					
EPA 6020B	Arsenic	0.0012J	mg/L	0.0020	03/27/20 00:35	
EPA 6020B	Lithium	0.016J	mg/L	0.050	03/27/20 00:35	
EPA 6020B	Arsenic, Dissolved	0.0013J	mg/L	0.0020	03/26/20 22:03	1g
EPA 6020B	Cobalt, Dissolved	0.0016J	mg/L	0.0020	03/26/20 22:03	1g
EPA 6020B	Lithium, Dissolved	0.020J	mg/L	0.050	03/26/20 22:03	1g
92470735016	**MCM-14H**					
EPA 6020B	Lithium	0.035J	mg/L	0.050	03/27/20 00:39	
EPA 6020B	Cobalt, Dissolved	0.0031	mg/L	0.0020	03/26/20 22:07	1g
EPA 6020B	Lithium, Dissolved	0.044J	mg/L	0.050	03/26/20 22:07	1g
92470735017	**DUP-1**					
EPA 6020B	Lithium	0.039J	mg/L	0.050	03/27/20 00:44	
EPA 6020B	Arsenic, Dissolved	0.0012J	mg/L	0.0020	03/28/20 01:23	1g
EPA 6020B	Lithium, Dissolved	0.053	mg/L	0.050	03/28/20 01:23	1g

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-1L **Lab ID: 92470735001** Collected: 03/18/20 14:18 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0034**	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/27/20 20:19	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/27/20 20:19	7440-48-4	
Lithium	**0.076**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/27/20 20:19	7439-93-2	M6
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0018J**	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/28/20 01:09	7440-38-2	1g
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/28/20 01:09	7440-48-4	1g
Lithium, Dissolved	**0.056**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/28/20 01:09	7439-93-2	1g,M6

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-2L **Lab ID: 92470735002** Collected: 03/18/20 13:50 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0014J**	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/26/20 23:21	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/26/20 23:21	7440-48-4	
Lithium	**0.043J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/26/20 23:21	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0012J**	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 20:58	7440-38-2	1g
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 20:58	7440-48-4	1g
Lithium, Dissolved	**0.061**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 20:58	7439-93-2	1g

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-3L **Lab ID: 92470735003** Collected: 03/18/20 13:06 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0035**	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/26/20 23:25	7440-38-2	
Cobalt	**0.0020**	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/26/20 23:25	7440-48-4	
Lithium	**0.053**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/26/20 23:25	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0021**	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:02	7440-38-2	1g
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:02	7440-48-4	1g
Lithium, Dissolved	**0.037J**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:02	7439-93-2	1g

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-4L **Lab ID: 92470735004** Collected: 03/18/20 11:55 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0031**	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/26/20 23:39	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/26/20 23:39	7440-48-4	
Lithium	**0.062**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/26/20 23:39	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:06	7440-38-2	1g
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:06	7440-48-4	1g
Lithium, Dissolved	**0.036J**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:06	7439-93-2	1g

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-1HS **Lab ID: 92470735005** Collected: 03/18/20 17:30 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0012J**	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/26/20 23:43	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/26/20 23:43	7440-48-4	
Lithium	**0.042J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/26/20 23:43	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:11	7440-38-2	1g
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:11	7440-48-4	1g
Lithium, Dissolved	**0.058**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:11	7439-93-2	1g

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-2HS **Lab ID: 92470735006** Collected: 03/18/20 17:50 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/26/20 23:47	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/26/20 23:47	7440-48-4	
Lithium	**0.043J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/26/20 23:47	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0013J**	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:15	7440-38-2	1g
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:15	7440-48-4	1g
Lithium, Dissolved	**0.064**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:15	7439-93-2	1g

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-3HS **Lab ID: 92470735007** Collected: 03/18/20 18:12 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/26/20 23:52	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/26/20 23:52	7440-48-4	
Lithium	**0.035J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/26/20 23:52	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:28	7440-38-2	1g
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:28	7440-48-4	1g
Lithium, Dissolved	**0.051**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:28	7439-93-2	1g

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-4HS **Lab ID: 92470735008** Collected: 03/18/20 18:40 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/26/20 23:56	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/26/20 23:56	7440-48-4	
Lithium	**0.047J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/26/20 23:56	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:32	7440-38-2	1g
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:32	7440-48-4	1g
Lithium, Dissolved	**0.041J**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:32	7439-93-2	1g

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-1HB **Lab ID: 92470735009** Collected: 03/18/20 17:35 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
	Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/27/20 00:00	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/27/20 00:00	7440-48-4	
Lithium	**0.036J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/27/20 00:00	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
	Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:37	7440-38-2	1g
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:37	7440-48-4	1g
Lithium, Dissolved	**0.033J**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:37	7439-93-2	1g

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-2HB **Lab ID: 92470735010** Collected: 03/18/20 17:55 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0015J**	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/27/20 00:05	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/27/20 00:05	7440-48-4	
Lithium	**0.048J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/27/20 00:05	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:41	7440-38-2	1g
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:41	7440-48-4	1g
Lithium, Dissolved	**0.042J**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:41	7439-93-2	1g

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-3HB **Lab ID: 92470735011** Collected: 03/18/20 18:17 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/27/20 00:09	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/27/20 00:09	7440-48-4	
Lithium	**0.036J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/27/20 00:09	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0023**	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:45	7440-38-2	1g
Cobalt, Dissolved	**0.0049**	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:45	7440-48-4	1g
Lithium, Dissolved	**0.064**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:45	7439-93-2	1g

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: T4-4HB **Lab ID: 92470735012** Collected: 03/18/20 18:45 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/27/20 00:13	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/27/20 00:13	7440-48-4	
Lithium	**0.035J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/27/20 00:13	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0017J**	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:50	7440-38-2	1g
Cobalt, Dissolved	**0.0036**	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:50	7440-48-4	1g
Lithium, Dissolved	**0.066**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:50	7439-93-2	1g

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: POND 4L **Lab ID: 92470735013** Collected: 03/18/20 11:14 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0015J**	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/27/20 00:18	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/27/20 00:18	7440-48-4	
Lithium	**0.022J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/27/20 00:18	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0013J**	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:54	7440-38-2	1g
Cobalt, Dissolved	**0.0013J**	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:54	7440-48-4	1g
Lithium, Dissolved	**0.022J**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:54	7439-93-2	1g

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: MCM-14L **Lab ID: 92470735014** Collected: 03/18/20 12:30 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/27/20 00:31	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/27/20 00:31	7440-48-4	
Lithium	**0.040J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/27/20 00:31	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 21:58	7440-38-2	1g
Cobalt, Dissolved	**0.0015J**	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 21:58	7440-48-4	1g
Lithium, Dissolved	**0.055**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 21:58	7439-93-2	1g

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: POND 4H **Lab ID: 92470735015** Collected: 03/18/20 17:45 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	**0.0012J**	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/27/20 00:35	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/27/20 00:35	7440-48-4	
Lithium	**0.016J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/27/20 00:35	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0013J**	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 22:03	7440-38-2	1g
Cobalt, Dissolved	**0.0016J**	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 22:03	7440-48-4	1g
Lithium, Dissolved	**0.020J**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 22:03	7439-93-2	1g

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: MCM-14H **Lab ID: 92470735016** Collected: 03/18/20 19:27 Received: 03/24/20 12:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/27/20 00:39	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/27/20 00:39	7440-48-4	
Lithium	**0.035J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/27/20 00:39	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	ND	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/26/20 22:07	7440-38-2	1g
Cobalt, Dissolved	**0.0031**	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/26/20 22:07	7440-48-4	1g
Lithium, Dissolved	**0.044J**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/26/20 22:07	7439-93-2	1g

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 92470735

Sample: DUP-1 | **Lab ID: 92470735017** | Collected: 03/18/20 00:00 | Received: 03/24/20 12:20 | Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic	ND	mg/L	0.0020	0.0012	20	03/25/20 00:22	03/27/20 00:44	7440-38-2	
Cobalt	ND	mg/L	0.0020	0.0010	20	03/25/20 00:22	03/27/20 00:44	7440-48-4	
Lithium	**0.039J**	mg/L	0.050	0.0084	20	03/25/20 00:22	03/27/20 00:44	7439-93-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020B Preparation Method: EPA 3010A Pace Analytical Services - Asheville								
Arsenic, Dissolved	**0.0012J**	mg/L	0.0020	0.0012	20	03/26/20 03:08	03/28/20 01:23	7440-38-2	1g
Cobalt, Dissolved	ND	mg/L	0.0020	0.0010	20	03/26/20 03:08	03/28/20 01:23	7440-48-4	1g
Lithium, Dissolved	**0.053**	mg/L	0.050	0.0084	20	03/26/20 03:08	03/28/20 01:23	7439-93-2	1g

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 92470735

QC Batch: 532336 | Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A | Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92470735001, 92470735002, 92470735003, 92470735004, 92470735005, 92470735006, 92470735007, 92470735008, 92470735009, 92470735010, 92470735011, 92470735012, 92470735013, 92470735014, 92470735015, 92470735016, 92470735017

METHOD BLANK: 2841830 Matrix: Water

Associated Lab Samples: 92470735001, 92470735002, 92470735003, 92470735004, 92470735005, 92470735006, 92470735007, 92470735008, 92470735009, 92470735010, 92470735011, 92470735012, 92470735013, 92470735014, 92470735015, 92470735016, 92470735017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.00010	0.000060	03/26/20 22:51	
Cobalt	mg/L	ND	0.00010	0.000050	03/26/20 22:51	
Lithium	mg/L	ND	0.0025	0.00042	03/26/20 22:51	

LABORATORY CONTROL SAMPLE: 2841831

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.0098	98	80-120	
Cobalt	mg/L	0.01	0.011	106	80-120	
Lithium	mg/L	0.05	0.052	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2841832 2841833

Parameter	Units	92470735001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0034	0.01	0.01	0.011	0.011	80	81	75-125	1	20	
Cobalt	mg/L	ND	0.01	0.01	0.0094	0.0099	94	99	75-125	5	20	
Lithium	mg/L	0.076	0.05	0.05	0.097	0.10	42	52	75-125	5	20	M6

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

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QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 92470735

QC Batch: 532344 | Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A | Analysis Description: 6020 MET Dissolved
Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92470735001, 92470735002, 92470735003, 92470735004, 92470735005, 92470735006, 92470735007, 92470735008, 92470735009, 92470735010, 92470735011, 92470735012, 92470735013, 92470735014, 92470735015, 92470735016, 92470735017

METHOD BLANK: 2841847 Matrix: Water

Associated Lab Samples: 92470735001, 92470735002, 92470735003, 92470735004, 92470735005, 92470735006, 92470735007, 92470735008, 92470735009, 92470735010, 92470735011, 92470735012, 92470735013, 92470735014, 92470735015, 92470735016, 92470735017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	mg/L	ND	0.00010	0.000060	03/26/20 20:19	
Cobalt, Dissolved	mg/L	ND	0.00010	0.000050	03/26/20 20:19	
Lithium, Dissolved	mg/L	ND	0.0025	0.00042	03/26/20 20:19	

LABORATORY CONTROL SAMPLE: 2841848

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	mg/L	0.01	0.011	113	80-120	
Cobalt, Dissolved	mg/L	0.01	0.011	112	80-120	
Lithium, Dissolved	mg/L	0.05	0.057	114	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2841849 2841850

Parameter	Units	92470735001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	mg/L	0.0018J	0.01	0.01	0.010	0.011	86	93	75-125	6	20	
Cobalt, Dissolved	mg/L	ND	0.01	0.01	0.0090	0.0096	89	95	75-125	7	20	
Lithium, Dissolved	mg/L	0.056	0.05	0.05	0.091	0.097	69	81	75-125	6	20	M6

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALIFIERS

Project:	Plant McManus SW
Pace Project No.:	92470735

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.

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☑ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐

WO#: 92470735

92470735

Sample Condition Upon Receipt

Client Name: GA Power

Project

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

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☑ No

Date/Initials Person Examining Contents: NPF 3/24/20

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

Biological Tissue Frozen? ☐ Yes ☐ No ☑ N/A

Thermometer: ☑ IR Gun ID: 93T061

Type of Ice: ☑ Wet ☐ Blue ☐ None

Cooler Temp (°C): 8.5 Correction Factor: Add/Subtract (°C) 0.0

Cooler Temp Corrected (°C): 8.5

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☑ No	☐ N/A	8.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	10.
Trip Blank Present?	☐ Yes	☑ No	☐ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

Field Data Required? ☐ Yes ☑ No

COMMENTS/SAMPLE DISCREPANCY

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: ____________ Date/Time: ____________

Project Manager SCURF Review: ____________ Date: ____________

Project Manager SRF Review: ____________ Date: ____________

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

****Bottom half of box is to list number of bottle**

Project **WO# : 92470735**

PM: KLH1 **Due Date: 03/31/20**

CLIENT: 26-GA Power

1 of 2

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1			1			✓ 1																						
2			1			✓ 1																						
3			1			✓ 1																						
4			1			✓ 1																						
5			1			✓ 1																						
6			1			✓ 1																						
7			1			✓ 1																						
8			1			✓ 1																						
9			1			✓ 1																						
10			1			✓ 1																						
11			1			✓ 1																						
12			1			✓ 1																						

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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.

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Proj **WO#: 92470735**

PM: KLH1 Due Date: 03/31/20

CLIENT: 26-GA Power

2 of 2

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1			1			✓ 1																						
2			1			✓ 1																						
3			1			✓ 1																						
4			1			✓ 1																						
5			1			✓ 1																						
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 2

Section A
Required Client Information:

Company:	Resolute Environment
Address:	1003 Weatherstone Parkway, Suite 320
	Woodstock Ga. 30188
Email:	stephen.wilson@resoluteenv.com
Phone:	(404)358-8469 Fax:
Requested Due Date:	

Section B
Required Project Information:

Report To:	Stephen Wilson, Trent Godwin
Copy To:	Lauren Petty, Leslie Miller
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com
Pace Profile #:	2919

Regulatory Agency	
State / Location	GA

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

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

MATRIX CODE (see valid codes to left); SAMPLE TYPE (G=GRAB C=COMP)

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals 6020 (Co, Li, As)	Dissolved Metals 6020 (Co, L	Residual Chlorine (Y/N)	92470735
1	T4-1L			3/18/20	1418				2	1		1							X	X		
2	T4-2L			3/18/20	1350				2	1		1							X	X		
3	T4-3L			3/18/20	1306				2	1		1							X	X		
4	T4-4L			3/18/20	1155				2	1		1							X	X		
5	T4-1HS			3/18/20	1730				2	1		1							X	X		
6	T4-2HS			3/18/20	1750				2	1		1							X	X		
7	T4-3HS			3/18/20	1812				2	1		1							X	X		
8	T4-4HS			3/18/20	1840				2	1		1							X	X		
9	T4-1HB			3/18/20	1735				2	1		1							X	X		
10	T4-2HB			3/18/20	1755				2	1		1							X	X		
11	T4-3HB			3/18/20	1817				2	1		1							X	X		
12	T4-4HB			3/18/20	1845				2	1		1							X	X		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Metals 6020 consist of As, Co, Li Only!	Veronica Fay / Resolute	3/20/20	1440	Fed Ex	3/20/20	1440				
Lab Filter Dissolved Metals by 6020 (As, Li, Co)				NF / PACE Ash	3/24/20	1220	8.5	Y	N	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Stephen Wilson, Trent Godwin, Veronica Fay

SIGNATURE of SAMPLER: Veronica Fay

DATE Signed: 3/18/20

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 2 Of 2

Section A
Required Client Information:

Company: Resolute Environment
Address: 1003 Weatherstone Parkway, Suite 320
Woodstock Ga, 30188
Email: stephen.wilson@resoluteenv.com
Phone: (404)358-8469 Fax:
Requested Due Date:

Section B
Required Project Information:

Report To: Stephen Wilson, Trent Godwin
Copy To: Lauren Petty, Leslie Miller
Purchase Order #:
Project Name: Plant McManus SW
Project #:

Section C
Invoice Information:

Attention:
Company Name:
Address:
Pace Quote:
Pace Project Manager: kevin.herring@pacelabs.com
Pace Profile #: 2919

Regulatory Agency:
State / Location: GA

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals 6020 (Co, Li, As)	Dissolved Metals 6020 (Co, L											Residual Chlorine (Y/N)	92470735
1	Pond 4L			3/18/20	1114				2	1		1							X	X												
2	MCM-14L			3/18/20	1230				2	1		1							X	X												
3	Pond 4H			3/18/20	1245				2	1		1							X	X												
4	McM-14H			3/18/20	1927				2	1		1							X	X												
5	DUP-1			3/18/20	—				2	1		1							X	X												
6																																
7																																
8																																
9																																
10																																
11																																
12																																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Metals 6020 consist of As, Co, Li Only!	Veronica Fay / Resolute	3/20/20	1440	FedEX	3/20/20	1440				
Lab Filter Dissolved Metals by 6020 (As, Li, Co)										
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Stephen Wilson, Trent Godwin, Veronica Fay
SIGNATURE of SAMPLER: Veronica Fay
DATE Signed: 3/18/20

Initial Laboratory Reports - Pace Analytical Services, Atlanta (Norcross), GA

Pace Analytical®
www.pacelabs.com

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

February 04, 2020

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

RE: Project: Plant McManus SW
Pace Project No.: 2628570

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 04, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Veronica Faye, Resolute
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

CERTIFICATIONS

Project:	Plant McManus SW
Pace Project No.:	2628570

Pace Analytical Services Atlanta

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

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

SAMPLE SUMMARY

Project: Plant McManus SW
Pace Project No.: 2628570

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2628570001	**T2-1HT**	Water	02/01/20 13:55	02/04/20 08:00
2628570002	**T2-2HTS**	Water	02/01/20 14:28	02/04/20 08:00
2628570003	**T2-2HT**	Water	02/01/20 14:32	02/04/20 08:00
2628570004	**T2-3HTS**	Water	02/01/20 14:46	02/04/20 08:00
2628570005	**T2-3HT**	Water	02/01/20 14:50	02/04/20 08:00
2628570006	**T2-4HTS**	Water	02/01/20 15:00	02/04/20 08:00
2628570007	**T2-4HT**	Water	02/01/20 15:14	02/04/20 08:00
2628570008	**T2-4LT**	Water	02/02/20 09:46	02/04/20 08:00
2628570009	**T2-3LT**	Water	02/02/20 11:20	02/04/20 08:00
2628570010	**T2-2LT**	Water	02/02/20 13:38	02/04/20 08:00

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

SAMPLE ANALYTE COUNT

Project: Plant McManus SW
Pace Project No.: 2628570

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2628570001	**T2-1HT**	EPA 6020B	CSW	1
2628570002	**T2-2HTS**	EPA 6020B	CSW	1
2628570003	**T2-2HT**	EPA 6020B	CSW	1
2628570004	**T2-3HTS**	EPA 6020B	CSW	1
2628570005	**T2-3HT**	EPA 6020B	CSW	1
2628570006	**T2-4HTS**	EPA 6020B	CSW	1
2628570007	**T2-4HT**	EPA 6020B	CSW	1
2628570008	**T2-4LT**	EPA 6020B	CSW	1
2628570009	**T2-3LT**	EPA 6020B	CSW	1
2628570010	**T2-2LT**	EPA 6020B	CSW	1

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(770)734-4200

SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 2628570

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628570001	**T2-1HT**					
EPA 6020B	Arsenic	0.0035J	mg/L	0.025	02/04/20 13:06	D3
2628570002	**T2-2HTS**					
EPA 6020B	Arsenic	0.0041J	mg/L	0.025	02/04/20 13:29	D3
2628570003	**T2-2HT**					
EPA 6020B	Arsenic	0.0044J	mg/L	0.025	02/04/20 13:34	D3
2628570004	**T2-3HTS**					
EPA 6020B	Arsenic	0.0039J	mg/L	0.025	02/04/20 13:40	D3
2628570005	**T2-3HT**					
EPA 6020B	Arsenic	0.0044J	mg/L	0.025	02/04/20 13:46	D3
2628570006	**T2-4HTS**					
EPA 6020B	Arsenic	0.0038J	mg/L	0.025	02/04/20 14:04	D3
2628570007	**T2-4HT**					
EPA 6020B	Arsenic	0.0041J	mg/L	0.025	02/04/20 14:10	D3
2628570008	**T2-4LT**					
EPA 6020B	Arsenic	0.0051J	mg/L	0.025	02/04/20 14:16	D3
2628570009	**T2-3LT**					
EPA 6020B	Arsenic	0.0038J	mg/L	0.025	02/04/20 14:21	D3
2628570010	**T2-2LT**					
EPA 6020B	Arsenic	0.0039J	mg/L	0.025	02/04/20 14:27	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628570

Sample: T2-1HT **Lab ID: 2628570001** Collected: 02/01/20 13:55 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0035J**	mg/L	0.025	0.0018	5	02/04/20 09:25	02/04/20 13:06	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628570

Sample: T2-2HTS **Lab ID: 2628570002** Collected: 02/01/20 14:28 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0041J**	mg/L	0.025	0.0018	5	02/04/20 09:25	02/04/20 13:29	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628570

Sample: T2-2HT **Lab ID: 2628570003** Collected: 02/01/20 14:32 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0044J**	mg/L	0.025	0.0018	5	02/04/20 09:25	02/04/20 13:34	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628570

Sample: T2-3HTS **Lab ID: 2628570004** Collected: 02/01/20 14:46 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0039J**	mg/L	0.025	0.0018	5	02/04/20 09:25	02/04/20 13:40	7440-38-2	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628570

Sample: T2-3HT **Lab ID: 2628570005** Collected: 02/01/20 14:50 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0044J**	mg/L	0.025	0.0018	5	02/04/20 09:25	02/04/20 13:46	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628570

Sample: T2-4HTS **Lab ID: 2628570006** Collected: 02/01/20 15:00 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0038J**	mg/L	0.025	0.0018	5	02/04/20 09:25	02/04/20 14:04	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628570

Sample: T2-4HT **Lab ID: 2628570007** Collected: 02/01/20 15:14 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0041J**	mg/L	0.025	0.0018	5	02/04/20 09:25	02/04/20 14:10	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628570

Sample: T2-4LT **Lab ID: 2628570008** Collected: 02/02/20 09:46 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0051J**	mg/L	0.025	0.0018	5	02/04/20 09:25	02/04/20 14:16	7440-38-2	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628570

Sample: T2-3LT **Lab ID: 2628570009** Collected: 02/02/20 11:20 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0038J**	mg/L	0.025	0.0018	5	02/04/20 09:25	02/04/20 14:21	7440-38-2	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628570

Sample: T2-2LT **Lab ID: 2628570010** Collected: 02/02/20 13:38 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0039J**	mg/L	0.025	0.0018	5	02/04/20 09:25	02/04/20 14:27	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628570

QC Batch: 42781 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2628570001, 2628570002, 2628570003, 2628570004, 2628570005, 2628570006, 2628570007, 2628570008, 2628570009, 2628570010

METHOD BLANK: 195438 Matrix: Water
Associated Lab Samples: 2628570001, 2628570002, 2628570003, 2628570004, 2628570005, 2628570006, 2628570007, 2628570008, 2628570009, 2628570010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	02/04/20 12:11	

LABORATORY CONTROL SAMPLE: 195439

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.093	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 195440 195441

Parameter	Units	2628570001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0035J	0.1	0.1	0.098	0.097	94	93	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project:	Plant McManus SW
Pace Project No.:	2628570

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McManus SW
Pace Project No.: 2628570

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628570001	**T2-1HT**	EPA 3005A	42781	EPA 6020B	42798
2628570002	**T2-2HTS**	EPA 3005A	42781	EPA 6020B	42798
2628570003	**T2-2HT**	EPA 3005A	42781	EPA 6020B	42798
2628570004	**T2-3HTS**	EPA 3005A	42781	EPA 6020B	42798
2628570005	**T2-3HT**	EPA 3005A	42781	EPA 6020B	42798
2628570006	**T2-4HTS**	EPA 3005A	42781	EPA 6020B	42798
2628570007	**T2-4HT**	EPA 3005A	42781	EPA 6020B	42798
2628570008	**T2-4LT**	EPA 3005A	42781	EPA 6020B	42798
2628570009	**T2-3LT**	EPA 3005A	42781	EPA 6020B	42798
2628570010	**T2-2LT**	EPA 3005A	42781	EPA 6020B	42798

2628570

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page : 1 Of 1

Section A
Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resoluteenv.com
Phone:	(251)776-2760 Fax:
Requested Due Date:	

Section B
Required Project Information:

Report To:	Millet, Lea
Copy To:	
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	2919 - (

GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals by 6020 As	Dissolved Metals by 6020	* See Comments	Residual Chlorine (Y/N)
	MCM-07LT Assigned	WT	G	2/1/20	0940				1			1						1			
	T1-1LT	WT	G	2/1/20	0950				1			1						1			
	T1-4LT	WT	G	2/1/20	0956				1			1						1			
	T1-3LT	WT	G	2/1/20	1006				1			1						1			
	~~[illegible]~~	WT	G		—				1			1									
	MCM-07LT	WT	G	2/1/20	1015				1			1						1			
	T1-2LT	WT	G	2/1/20	1026				1			1						1			
	T1-4HTS	WT	G	2/1/20	1334				1			1						1			
	T1-4HT	WT	G	2/1/20	1340				1			1						1			
	T1-3HTS	WT	G	2/1/20	1352				1			1						1			
	T1-1HT	WT	G	2/1/20	1355				1			1						1			
	MCM-06HT Assigned	WT	G	2/1/20	1355				1			1						1			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
As Only	Kevin Stephenson	2/1/20	1646	FedEx			

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin Stephenson / Scott Glenn
SIGNATURE of SAMPLER: [signature]
DATE Signed: 2/2/20

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

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page : 1 Of 2

Section A
Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resoluteenv.com
Phone:	(251)776-2760 Fax:
Requested Due Date:	

Section B
Required Project Information:

Report To:	Millet, Lea
Copy To:	
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	2919

GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals by 6020 As	Dissolved Metals by 6020	Residual Chlorine (Y/N)
	MCM-DKWT	WT	G	2/1/20	1355				1			1						1		
	T1-3WT	WT	G	2/1/20	1356				1			1						1		
	T1-1WT	WT	G	2/1/20	1408				1			1						1		
	T1-2WTS	WT	G	2/1/20	1416				1			1						1		
	MCM-07WT Ampund	WT	G	2/1/20	1420				1			1						1		
	MCM-07WT	WT	G	2/1/20	1420				1			1						1		
	T1-2WT	WT	G	2/1/20	1420				1			1						1		
	T2-2WTS	WT	G	2/1/20	1428				1			1						1		
	T2-2WT	WT	G	2/1/20	1432				1			1						1		
	T2-3WTS	WT	G	2/1/20	1446				1			1						1		
	T2-3WT	WT	G	2/1/20	1450				1			1						1		
	T2-4WTS	WT	G	2/1/20	1500				1			1						1		

As Only	Kevin Stephenson	2/3/20	1646	FedEx

PRINT Name of SAMPLER: Kevin Stephenson
SIGNATURE of SAMPLER: [signature]
DATE Signed: 2/3/20

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

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 1 Of 3

Section A — Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resoluteenv.com
Phone:	(251)776-2760 Fax:
Requested Due Date:	

Section B — Required Project Information:

Report To:	Millet, Lea
Copy To:	
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	2919

GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals by 6020 As	Dissolved Metals by 6020	Residual Chlorine (Y/N)
	T2-4HT	WT	G	2/11/20	1514				1			1						1		
	MCM-06LT Adjacent	WT	G	2/12/20	0850				1			1						1		
	MCM-06LT	WT	G	2/12/20	1300				1			1						1		
	T2-4LT	WT	G	2/12/20	0946				1			1						1		
	T2-3LT	WT	G	2/12/20	1210				1			1						1		
	T2-2LT	WT	G	2/12/20	1738				1			1						1		
	T3-4HTS	WT	G	2/12/20	1344				1			1						1		
	T3-4HT	WT	G	2/12/20	1350				1			1						1		
	T3-3HTS	WT	G	2/12/20	1408				1			1						1		
	T3-3HT	WT	G	2/12/20	1410				1			1						1		
	T3-2HTS	WT	G	2/12/20	1428				1			1						1		
	MCM-05HT Adjacent	WT	G	2/12/20	1430				1			1						1		

As Only	Kevin Stephenson	2/13/20	1644	FedEx				

PRINT Name of SAMPLER: Kevin Stephenson / Scott Glenn

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/12/20

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

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Page: 1 **Of** 4

Section A
Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resolutesenv.com
Phone:	(251)776-2760 Fax:
Requested Due Date:	

Section B
Required Project Information:

Report To:	Millet, Lea
Copy To:	
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	2919

GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals by 6020	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T3-2WT	WG	G	2/12/20	1424				1			1						1		
2	T3-1WT	WG	G	2/12/20	1435				1			1						1		
3	MCM-05WT	WG	G	2/12/20	1446				1			1						1		
4	MCM-05LT Background	WG	G	2/12/20	0945				1			1						1		
5	MCM-05LT	WG	G	2/12/20	0947				1			1						1		
6	T3-4LT	WG	G	2/12/20	1040				1			1						1		
7	T3-3LT	WG	G	2/12/20	1212				1			1						1		
8	T3-2LT	WG	G	2/12/20	1330				1			1						1		
9	Dup-1	WG	G	2/13/20	—				1			1						1		
10																				
11																				
12																				

Metals by 6020: As

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
As Only	Kevin Stephenson	2/13/20	1646	Fed Ex			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Green

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/13/20

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

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

February 18, 2020

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

RE: Project: Plant McManus SW
Pace Project No.: 2628593

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 04, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Veronica Faye, Resolute
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project:	Plant McManus SW
Pace Project No.:	2628593

Pace Analytical Services Atlanta

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

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

SAMPLE SUMMARY

Project: Plant McManus SW
Pace Project No.: 2628593

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2628593001	**MCM-04LT**	Water	02/03/20 11:35	02/04/20 10:48
2628593002	**MCM-08LT**	Water	02/03/20 12:41	02/04/20 10:48

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

SAMPLE ANALYTE COUNT

Project: Plant McManus SW
Pace Project No.: 2628593

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2628593001	**MCM-04LT**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628593002	**MCM-08LT**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3

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

SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 2628593

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628593001	**MCM-04LT**					
EPA 6020B	Arsenic	0.0063J	mg/L	0.050	02/17/20 15:10	D3
2628593002	**MCM-08LT**					
EPA 6020B	Arsenic	0.019J	mg/L	0.050	02/17/20 15:16	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628593

Sample: MCM-04LT **Lab ID: 2628593001** Collected: 02/03/20 11:35 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0063J**	mg/L	0.050	0.0035	10	02/17/20 11:15	02/17/20 15:10	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/17/20 11:15	02/17/20 15:10	7440-48-4	D3
Lithium	ND	mg/L	0.30	0.0078	10	02/17/20 11:15	02/17/20 15:10	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	ND	mg/L	0.050	0.0035	10	02/17/20 11:15	02/17/20 17:25	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/17/20 11:15	02/17/20 17:25	7440-48-4	D3
Lithium, Dissolved	ND	mg/L	0.30	0.0078	10	02/17/20 11:15	02/17/20 17:25	7439-93-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628593

Sample: MCM-08LT **Lab ID: 2628593002** Collected: 02/03/20 12:41 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.019J**	mg/L	0.050	0.0035	10	02/17/20 11:15	02/17/20 15:16	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/17/20 11:15	02/17/20 15:16	7440-48-4	D3
Lithium	ND	mg/L	0.30	0.0078	10	02/17/20 11:15	02/17/20 15:16	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	ND	mg/L	0.050	0.0035	10	02/17/20 11:15	02/17/20 17:48	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/17/20 11:15	02/17/20 17:48	7440-48-4	D3
Lithium, Dissolved	ND	mg/L	0.30	0.0078	10	02/17/20 11:15	02/17/20 17:48	7439-93-2	D3

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

QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628593

QC Batch: 43407 — Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A — Analysis Description: 6020B MET
Associated Lab Samples: 2628593001, 2628593002

METHOD BLANK: 198741 — Matrix: Water
Associated Lab Samples: 2628593001, 2628593002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	02/17/20 14:58	
Cobalt	mg/L	ND	0.0050	0.00030	02/17/20 14:58	
Lithium	mg/L	ND	0.030	0.00078	02/17/20 14:58	

LABORATORY CONTROL SAMPLE: 198742

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.097	97	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	
Lithium	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 198743 198744

Parameter	Units	2629097001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	2	20	
Cobalt	mg/L	0.017	0.1	0.1	0.11	0.11	95	95	75-125	0	20	
Lithium	mg/L	0.019J	0.1	0.1	0.12	0.11	97	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.

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

QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628593

QC Batch: 43413 — Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A — Analysis Description: 6020B MET Dissolved
Associated Lab Samples: 2628593001, 2628593002

METHOD BLANK: 198753 — Matrix: Water
Associated Lab Samples: 2628593001, 2628593002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	mg/L	ND	0.0050	0.00035	02/17/20 17:14	
Cobalt, Dissolved	mg/L	ND	0.0050	0.00030	02/17/20 17:14	
Lithium, Dissolved	mg/L	ND	0.030	0.00078	02/17/20 17:14	

LABORATORY CONTROL SAMPLE: 198754

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	mg/L	0.1	0.095	95	80-120	
Cobalt, Dissolved	mg/L	0.1	0.098	98	80-120	
Lithium, Dissolved	mg/L	0.1	0.096	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 198755 198756

Parameter	Units	2628593001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	mg/L	ND	0.1	0.1	0.098	0.095	98	95	75-125	3	20	
Cobalt, Dissolved	mg/L	ND	0.1	0.1	0.098	0.094	95	91	75-125	4	20	
Lithium, Dissolved	mg/L	ND	0.1	0.1	0.095J	0.095J	94	93	75-125		20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant McManus SW
Pace Project No.: 2628593

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McManus SW
Pace Project No.: 2628593

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628593001	**MCM-04LT**	EPA 3005A	43407	EPA 6020B	43433
2628593002	**MCM-08LT**	EPA 3005A	43407	EPA 6020B	43433
2628593001	**MCM-04LT**	EPA 3005A	43413	EPA 6020B	43435
2628593002	**MCM-08LT**	EPA 3005A	43413	EPA 6020B	43435

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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.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Wilson, Stephen	Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resoluteenv.com / Stephen.Wilson@	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency
State / Location
GA

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

Requested Analysis Filtered (Y/N): Metals by 6020 – N; Dissolved Metals by 6020 – Y

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Metals by 6020	Dissolved Metals by 6020	*See Comments	Residual Chlorine (Y/N)	
1	MCM-04LT	WG	G	2/3/20	1135				2			1											HOLD
2	MCM-08LT	WG	G	2/3/20	1241				2			1											HOLD
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Cubi Only!	Kevin Stephenson	2/3/20	1638	[signature]	2/3/20	1638		Y	Y	Y
	[signature]	2/4/20	1048	Romero Webb / Pace	2/4/20	10:48				
	Romero Webb / Pace	2/4/20	12:16	K. Wellington / PACE	2/4/20	1216	3.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Cannon

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

WO# : 2628593

2628593

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

WO# : 2628593

PM: KH Due Date: 02/07/20

CLIENT: 26-GA Power

Proj. Due Date:
Proj. Name:

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

Tracking #: ______

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

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

Thermometer Used 230 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.7°C **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 2/4/2020 [initials]

				Comments:
Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☑Yes	☐No	☐N/A	7. 24hrT
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: W				
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes	☑No		Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased): ______				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: ______ Date/Time: ______

Comments/ Resolution: ______

Project Manager Review: ______ **Date:** ______

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

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

February 14, 2020

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

RE: Project: Plant McManus SW
Pace Project No.: 2628594

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 04, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Veronica Faye, Resolute
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

CERTIFICATIONS

Project: Plant McManus SW
Pace Project No.: 2628594

Pace Analytical Services Atlanta

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

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

SAMPLE SUMMARY

Project: Plant McManus SW
Pace Project No.: 2628594

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2628594001	**BG-1LT**	Water	02/02/20 08:58	02/04/20 10:48
2628594002	**BG-2HT**	Water	02/02/20 15:04	02/04/20 10:48

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

SAMPLE ANALYTE COUNT

Project: Plant McManus SW
Pace Project No.: 2628594

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2628594001	**BG-1LT**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628594002	**BG-2HT**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3

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

SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 2628594

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628594001	**BG-1LT**					
EPA 6020B	Lithium	0.090J	mg/L	0.30	02/11/20 21:14	
EPA 6020B	Arsenic, Dissolved	0.0057J	mg/L	0.050	02/12/20 21:23	D3
EPA 6020B	Lithium, Dissolved	0.094J	mg/L	0.30	02/12/20 21:23	
2628594002	**BG-2HT**					
EPA 6020B	Arsenic	0.0055J	mg/L	0.050	02/11/20 21:37	D3
EPA 6020B	Lithium	0.098J	mg/L	0.30	02/11/20 21:37	
EPA 6020B	Arsenic, Dissolved	0.0038J	mg/L	0.050	02/12/20 21:46	D3
EPA 6020B	Lithium, Dissolved	0.096J	mg/L	0.30	02/12/20 21:46	

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Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628594

Sample: BG-1LT **Lab ID: 2628594001** Collected: 02/02/20 08:58 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.050	0.0035	10	02/11/20 12:50	02/11/20 21:14	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/11/20 12:50	02/11/20 21:14	7440-48-4	
Lithium	**0.090J**	mg/L	0.30	0.0078	10	02/11/20 12:50	02/11/20 21:14	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0057J**	mg/L	0.050	0.0035	10	02/12/20 13:27	02/12/20 21:23	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/12/20 13:27	02/12/20 21:23	7440-48-4	
Lithium, Dissolved	**0.094J**	mg/L	0.30	0.0078	10	02/12/20 13:27	02/12/20 21:23	7439-93-2	

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628594

Sample: BG-2HT **Lab ID: 2628594002** Collected: 02/02/20 15:04 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0055J**	mg/L	0.050	0.0035	10	02/11/20 12:50	02/11/20 21:37	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/11/20 12:50	02/11/20 21:37	7440-48-4	
Lithium	**0.098J**	mg/L	0.30	0.0078	10	02/11/20 12:50	02/11/20 21:37	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0038J**	mg/L	0.050	0.0035	10	02/12/20 13:27	02/12/20 21:46	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/12/20 13:27	02/12/20 21:46	7440-48-4	
Lithium, Dissolved	**0.096J**	mg/L	0.30	0.0078	10	02/12/20 13:27	02/12/20 21:46	7439-93-2	

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

QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628594

QC Batch: 43168 | Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A | Analysis Description: 6020B MET
Associated Lab Samples: 2628594001, 2628594002

METHOD BLANK: 197286 | Matrix: Water
Associated Lab Samples: 2628594001, 2628594002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	02/11/20 21:02	

LABORATORY CONTROL SAMPLE: 197287

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 197288 197289

Parameter	Units	2628594001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0057J	0.1	0.1	0.11	0.11	105	103	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.

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

QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628594

QC Batch: 43232 | Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A | Analysis Description: 6020B MET Dissolved
Associated Lab Samples: 2628594001, 2628594002

METHOD BLANK: 197813 | Matrix: Water
Associated Lab Samples: 2628594001, 2628594002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	mg/L	ND	0.0050	0.00035	02/12/20 21:11	

LABORATORY CONTROL SAMPLE: 197814

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 197815 197816

Parameter	Units	2628594001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	mg/L	0.0057J	0.1	0.1	0.12	0.11	110	102	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.

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

QUALIFIERS

Project: Plant McManus SW
Pace Project No.: 2628594

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McManus SW
Pace Project No.: 2628594

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628594001	**BG-1LT**	EPA 3005A	43168	EPA 6020B	43189
2628594002	**BG-2HT**	EPA 3005A	43168	EPA 6020B	43189
2628594001	**BG-1LT**	EPA 3005A	43232	EPA 6020B	43245
2628594002	**BG-2HT**	EPA 3005A	43232	EPA 6020B	43245

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical
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Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Wilson, Stephen	Company Name:	
Suite 320, Woodstock, GA 30188			Stephen.Wilson@ResoluteEnv.com	Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency
State / Location
GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020 (N)	Dissolved Metals by 6020 (Y)	See Comment	Residual Chlorine (Y/N)	
1	BG-1HT	WG	G	2/2/20	0958				2	1		1											HOLD
2	BG-2HT	WG	G	2/2/20	1504				2	1		1											HOLD
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Cold Only!	Kevin Stephenson	2/3/20	1638	[signature]	2/3/20	1638		Y	Y	Y
	[signature]	2/4/20	1048	Romero Dicks / Pace	2/4/20	10:48				
	Romero Dicks / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	1216	3.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin Stephenson / Scott Glenn
SIGNATURE of SAMPLER: [signature]
DATE Signed: 2/3/20

WO# : 2628594
2628594

Pace Analytical

Sample Condition Upon Receipt

WO# : 2628594
PM: KH Due Date: 02/07/20
CLIENT: 26-GA Power

Client Name: GA Power

[redacted]

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

Tracking #:

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

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

Thermometer Used 230 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.7°C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 2/4/2020 [initials]

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☑Yes ☐No ☐N/A	7. 24hrT
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: W		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: **Date:**

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

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CHAIN-OF-CUSTODY / Analytical Request D

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields mu

WO#: 2628595

PM: KH Due Date: 02/06/20
CLIENT: 26-GA Power

Section A — Required Client Information:		Section B — Required Project Information:		Section C — Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:		Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resolutesenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:

State / Location: GA

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

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N: Metals by 6020 As	Dissolved Metals by 6020	* See Comments	Residual Chlorine (Y/N)
1	MCM-07LT Abligand	WG	G	2/1/20	0940				1			1						1			
2	T1-1LT	WG	G	2/1/20	0950				1			1						1			
3	T1-4LT	WG	G	2/1/20	0956				1			1						1			
4	T1-3LT	WG	G	2/1/20	1006				1			1						1			
5	~~[illegible]~~	WG	G		-				1			1									
6	MCM-07LT	WG	G	2/1/20	1015				1			1						1			
7	T1-2LT	WG	G	2/1/20	1016				1			1						1			
8	T1-4HTS	WG	G	2/1/20	1334				1			1						1			
9	T1-4HT	WG	G	2/1/20	1340				1			1						1			
10	T1-3HTS	WG	G	2/1/20	1352				1			1						1			
11	T1-1HT	WG	G	2/1/20	1355				1			1						1			
12	MCM-06HT Abligand	WG	G	2/1/20	1355				1			1						1			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Only	Kevin Stephenson	2/1/20	1646	FedEx						
				K. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Glenn

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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

WO# : 2628595
PM: KH Due Date: 02/06/20
CLIENT: 26-GA Power

Section A — Required Client Information:		Section B — Required Project Information:		Section C — Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Wilson, Stephen	Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:
State / Location: GA

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

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

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020 — Y

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020	Dissolved Metals by 6020 Cali	Residual Chlorine (Y/N)
1	T3-2WT	GW	G	2/2/20	1438				1	1										1	
2	T3-1WT	GW	G	2/2/20	1435				1	1										1	
3	MCM-OS WT	GW	G	2/2/20	1446				1	1										1	
4	MCM-OS LT Background	GW	G	2/3/20	0945				1	1										1	
5	MCM-OS LT	GW	G	2/3/20	0847				1	1										1	
6	T3-4LT	GW	G	2/3/20	1040				1	1										1	
7	T3-3LT	GW	G	2/3/20	1212				1	1										1	
8	T3-2LT	GW	G	2/3/20	1330				1	1										1	
9	Dup-1	GW	G	2/3/20	—				1	1										1	
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Cali Only	Kevin Stephenson	2/3/20	1654	[signature]	2/3/20	1654	–	Y	Y	Y
	[signature]	2/4/20	1048	Romero Hicks / Pace	2/4/20	10:48				
	Romero Hicks / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	1816	4.0			

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin Stephenson / Scott Glover
SIGNATURE of SAMPLER: [signature]
DATE Signed: 2/3/20

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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Page : 1 Of 1

Section A — Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resoluteenv.com
Phone:	(251)776-2760
Fax:	
Requested Due Date:	

Section B — Required Project Information:

Report To:	Millet, Lea
Copy To:	
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	2919

Regulatory Agency	State / Location
	GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals by 6020 (Co, Li)	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	MCM-07LT Ashpond	WG	G	2/1/20	0940				1			1						1		
2	T1-1LT	WG	G	2/1/20	0950				1			1						1		
3	T1-4LT	WG	G	2/1/20	0956				1			1						1		
4	T1-3LT	WG	G	2/1/20	1006				1			1						1		
5	~~[illegible]~~	WG	G	—	—				1			1						1		
6	MCM-07LT	WG	G	2/1/20	1015				1			1						1		
7	T1-2LT	WG	G	2/1/20	1016				1			1						1		
8	T1-4HTS	WG	G	2/1/20	1334				1			1						1		
9	T1-4HT	WG	G	2/1/20	1340				1			1						1		
10	T1-3HTS	WG	G	2/1/20	1352				1			1						1		
11	T1-1HT	WG	G	2/1/20	1355				1			1						1		
12	MCM-06HT Ashpond	WG	G	2/1/20	1355				1			1						1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Co, Li Only	Kevin Stephenson	2/3/20	1446	FedEx						
				K. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Glenn

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

Sample Condition Upon Receipt

Pace Analytical

Client Name: Georgia Power

WO# : 2628595
PM: KH Due Date: 02/06/20
CLIENT: 26-GA Power

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

Tracking #: 3901 2400 8795

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

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

Thermometer Used THR230 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.4 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KW 2/4/20

Comments:

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

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: __________ Date/Time: __________

Comments/ Resolution: __________

Project Manager Review: __________ **Date:** __________

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

F-ALLC003rev.3, 11September2006

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

February 14, 2020

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

RE: Project: Plant McManus SW
Pace Project No.: 2628595

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 04, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Veronica Faye, Resolute
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

CERTIFICATIONS

Project:	Plant McManus SW
Pace Project No.:	2628595

Pace Analytical Services Atlanta

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

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

SAMPLE SUMMARY

Project: Plant McManus SW
Pace Project No.: 2628595

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2628595001	**T2-1HT**	Water	02/01/20 13:55	02/04/20 10:48
2628595002	**T2-2HTS**	Water	02/01/20 14:28	02/04/20 10:48
2628595003	**T2-2HT**	Water	02/01/20 14:32	02/04/20 10:48
2628595004	**T2-3HTS**	Water	02/01/20 14:46	02/04/20 10:48
2628595005	**T2-3HT**	Water	02/01/20 14:50	02/04/20 10:48
2628595006	**T2-4HTS**	Water	02/01/20 15:00	02/04/20 10:48
2628595007	**T2-4HT**	Water	02/01/20 15:14	02/04/20 10:48
2628595008	**T2-4LT**	Water	02/02/20 09:46	02/04/20 10:48
2628595009	**T2-3LT**	Water	02/02/20 11:20	02/04/20 10:48
2628595010	**T2-2LT**	Water	02/02/20 11:38	02/04/20 10:48
2628595011	**T1-1LT**	Water	02/01/20 09:50	02/04/20 10:48
2628595012	**T1-4LT**	Water	02/01/20 09:56	02/04/20 10:48
2628595013	**T1-3LT**	Water	02/01/20 10:06	02/04/20 10:48
2628595014	**T1-2LT**	Water	02/01/20 10:16	02/04/20 10:48
2628595015	**T1-4HTS**	Water	02/01/20 13:34	02/04/20 10:48
2628595016	**T1-4HT**	Water	02/01/20 13:40	02/04/20 10:48
2628595017	**T1-3HTS**	Water	02/01/20 13:52	02/04/20 10:48
2628595018	**T1-3HT**	Water	02/01/20 13:56	02/04/20 10:48
2628595019	**T1-1HT**	Water	02/01/20 14:08	02/04/20 10:48
2628595020	**T1-2HTS**	Water	02/01/20 14:16	02/04/20 10:48
2628595021	**T1-2HT**	Water	02/01/20 14:20	02/04/20 10:48

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

SAMPLE ANALYTE COUNT

Project: Plant McManus SW
Pace Project No.: 2628595

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2628595001	**T2-1HT**	EPA 6020B	CSW	1
2628595002	**T2-2HTS**	EPA 6020B	CSW	1
2628595003	**T2-2HT**	EPA 6020B	CSW	1
2628595004	**T2-3HTS**	EPA 6020B	CSW	1
2628595005	**T2-3HT**	EPA 6020B	CSW	1
2628595006	**T2-4HTS**	EPA 6020B	CSW	1
2628595007	**T2-4HT**	EPA 6020B	CSW	1
2628595008	**T2-4LT**	EPA 6020B	CSW	1
2628595009	**T2-3LT**	EPA 6020B	CSW	1
2628595010	**T2-2LT**	EPA 6020B	CSW	1
2628595011	**T1-1LT**	EPA 6020B	CSW	1
2628595012	**T1-4LT**	EPA 6020B	CSW	1
2628595013	**T1-3LT**	EPA 6020B	CSW	1
2628595014	**T1-2LT**	EPA 6020B	CSW	1
2628595015	**T1-4HTS**	EPA 6020B	CSW	1
2628595016	**T1-4HT**	EPA 6020B	CSW	1
2628595017	**T1-3HTS**	EPA 6020B	CSW	1
2628595018	**T1-3HT**	EPA 6020B	CSW	1
2628595019	**T1-1HT**	EPA 6020B	CSW	1
2628595020	**T1-2HTS**	EPA 6020B	CSW	1
2628595021	**T1-2HT**	EPA 6020B	CSW	1

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

SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 2628595

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628595001	**T2-1HT**					
EPA 6020B	Arsenic, Dissolved	0.012J	mg/L	0.050	02/13/20 14:15	D3
2628595002	**T2-2HTS**					
EPA 6020B	Arsenic, Dissolved	0.018J	mg/L	0.050	02/13/20 14:20	D3
2628595003	**T2-2HT**					
EPA 6020B	Arsenic, Dissolved	0.023J	mg/L	0.050	02/13/20 14:26	D3,M6
2628595004	**T2-3HTS**					
EPA 6020B	Arsenic, Dissolved	0.036J	mg/L	0.050	02/13/20 14:49	D3
2628595005	**T2-3HT**					
EPA 6020B	Arsenic, Dissolved	0.043J	mg/L	0.050	02/13/20 14:55	D3
2628595006	**T2-4HTS**					
EPA 6020B	Arsenic, Dissolved	0.037J	mg/L	0.050	02/13/20 15:35	D3
2628595007	**T2-4HT**					
EPA 6020B	Arsenic, Dissolved	0.040J	mg/L	0.050	02/13/20 15:43	D3
2628595008	**T2-4LT**					
EPA 6020B	Arsenic, Dissolved	0.044J	mg/L	0.050	02/13/20 15:49	D3
2628595009	**T2-3LT**					
EPA 6020B	Arsenic, Dissolved	0.043J	mg/L	0.050	02/13/20 15:54	D3
2628595010	**T2-2LT**					
EPA 6020B	Arsenic, Dissolved	0.040J	mg/L	0.050	02/13/20 16:29	D3
2628595011	**T1-1LT**					
EPA 6020B	Arsenic, Dissolved	0.039J	mg/L	0.050	02/13/20 16:35	D3
2628595012	**T1-4LT**					
EPA 6020B	Arsenic, Dissolved	0.046J	mg/L	0.050	02/13/20 16:41	D3
2628595013	**T1-3LT**					
EPA 6020B	Arsenic, Dissolved	0.043J	mg/L	0.050	02/13/20 16:47	D3
2628595014	**T1-2LT**					
EPA 6020B	Arsenic, Dissolved	0.041J	mg/L	0.050	02/13/20 16:52	D3
2628595015	**T1-4HTS**					
EPA 6020B	Arsenic, Dissolved	0.048J	mg/L	0.050	02/13/20 16:58	D3
2628595016	**T1-4HT**					
EPA 6020B	Arsenic, Dissolved	0.0065J	mg/L	0.050	02/13/20 19:04	D3
2628595017	**T1-3HTS**					
EPA 6020B	Arsenic, Dissolved	0.0086J	mg/L	0.050	02/13/20 19:10	D3
2628595018	**T1-3HT**					
EPA 6020B	Arsenic, Dissolved	0.0079J	mg/L	0.050	02/13/20 19:16	D3

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

SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 2628595

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628595019	**T1-1HT**					
EPA 6020B	Arsenic, Dissolved	0.0082J	mg/L	0.050	02/13/20 19:21	D3
2628595020	**T1-2HTS**					
EPA 6020B	Arsenic, Dissolved	0.0077J	mg/L	0.050	02/13/20 19:27	D3
2628595021	**T1-2HT**					
EPA 6020B	Arsenic, Dissolved	0.0062J	mg/L	0.050	02/12/20 18:20	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T2-1HT **Lab ID: 2628595001** Collected: 02/01/20 13:55 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.012J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 14:15	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T2-2HTS **Lab ID: 2628595002** Collected: 02/01/20 14:28 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.018J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 14:20	7440-38-2	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T2-2HT **Lab ID: 2628595003** Collected: 02/01/20 14:32 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.023J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 14:26	7440-38-2	D3,M6

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T2-3HTS **Lab ID: 2628595004** Collected: 02/01/20 14:46 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.036J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 14:49	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T2-3HT		Lab ID: 2628595005		Collected: 02/01/20 14:50		Received: 02/04/20 10:48		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.043J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 14:55	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T2-4HTS **Lab ID: 2628595006** Collected: 02/01/20 15:00 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.037J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 15:35	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T2-4HT **Lab ID: 2628595007** Collected: 02/01/20 15:14 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.040J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 15:43	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T2-4LT **Lab ID: 2628595008** Collected: 02/02/20 09:46 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.044J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 15:49	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T2-3LT **Lab ID: 2628595009** Collected: 02/02/20 11:20 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.043J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 15:54	7440-38-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T2-2LT **Lab ID: 2628595010** Collected: 02/02/20 11:38 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.040J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 16:29	7440-38-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T1-1LT **Lab ID: 2628595011** Collected: 02/01/20 09:50 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.039J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 16:35	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(770)734-4200

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T1-4LT **Lab ID: 2628595012** Collected: 02/01/20 09:56 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.046J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 16:41	7440-38-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T1-3LT **Lab ID: 2628595013** Collected: 02/01/20 10:06 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.043J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 16:47	7440-38-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T1-2LT **Lab ID: 2628595014** Collected: 02/01/20 10:16 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.041J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 16:52	7440-38-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T1-4HTS **Lab ID: 2628595015** Collected: 02/01/20 13:34 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.048J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 16:58	7440-38-2	D3

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T1-4HT **Lab ID: 2628595016** Collected: 02/01/20 13:40 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0065J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 19:04	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T1-3HTS **Lab ID: 2628595017** Collected: 02/01/20 13:52 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0086J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 19:10	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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110 Technology Parkway
Peachtree Corners, GA 30092
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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T1-3HT **Lab ID: 2628595018** Collected: 02/01/20 13:56 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0079J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 19:16	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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Peachtree Corners, GA 30092
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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T1-1HT **Lab ID: 2628595019** Collected: 02/01/20 14:08 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0082J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 19:21	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T1-2HTS **Lab ID: 2628595020** Collected: 02/01/20 14:16 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0077J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/13/20 19:27	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628595

Sample: T1-2HT **Lab ID: 2628595021** Collected: 02/01/20 14:20 Received: 02/04/20 10:48 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0062J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 18:20	7440-38-2	D3

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QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628595

QC Batch: 43170 — Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A — Analysis Description: 6020B MET Dissolved
Associated Lab Samples: 2628595001, 2628595002, 2628595003, 2628595004, 2628595005, 2628595006, 2628595007, 2628595008, 2628595009, 2628595010, 2628595011, 2628595012, 2628595013, 2628595014, 2628595015, 2628595016, 2628595017, 2628595018, 2628595019, 2628595020

METHOD BLANK: 197294 — Matrix: Water
Associated Lab Samples: 2628595001, 2628595002, 2628595003, 2628595004, 2628595005, 2628595006, 2628595007, 2628595008, 2628595009, 2628595010, 2628595011, 2628595012, 2628595013, 2628595014, 2628595015, 2628595016, 2628595017, 2628595018, 2628595019, 2628595020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	mg/L	ND	0.0050	0.00035	02/13/20 14:03	

LABORATORY CONTROL SAMPLE: 197295

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 197296 197297

Parameter	Units	2628595003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	mg/L	0.023J	0.1	0.1	0.14	0.15	122	127	75-125	3	20	M6

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

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QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628595

QC Batch: 43171 | Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A | Analysis Description: 6020B MET Dissolved
Associated Lab Samples: 2628595021

METHOD BLANK: 197298 | Matrix: Water
Associated Lab Samples: 2628595021

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	mg/L	ND	0.0050	0.00035	02/12/20 18:08	

LABORATORY CONTROL SAMPLE: 197299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 197300 197301

Parameter	Units	2628599001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	mg/L	0.0065J	0.1	0.1	0.12	0.11	111	109	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.

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QUALIFIERS

Project:	Plant McManus SW
Pace Project No.:	2628595

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McManus SW
Pace Project No.: 2628595

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628595001	**T2-1HT**	EPA 3005A	43170	EPA 6020B	43193
2628595002	**T2-2HTS**	EPA 3005A	43170	EPA 6020B	43193
2628595003	**T2-2HT**	EPA 3005A	43170	EPA 6020B	43193
2628595004	**T2-3HTS**	EPA 3005A	43170	EPA 6020B	43193
2628595005	**T2-3HT**	EPA 3005A	43170	EPA 6020B	43193
2628595006	**T2-4HTS**	EPA 3005A	43170	EPA 6020B	43193
2628595007	**T2-4HT**	EPA 3005A	43170	EPA 6020B	43193
2628595008	**T2-4LT**	EPA 3005A	43170	EPA 6020B	43193
2628595009	**T2-3LT**	EPA 3005A	43170	EPA 6020B	43193
2628595010	**T2-2LT**	EPA 3005A	43170	EPA 6020B	43193
2628595011	**T1-1LT**	EPA 3005A	43170	EPA 6020B	43193
2628595012	**T1-4LT**	EPA 3005A	43170	EPA 6020B	43193
2628595013	**T1-3LT**	EPA 3005A	43170	EPA 6020B	43193
2628595014	**T1-2LT**	EPA 3005A	43170	EPA 6020B	43193
2628595015	**T1-4HTS**	EPA 3005A	43170	EPA 6020B	43193
2628595016	**T1-4HT**	EPA 3005A	43170	EPA 6020B	43193
2628595017	**T1-3HTS**	EPA 3005A	43170	EPA 6020B	43193
2628595018	**T1-3HT**	EPA 3005A	43170	EPA 6020B	43193
2628595019	**T1-1HT**	EPA 3005A	43170	EPA 6020B	43193
2628595020	**T1-2HTS**	EPA 3005A	43170	EPA 6020B	43193
2628595021	**T1-2HT**	EPA 3005A	43171	EPA 6020B	43192

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields mus[t be completed accurately]

WO# : 2628595

2628595

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:		Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:

State / Location: GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	MCM-DLWT	WT	G	2/1/20	1355				1			1							1		
2	T1-3WT	WT	G	2/1/20	1356				1			1							1		
3	T1-1WT	WT	G	2/1/20	1408				1			1							1		
4	T1-2WTS	WT	G	2/1/20	1416				1			1							1		
5	MCM-07WT Ashpond	WT	G	2/1/20	1420				1			1							1		
6	MCM-07WT	WT	G	2/1/20	1420				1			1							1		
7	T1-2WT	WT	G	2/1/20	1420				1			1							1		
8	T2-2WTS	WT	G	2/1/20	1428				1			1							1		
9	T2-2WT	WT	G	2/1/20	1432				1			1							1		
10	T2-3WTS	WT	G	2/1/20	1446				1			1							1		
11	T2-3WT	WT	G	2/1/20	1450				1			1							1		
12	T2-4WTS	WT	G	2/1/20	1500				1			1							1		

Metals by 6020: AK

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
As Only	Kevin Stephenson	2/3/20	1046	FedEx						
				K. Wellington / PACE	2/4/20	0800	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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

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

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WO#: 2628595
PM: KH Due Date: 02/06/20
CLIENT: 26-GA Power

Section A – Required Client Information		Section B – Required Project Information		Section C – Invoice Information	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Wilson, Stephen	Company Name:	
	Suite 320, Woodstock, GA 30188			Address:	
Email:	lea.millet@rasolutesenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	2919

State / Location: GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals by 6020	Dissolved Metals by 6020 (Y) Coal	Residual Chlorine (Y/N)
1	T2-4HT	WG	G	2/1/20	1514				1	1									1	
2	MCM-06LT Adjacent	WG	G	2/2/20	0850				1	1									1	
3	MCM-06LT	WG	G	2/2/20	0900				1	1									1	
4	T2-4LT	WG	G	2/2/20	0946				1	1									1	
5	T2-3LT	WG	G	2/2/20	1120				1	1									1	
6	T2-2LT	WG	G	2/2/20	1135				1	1									1	
7	T3-4HTS	WG	G	2/2/20	1344				1	1									1	
8	T3-4HT	WG	G	2/2/20	1350				1	1									1	
9	T3-3HTS	WG	G	2/2/20	1408				1	1									1	
10	T3-3LT	WG	G	2/2/20	1410				1	1									1	
11	T3-2HTS	WG	G	2/2/20	1428				1	1									1	
12	MCM-05HT Adjacent	WG	G	2/2/20	1430				1	1									1	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Coal Only	Kevin Stephenson	2/3/20	1654	[illegible]	2/3/20	1654	-	Y	Y	Y
	[illegible]	2/4/20	1047	Yomoro Dicks / Pace	2/4/20	10:48				
	Yomoro Dicks / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	1216	4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin Stephenson | Scott Coleman
SIGNATURE of SAMPLER: [signature] DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Request D

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields mu

WO# : 2628595

2628595

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Wilson Stephen	Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:

State / Location: GA

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

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

Requested Analysis Filtered (Y/N): Y (Dissolved Metals by 6020)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Metals by 6020	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	MCM-06WT	WG	G	2/1/20	1355				1	1										1	
2	T1-3WT	WG	G	2/1/20	1356				1	1										1	
3	T1-1WT	WG	G	2/1/20	1408				1	1										1	
4	T1-2WTS	WG	G	2/1/20	1416				1	1										1	
5	MCM-07WT [illegible]	WG	G	2/1/20	1420				1	1										1	
6	MCM-07WT	WG	G	2/1/20	1420				1	1										1	
7	T1-2WT	WG	G	2/1/20	1420				1	1										1	
8	T2-2WTS	WG	G	2/1/20	1428				1	1										1	
9	T2-2WT	WG	G	2/1/20	1432				1	1										1	
10	T2-3WTS	WG	G	2/1/20	1446				1	1										1	
11	T2-3WT	WG	G	2/1/20	1450				1	1										1	
12	T2-4WTS	WG	G	2/1/20	1500				1	1										1	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Only	[signature]	2/3/20	1654	[signature]	2/3/20	1654	–	Y	Y	Y
	[signature]	2/4/20	1048	Lombardo Dicks / Pace	2/4/20	10:48				
	Lombardo Dicks / Pace	2/4/20	1216	K. Wellmeyer / Pace	2/4/20	1216	4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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

February 06, 2020

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

RE: Project: Plant McManus SW
Pace Project No.: 2628598

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 04, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Veronica Faye, Resolute
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

CERTIFICATIONS

Project:	Plant McManus SW
Pace Project No.:	2628598

Pace Analytical Services Atlanta

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

Pace Analytical Services, LLC
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(770)734-4200

SAMPLE SUMMARY

Project: Plant McManus SW
Pace Project No.: 2628598

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2628598001	**T1-1LT**	Water	02/01/20 09:50	02/04/20 08:00
2628598002	**T1-4LT**	Water	02/01/20 09:56	02/04/20 08:00
2628598003	**T1-3LT**	Water	02/01/20 10:06	02/04/20 08:00
2628598004	**T1-2LT**	Water	02/01/20 10:16	02/04/20 08:00
2628598005	**T1-4HTS**	Water	02/01/20 13:34	02/04/20 08:00
2628598006	**T1-4HT**	Water	02/01/20 13:40	02/04/20 08:00
2628598007	**T1-3HTS**	Water	02/01/20 13:52	02/04/20 08:00
2628598008	**T1-3HT**	Water	02/01/20 13:56	02/04/20 08:00
2628598009	**T1-1HT**	Water	02/01/20 14:08	02/04/20 08:00
2628598010	**T1-2HTS**	Water	02/01/20 14:16	02/04/20 08:00
2628598011	**T1-2HT**	Water	02/01/20 14:20	02/04/20 08:00

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SAMPLE ANALYTE COUNT

Project: Plant McManus SW
Pace Project No.: 2628598

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2628598001	**T1-1LT**	EPA 6020B	CSW	1
2628598002	**T1-4LT**	EPA 6020B	CSW	1
2628598003	**T1-3LT**	EPA 6020B	CSW	1
2628598004	**T1-2LT**	EPA 6020B	CSW	1
2628598005	**T1-4HTS**	EPA 6020B	CSW	1
2628598006	**T1-4HT**	EPA 6020B	CSW	1
2628598007	**T1-3HTS**	EPA 6020B	CSW	1
2628598008	**T1-3HT**	EPA 6020B	CSW	1
2628598009	**T1-1HT**	EPA 6020B	CSW	1
2628598010	**T1-2HTS**	EPA 6020B	CSW	1
2628598011	**T1-2HT**	EPA 6020B	CSW	1

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SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 2628598

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628598002	**T1-4LT**					
EPA 6020B	Arsenic	0.0055J	mg/L	0.050	02/05/20 18:49	
2628598003	**T1-3LT**					
EPA 6020B	Arsenic	0.0039J	mg/L	0.050	02/05/20 18:55	
2628598005	**T1-4HTS**					
EPA 6020B	Arsenic	0.0037J	mg/L	0.050	02/05/20 19:06	
2628598006	**T1-4HT**					
EPA 6020B	Arsenic	0.0059J	mg/L	0.050	02/05/20 19:23	
2628598007	**T1-3HTS**					
EPA 6020B	Arsenic	0.0044J	mg/L	0.050	02/05/20 19:29	
2628598008	**T1-3HT**					
EPA 6020B	Arsenic	0.0052J	mg/L	0.050	02/05/20 19:35	
2628598009	**T1-1HT**					
EPA 6020B	Arsenic	0.0050J	mg/L	0.050	02/05/20 19:41	
2628598010	**T1-2HTS**					
EPA 6020B	Arsenic	0.0060J	mg/L	0.050	02/05/20 19:46	
2628598011	**T1-2HT**					
EPA 6020B	Arsenic	0.0049J	mg/L	0.050	02/05/20 19:52	

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628598

Sample: T1-1LT **Lab ID: 2628598001** Collected: 02/01/20 09:50 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 18:26	7440-38-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Peachtree Corners, GA 30092
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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628598

Sample: T1-4LT **Lab ID: 2628598002** Collected: 02/01/20 09:56 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0055J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 18:49	7440-38-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628598

Sample: T1-3LT **Lab ID: 2628598003** Collected: 02/01/20 10:06 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0039J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 18:55	7440-38-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628598

Sample: T1-2LT **Lab ID: 2628598004** Collected: 02/01/20 10:16 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 19:00	7440-38-2	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628598

Sample: T1-4HTS **Lab ID: 2628598005** Collected: 02/01/20 13:34 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0037J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 19:06	7440-38-2	

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628598

Sample: T1-4HT **Lab ID: 2628598006** Collected: 02/01/20 13:40 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0059J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 19:23	7440-38-2	

REPORT OF LABORATORY ANALYSIS

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(770)734-4200

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628598

Sample: T1-3HTS **Lab ID: 2628598007** Collected: 02/01/20 13:52 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0044J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 19:29	7440-38-2	

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628598

Sample: T1-3HT **Lab ID: 2628598008** Collected: 02/01/20 13:56 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0052J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 19:35	7440-38-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628598

Sample: T1-1HT **Lab ID: 2628598009** Collected: 02/01/20 14:08 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0050J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 19:41	7440-38-2	

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628598

Sample: T1-2HTS **Lab ID: 2628598010** Collected: 02/01/20 14:16 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0060J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 19:46	7440-38-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

ANALYTICAL RESULTS

Project: Plant McManus SW

Pace Project No.: 2628598

Sample: T1-2HT **Lab ID: 2628598011** Collected: 02/01/20 14:20 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0049J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 19:52	7440-38-2	

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628598

QC Batch: 42836 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2628598001, 2628598002, 2628598003, 2628598004, 2628598005, 2628598006, 2628598007, 2628598008, 2628598009, 2628598010, 2628598011

METHOD BLANK: 195730 Matrix: Water
Associated Lab Samples: 2628598001, 2628598002, 2628598003, 2628598004, 2628598005, 2628598006, 2628598007, 2628598008, 2628598009, 2628598010, 2628598011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	02/05/20 18:15	

LABORATORY CONTROL SAMPLE: 195731

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.097	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 195732 195733

Parameter	Units	2628598001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.11	0.099	106	96	75-125	9	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant McManus SW

Pace Project No.: 2628598

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McManus SW
Pace Project No.: 2628598

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628598001	**T1-1LT**	EPA 3005A	42836	EPA 6020B	42909
2628598002	**T1-4LT**	EPA 3005A	42836	EPA 6020B	42909
2628598003	**T1-3LT**	EPA 3005A	42836	EPA 6020B	42909
2628598004	**T1-2LT**	EPA 3005A	42836	EPA 6020B	42909
2628598005	**T1-4HTS**	EPA 3005A	42836	EPA 6020B	42909
2628598006	**T1-4HT**	EPA 3005A	42836	EPA 6020B	42909
2628598007	**T1-3HTS**	EPA 3005A	42836	EPA 6020B	42909
2628598008	**T1-3HT**	EPA 3005A	42836	EPA 6020B	42909
2628598009	**T1-1HT**	EPA 3005A	42836	EPA 6020B	42909
2628598010	**T1-2HTS**	EPA 3005A	42836	EPA 6020B	42909
2628598011	**T1-2HT**	EPA 3005A	42836	EPA 6020B	42909

REPORT OF LABORATORY ANALYSIS

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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.

WO# : 2628598

2628598

Section A
Required Client Information:

Company:	Georgia Power
Address:	1003 Weatherstone Parkway
	Suite 320, Woodstock, GA 30188
Email:	lea.millet@resolutoenv.com
Phone:	(251)776-2760 Fax:
Requested Due Date:	

Section B
Required Project Information:

Report To:	Millet, Lea
Copy To:	Wilson, Stephen
Purchase Order #:	
Project Name:	Plant McManus SW
Project #:	

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	kevin.herring@pacelabs.com,
Pace Profile #:	2919

Regulatory Agency	State / Location
	GA

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

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

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020 — Y

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analysis Test Y/N	Metals by 6020	Dissolved Metals by 6020	*See Comment	Residual Chlorine (Y/N)
1	MCM-07 LT Ad...	WT	G	2/1/20	0940				1	1										1		
2	T1-1LT	WT	G	2/1/20	0950				1	1										1		
3	T1-4LT	WT	G	2/1/20	0956				1	1										1		
4	T1-3LT	WT	G	2/1/20	1000				1	1										1		
5	~~[illegible]~~	WT	G		—																	
6	MCM-07LT	WT	G	2/1/20	1015				1	1										1		
7	T1-2LT	WT	G	2/1/20	1016				1	1										1		
8	T1-4HTS	WT	G	2/1/20	1334				1	1										1		
9	T1-4HT	WT	G	2/1/20	1340				1	1										1		
10	T1-3HTS	WT	G	2/1/20	1352				1	1										1		
11	T1-1HT	WT	G	2/1/20	1355				1	1										1		
12	MCM-06HT Ad...	WT	G	2/1/20	1355				1	1										1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Only	[signature]	2/3/20	1654	[signature]	2/3/20	1654	—	Y	Y	Y
	[signature]	2/4/20	1048	Romero Wicks / Pace	2/4/20	10:48				
	Romero Wicks / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	1216	4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Glenn

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Request Document

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

WO#: 2628598

PM: KH Due Date: 02/05/20

CLIENT: 26-GA Power

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Georgia Power	Report To: Millet, Lea	Attention:
Address: 1003 Weatherstone Parkway	Copy To:	Company Name:
Suite 320, Woodstock, GA 30188		Address:
Email: lea.millet@resoluteenv.com	Purchase Order #:	Pace Quote:
Phone: (251)776-2760 Fax:	Project Name: Plant McManus SW	Pace Project Manager: kevin.herring@pacelabs.com,
Requested Due Date:	Project #:	Pace Profile #: 2919

State / Location: GA

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T3-2WT	WT	G	2/4/20	1436				1			1							1		
2	T3-1WT	WT	G	2/2/20	1435				1			1							1		
3	MCM-05WT	WT	G	2/2/20	1446				1			1							1		
4	MCM-05LT Background	WT	G	2/3/20	0945				1			1							1		
5	MCM-05LT	WT	G	2/3/20	0943				1			1							1		
6	T3-4LT	WT	G	2/3/20	1040				1			1							1		
7	~~MCM~~ T3-3LT	WT	G	2/3/20	1212				1			1							1		
8	T3-2LT	WT	G	2/4/20	1330				1			1							1		
9	Dup-1	WT	G	2/3/20	—				1			1							1		
10																					
11																					
12																					

As

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Only	Kevin Stephenson	2/3/20	1646	FedEx						
				R. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Green

SIGNATURE of SAMPLER: [signature] DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Request Doc

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must b

WO#: 2628598
PM: KH Due Date: 02/05/20
CLIENT: 26-GA Power

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:		Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone: (251)776-2760	Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency	State / Location
	GA

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020 As	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T2-4HT	WT	G	2/1/20	1514				1			1							1		
2	MCM-06LT Ashpond	WT	G	2/2/20	0850				1			1							1		
3	~~BG~~ MCM-06LT	WT	G	2/2/20	0900				1			1							1		
4	T2-4LT	WT	G	2/2/20	0946				1			1							1		
5	T2-3LT	WT	G	2/2/20	1210				1			1							1		
6	T2-2LT	WT	G	2/2/20	1138				1			1							1		
7	T3-4HTS	WT	G	2/2/20	1344				1			1							1		
8	T3-4HT	WT	G	2/2/20	1350				1			1							1		
9	T3-3HTS	WT	G	2/2/20	1408				1			1							1		
10	T3-3HT	WT	G	2/2/20	1410				1			1							1		
11	T3-2HTS	WT	G	2/2/20	1428				1			1							1		
12	MCM-05HT Ashpond	WT	G	2/2/20	1430				1			1							1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
As Only	Kevin Stephenson	2/2/20	1646	FedEx						
				K. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y

SAMPLE CONDITIONS

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson / Scott Glenn

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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

WO# : 2628598
PM: KH Due Date: 02/05/20
CLIENT: 26-GA Power

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Wilson, Stephen	Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:
State / Location: GA

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

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

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020 — Y

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Metals by 6020	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T3-2WT	WG	G	2/1/20	1438				1	1										1	
2	T3-1WT	WG	G	2/1/20	1435				1	1										1	
3	MCM-OSWT	WG	G	2/2/20	1446				1	1										1	
4	MCM-OSLT Background	WG	G	2/3/20	0945				1	1										1	
5	MCM-OSLT	WG	G	2/3/20	0843				1	1										1	
6	T3-4LT	WG	G	2/3/20	1040				1	1										1	
7	T3-3LT	WG	G	2/3/20	1212				1	1										1	
8	T3-2LT	WG	G	2/1/20	1330				1	1										1	
9	Dup-1	WG	G	2/3/20	—				1	1										1	
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Aos Only	Kevin Stephenson	2/3/20	1654	[illegible]	2/3/20	1654	4	Y	Y	Y
	[illegible]	2/4/20	1048	[illegible] / Pace	2/4/20	10:48				
	[illegible] / Pace	2/4/20	12:16	K. Willington / Pace	2/4/20	1216	4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin Stephenson / Scott Greene
SIGNATURE of SAMPLER: [signature]
DATE Signed: 2/3/20

Sample Condition Upon Receipt

Pace Analytical

Client Name: Georgia Power

Project #

WO# : 2628598

PM: KH Due Date: 02/05/20

CLIENT: 26-GA Power

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

Tracking #: ______

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

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

Thermometer Used: THR214 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature: 4.0 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KW 2/4/20

Comments:

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

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: ______ Date/Time: ______

Comments/ Resolution: ______

Project Manager Review: ______ **Date:** ______

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

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

February 13, 2020

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

RE: Project: Plant McManus SW
Pace Project No.: 2628599

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 04, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Veronica Faye, Resolute
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project:	Plant McManus SW
Pace Project No.:	2628599

Pace Analytical Services Atlanta

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

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SAMPLE SUMMARY

Project: Plant McManus SW
Pace Project No.: 2628599

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2628599001	**T3-4HTS**	Water	02/02/20 13:44	02/04/20 08:00
2628599002	**T3-4HT**	Water	02/02/20 13:50	02/04/20 08:00
2628599003	**T3-3HTS**	Water	02/02/20 14:08	02/04/20 08:00
2628599004	**T3-3HT**	Water	02/02/20 14:10	02/04/20 08:00
2628599005	**T3-2HTS**	Water	02/02/20 14:28	02/04/20 08:00
2628599006	**T3-2HT**	Water	02/02/20 14:34	02/04/20 08:00
2628599007	**T3-1HT**	Water	02/02/20 14:35	02/04/20 08:00
2628599008	**T3-4LT**	Water	02/03/20 10:40	02/04/20 08:00
2628599009	**T3-3LT**	Water	02/03/20 12:12	02/04/20 08:00
2628599010	**T3-2LT**	Water	02/03/20 13:30	02/04/20 08:00

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(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant McManus SW
Pace Project No.: 2628599

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2628599001	**T3-4HTS**	EPA 6020B	CSW	1
		EPA 6020B	CSW	1
2628599002	**T3-4HT**	EPA 6020B	CSW	1
		EPA 6020B	CSW	1
2628599003	**T3-3HTS**	EPA 6020B	CSW	1
		EPA 6020B	CSW	1
2628599004	**T3-3HT**	EPA 6020B	CSW	1
		EPA 6020B	CSW	1
2628599005	**T3-2HTS**	EPA 6020B	CSW	1
		EPA 6020B	CSW	1
2628599006	**T3-2HT**	EPA 6020B	CSW	1
		EPA 6020B	CSW	1
2628599007	**T3-1HT**	EPA 6020B	CSW	1
		EPA 6020B	CSW	1
2628599008	**T3-4LT**	EPA 6020B	CSW	1
		EPA 6020B	CSW	1
2628599009	**T3-3LT**	EPA 6020B	CSW	1
		EPA 6020B	CSW	1
2628599010	**T3-2LT**	EPA 6020B	CSW	1
		EPA 6020B	CSW	1

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Peachtree Corners, GA 30092
(770)734-4200

SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 2628599

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628599001	**T3-4HTS**					
EPA 6020B	Arsenic	0.0065J	mg/L	0.050	02/05/20 19:58	
EPA 6020B	Arsenic, Dissolved	0.0047J	mg/L	0.050	02/12/20 18:25	D3
2628599002	**T3-4HT**					
EPA 6020B	Arsenic	0.0064J	mg/L	0.050	02/05/20 20:03	
EPA 6020B	Arsenic, Dissolved	0.0084J	mg/L	0.050	02/12/20 18:48	D3
2628599003	**T3-3HTS**					
EPA 6020B	Arsenic	0.0072J	mg/L	0.050	02/05/20 20:09	
EPA 6020B	Arsenic, Dissolved	0.0065J	mg/L	0.050	02/12/20 18:54	D3
2628599004	**T3-3HT**					
EPA 6020B	Arsenic	0.0058J	mg/L	0.050	02/05/20 20:15	
EPA 6020B	Arsenic, Dissolved	0.0061J	mg/L	0.050	02/12/20 19:00	D3
2628599005	**T3-2HTS**					
EPA 6020B	Arsenic	0.0054J	mg/L	0.050	02/05/20 20:32	
EPA 6020B	Arsenic, Dissolved	0.0068J	mg/L	0.050	02/12/20 19:17	D3
2628599006	**T3-2HT**					
EPA 6020B	Arsenic	0.0056J	mg/L	0.050	02/05/20 20:38	
EPA 6020B	Arsenic, Dissolved	0.0065J	mg/L	0.050	02/12/20 19:23	D3
2628599007	**T3-1HT**					
EPA 6020B	Arsenic	0.0066J	mg/L	0.050	02/05/20 20:44	
EPA 6020B	Arsenic, Dissolved	0.0061J	mg/L	0.050	02/12/20 19:28	D3
2628599008	**T3-4LT**					
EPA 6020B	Arsenic	0.0048J	mg/L	0.050	02/05/20 20:49	
EPA 6020B	Arsenic, Dissolved	0.0065J	mg/L	0.050	02/12/20 19:34	D3
2628599009	**T3-3LT**					
EPA 6020B	Arsenic	0.0052J	mg/L	0.050	02/05/20 20:55	
EPA 6020B	Arsenic, Dissolved	0.0062J	mg/L	0.050	02/12/20 19:40	D3
2628599010	**T3-2LT**					
EPA 6020B	Arsenic	0.0044J	mg/L	0.050	02/06/20 19:10	D3
EPA 6020B	Arsenic, Dissolved	0.0047J	mg/L	0.050	02/12/20 19:45	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628599

Sample: T3-4HTS **Lab ID: 2628599001** Collected: 02/02/20 13:44 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0065J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 19:58	7440-38-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0047J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 18:25	7440-38-2	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628599

Sample: T3-4HT **Lab ID: 2628599002** Collected: 02/02/20 13:50 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0064J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 20:03	7440-38-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0084J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 18:48	7440-38-2	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628599

Sample: T3-3HTS **Lab ID: 2628599003** Collected: 02/02/20 14:08 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0072J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 20:09	7440-38-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0065J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 18:54	7440-38-2	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628599

Sample: T3-3HT **Lab ID: 2628599004** Collected: 02/02/20 14:10 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0058J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 20:15	7440-38-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0061J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 19:00	7440-38-2	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628599

Sample: T3-2HTS **Lab ID: 2628599005** Collected: 02/02/20 14:28 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0054J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 20:32	7440-38-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0068J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 19:17	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628599

Sample: T3-2HT **Lab ID: 2628599006** Collected: 02/02/20 14:34 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0056J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 20:38	7440-38-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0065J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 19:23	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628599

Sample: T3-1HT **Lab ID: 2628599007** Collected: 02/02/20 14:35 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0066J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 20:44	7440-38-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0061J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 19:28	7440-38-2	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628599

Sample: T3-4LT **Lab ID: 2628599008** Collected: 02/03/20 10:40 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0048J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 20:49	7440-38-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0065J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 19:34	7440-38-2	D3

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628599

Sample: T3-3LT **Lab ID: 2628599009** Collected: 02/03/20 12:12 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0052J**	mg/L	0.050	0.0035	10	02/04/20 21:50	02/05/20 20:55	7440-38-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0062J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 19:40	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628599

Sample: T3-2LT **Lab ID: 2628599010** Collected: 02/03/20 13:30 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0044J**	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 19:10	7440-38-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0047J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 19:45	7440-38-2	D3

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628599

QC Batch: 42836 | Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A | Analysis Description: 6020B MET
Associated Lab Samples: 2628599001, 2628599002, 2628599003, 2628599004, 2628599005, 2628599006, 2628599007, 2628599008, 2628599009

METHOD BLANK: 195730 Matrix: Water
Associated Lab Samples: 2628599001, 2628599002, 2628599003, 2628599004, 2628599005, 2628599006, 2628599007, 2628599008, 2628599009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	02/05/20 18:15	

LABORATORY CONTROL SAMPLE: 195731

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.097	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 195732 195733

Parameter	Units	2628598001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.11	0.099	106	96	75-125	9	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628599

QC Batch: 42953 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2628599010

METHOD BLANK: 196325 Matrix: Water
Associated Lab Samples: 2628599010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	02/06/20 18:59	

LABORATORY CONTROL SAMPLE: 196326

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 196330 196331

Parameter	Units	2628600001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0061J	0.1	0.1	0.11	0.11	110	107	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.

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

QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628599

QC Batch: 43171 — Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A — Analysis Description: 6020B MET Dissolved
Associated Lab Samples: 2628599001, 2628599002, 2628599003, 2628599004, 2628599005, 2628599006, 2628599007, 2628599008, 2628599009, 2628599010

METHOD BLANK: 197298 — Matrix: Water
Associated Lab Samples: 2628599001, 2628599002, 2628599003, 2628599004, 2628599005, 2628599006, 2628599007, 2628599008, 2628599009, 2628599010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	mg/L	ND	0.0050	0.00035	02/12/20 18:08	

LABORATORY CONTROL SAMPLE: 197299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 197300 197301

Parameter	Units	2628599001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	mg/L	0.0065J	0.1	0.1	0.12	0.11	111	109	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.

QUALIFIERS

Project:	Plant McManus SW
Pace Project No.:	2628599

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McManus SW
Pace Project No.: 2628599

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628599001	**T3-4HTS**	EPA 3005A	42836	EPA 6020B	42909
2628599002	**T3-4HT**	EPA 3005A	42836	EPA 6020B	42909
2628599003	**T3-3HTS**	EPA 3005A	42836	EPA 6020B	42909
2628599004	**T3-3HT**	EPA 3005A	42836	EPA 6020B	42909
2628599005	**T3-2HTS**	EPA 3005A	42836	EPA 6020B	42909
2628599006	**T3-2HT**	EPA 3005A	42836	EPA 6020B	42909
2628599007	**T3-1HT**	EPA 3005A	42836	EPA 6020B	42909
2628599008	**T3-4LT**	EPA 3005A	42836	EPA 6020B	42909
2628599009	**T3-3LT**	EPA 3005A	42836	EPA 6020B	42909
2628599010	**T3-2LT**	EPA 3005A	42953	EPA 6020B	42956
2628599001	**T3-4HTS**	EPA 3005A	43171	EPA 6020B	43192
2628599002	**T3-4HT**	EPA 3005A	43171	EPA 6020B	43192
2628599003	**T3-3HTS**	EPA 3005A	43171	EPA 6020B	43192
2628599004	**T3-3HT**	EPA 3005A	43171	EPA 6020B	43192
2628599005	**T3-2HTS**	EPA 3005A	43171	EPA 6020B	43192
2628599006	**T3-2HT**	EPA 3005A	43171	EPA 6020B	43192
2628599007	**T3-1HT**	EPA 3005A	43171	EPA 6020B	43192
2628599008	**T3-4LT**	EPA 3005A	43171	EPA 6020B	43192
2628599009	**T3-3LT**	EPA 3005A	43171	EPA 6020B	43192
2628599010	**T3-2LT**	EPA 3005A	43171	EPA 6020B	43192

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CHAIN-OF-CUSTODY / Analytical Request D

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields mu

WO# : 2628599

2628599

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Georgia Power	Report To: Millet, Lea	Attention:
Address: 1003 Weatherstone Parkway	Copy To: Wilson, Stephens	Company Name:
Suite 320, Woodstock, GA 30188		Address:
Email: lea.millet@resoluteenv.com	Purchase Order #:	Pace Quote:
Phone: (251)776-2760 Fax:	Project Name: Plant McManus SW	Pace Project Manager: kevin.herring@pacelabs.com,
Requested Due Date:	Project #:	Pace Profile #: 2919

State / Location: GA

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

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

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020 — Y

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T2-4HT	WG	G	2/1/20	1514				1	1										1	
2	MCM-06LT Assigned	WG	G	2/2/20	0850				1	1										1	
3	~~BR~~ MCM-06LT	WG	G	2/2/20	0900				1	1										1	
4	T2-4LT	WG	G	2/2/20	0946				1	1										1	
5	T2-3LT	WG	G	2/2/20	1120				1	1										1	
6	T2-2LT	WG	G	2/2/20	1138				1	1										1	
7	T3-4HTS	WG	G	2/2/20	1344				1	1										1	
8	T3-4HT	WG	G	2/2/20	1350				1	1										1	
9	T3-3HTS	WG	G	2/2/20	1408				1	1										1	
10	T3-3HT	WG	G	2/2/20	1410				1	1										1	
11	T3-2HTS	WG	G	2/2/20	1428				1	1										1	
12	MGM-05HT Assigned	WG	G	2/2/20	1430				1	1										1	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
As Only	Kevin Stephenson	2/3/20	1654	Stephen Wilson	2/3/20	1654	-	Y	Y	Y
	Stephen Wilson	2/4/20	1048	Romero Odidi / Pace	2/4/20	10:48				
	Romero Odidi / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	1216	4.0			

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: Kevin Stephenson / Scott Coleman	
SIGNATURE of SAMPLER: Kevin Stephenson	DATE Signed: 2/3/20

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

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields mus

WO#: 2628599
PM: KH Due Date: 02/07/20
CLIENT: 26-GA Power

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Wilber, Stephen	Company Name:	
	Suite 320, Woodstock, GA 30188			Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:
State / Location: GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals by 6020	Dissolved Metals by 6020	*See Comments	Residual Chlorine (Y/N)
1	MCM-07LT Assigned	WG	G	2/1/20	0940				1	1									1		
2	T1-1LT	WG	G	2/1/20	0950				1	1									1		
3	T1-4LT	WG	G	2/1/20	0956				1	1									1		
4	T1-3LT	WG	G	2/1/20	1006				1	1									1		
5	~~[illegible]~~	WG	G	—	—				1												
6	MCM-07LT	WG	G	2/1/20	1015				1	1									1		
7	T1-2LT	WG	G	2/1/20	1016				1	1									1		
8	T1-4HTS	WG	G	2/1/20	1334				1	1									1		
9	T1-4HT	WG	G	2/1/20	1340				1	1									1		
10	T1-3HTS	WG	G	2/1/20	1352				1	1									1		
11	T1-1HT	WG	G	2/1/20	1355				1	1									1		
12	MCM-06HT Assigned	WG	G	2/1/20	1355				1	1									1		

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020 — Y

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Co, Li Only	Kevin Stephenson	2/3/20	1654	[illegible signature]	2/3/20	1654	—	Y	Y	Y
	[illegible signature]	2/4/20	1048	Romero Hicks / Pace	2/4/20	10:48				
	Romero Hicks / Pace	2/4/20	12:16	R Wellington / Pace	2/4/20	1216	4.0			

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Kevin Stephenson / Scott Glenn
SIGNATURE of SAMPLER: [signature]
DATE Signed: 2/3/20

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

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CHAIN-OF-CUSTODY / Analytical Request Doc

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must b

WO# : 2628599
PM: KH Due Date: 02/07/20
CLIENT: 26-GA Power

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:	Wilson Stephen	Company Name:	
	Suite 320, Woodstock, GA 30188			Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:

State / Location: GA

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

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

Requested Analysis Filtered (Y/N): Dissolved Metals by 6020 – Y

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals by 6020	Dissolved Metals by 6020 Co, Li	Residual Chlorine (Y/N)
1	MCM-D6WT	WG	G	2/1/20	1355				1	1									1	
2	T1-3WT	WG	G	2/1/20	1356				1	1									1	
3	T1-1WT	WG	G	2/1/20	1408				1	1									1	
4	T1-2WTS	WG	G	2/1/20	1416				1	1									1	
5	MCM-07WT Ashpond	WG	G	2/1/20	1420				1	1									1	
6	MCM-07WT	WG	G	2/1/20	1420				1	1									1	
7	T1-2WT	WG	G	2/1/20	1420				1	1									1	
8	T2-2WTS	WG	G	2/1/20	1428				1	1									1	
9	T2-2WT	WG	G	2/1/20	1432				1	1									1	
10	T2-3WTS	WG	G	2/1/20	1446				1	1									1	
11	T2-3WT	WG	G	2/1/20	1450				1	1									1	
12	T2-4WTS	WG	G	2/1/20	1500				1	1									1	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Co, Li Only	Kevin Stephenson	2/3/20	1654	Stephen [illegible]	2/3/20	1654	–	Y	Y	Y
	Stephen [illegible]	2/4/20	10:48	Tomero Hicks / Pace	2/4/20	10:48				
	Tomero Hicks / Pace	2/4/20	12:16	K. Wellington / Pace	2/4/20	12:16	4.0			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

Sample Condition Upon Receipt

Pace Analytical

Client Name: Georgia Power

Project #

WO# : 2628599

PM: KH Due Date: 02/07/20

CLIENT: 26-GA Power

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

Tracking #: ______

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

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

Thermometer Used THR214 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 4.0 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KW 2/4/20

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

Comments/ Resolution: ______

Project Manager Review: ______ **Date:** ______

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

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

February 14, 2020

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

RE: Project: Plant McManus SW
Pace Project No.: 2628600

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on February 04, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

cc: Veronica Faye, Resolute
Trent Godwin, Resolute Environmental & Water Resources
Kristen Jurinko
Lea Millet, Resolute Environmental & Water Resources
Lauren Petty, Southern Company Services, Inc.
Kevin Stephenson, Resolute Environmental & Water Resources Consulting, LLC
Stephen Wilson, Resolute Environmental & Water Resources Consulting, LLC

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CERTIFICATIONS

Project:	Plant McManus SW
Pace Project No.:	2628600

Pace Analytical Services Atlanta

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

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Peachtree Corners, GA 30092
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SAMPLE SUMMARY

Project: Plant McManus SW
Pace Project No.: 2628600

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2628600001	**MCM-07LT ASHPOND**	Water	02/01/20 09:40	02/04/20 08:00
2628600002	**MCM-07LT**	Water	02/01/20 10:15	02/04/20 08:00
2628600003	**MCM-06HT ASHPOND**	Water	02/01/20 13:55	02/04/20 08:00
2628600004	**MCM-06HT**	Water	02/01/20 13:55	02/04/20 08:00
2628600005	**MCM-07HT ASHPOND**	Water	02/01/20 14:20	02/04/20 08:00
2628600006	**MCM-07HT**	Water	02/01/20 14:20	02/04/20 08:00
2628600007	**MCM-06LT ASHPOND**	Water	02/02/20 08:50	02/04/20 08:00
2628600008	**MCM-06LT**	Water	02/02/20 09:00	02/04/20 08:00
2628600009	**MCM-05HT ASHPOND**	Water	02/02/20 14:30	02/04/20 08:00
2628600010	**MCM-05HT**	Water	02/02/20 14:46	02/04/20 08:00
2628600011	**MCM-05LT ASHPOND**	Water	02/03/20 09:45	02/04/20 08:00
2628600012	**MCM-05LT**	Water	02/03/20 09:47	02/04/20 08:00
2628600013	**DUP-1**	Water	02/03/20 00:00	02/04/20 08:00
2628600014	**T2-1HT**	Water	02/01/20 13:55	02/04/20 08:00
2628600015	**T2-2HTS**	Water	02/01/20 14:28	02/04/20 08:00
2628600016	**T2-2HT**	Water	02/01/20 14:32	02/04/20 08:00
2628600017	**T2-3HTS**	Water	02/01/20 14:46	02/04/20 08:00
2628600018	**T2-3HT**	Water	02/01/20 14:50	02/04/20 08:00
2628600019	**T2-4HTS**	Water	02/01/20 15:00	02/04/20 08:00
2628600020	**T2-4HT**	Water	02/01/20 15:14	02/04/20 08:00
2628600021	**T2-4LT**	Water	02/02/20 09:46	02/04/20 08:00
2628600022	**T2-3LT**	Water	02/02/20 11:20	02/04/20 08:00
2628600023	**T2-2LT**	Water	02/02/20 11:38	02/04/20 08:00
2628600024	**T1-1LT**	Water	02/01/20 09:50	02/04/20 08:00
2628600025	**T1-4LT**	Water	02/01/20 09:56	02/04/20 08:00
2628600026	**T1-3LT**	Water	02/01/20 10:06	02/04/20 08:00
2628600027	**T1-2LT**	Water	02/01/20 10:16	02/04/20 08:00
2628600028	**T1-4HTS**	Water	02/01/20 13:34	02/04/20 08:00
2628600029	**T1-4HT**	Water	02/01/20 13:40	02/04/20 08:00
2628600030	**T1-3HTS**	Water	02/01/20 13:52	02/04/20 08:00
2628600031	**T1-3HT**	Water	02/01/20 13:56	02/04/20 08:00
2628600032	**T1-1HT**	Water	02/01/20 14:08	02/04/20 08:00
2628600033	**T1-2HTS**	Water	02/01/20 14:16	02/04/20 08:00
2628600034	**T1-2HT**	Water	02/01/20 14:20	02/04/20 08:00
2628600035	**T3-4HTS**	Water	02/02/20 13:44	02/04/20 08:00
2628600036	**T3-4HT**	Water	02/02/20 13:50	02/04/20 08:00
2628600037	**T3-3HTS**	Water	02/02/20 14:08	02/04/20 08:00

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110 Technology Parkway
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SAMPLE SUMMARY

Project: Plant McManus SW
Pace Project No.: 2628600

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2628600038	**T3-3HT**	Water	02/02/20 14:10	02/04/20 08:00
2628600039	**T3-2HTS**	Water	02/02/20 14:28	02/04/20 08:00
2628600040	**T3-2HT**	Water	02/02/20 14:34	02/04/20 08:00
2628600041	**T3-1HT**	Water	02/02/20 14:35	02/04/20 08:00
2628600042	**T3-4LT**	Water	02/03/20 10:40	02/04/20 08:00
2628600043	**T3-3LT**	Water	02/03/20 12:12	02/04/20 08:00
2628600044	**T3-2LT**	Water	02/03/20 13:30	02/04/20 08:00

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SAMPLE ANALYTE COUNT

Project: Plant McManus SW
Pace Project No.: 2628600

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2628600001	**MCM-07LT ASHPOND**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600002	**MCM-07LT**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600003	**MCM-06HT ASHPOND**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600004	**MCM-06HT**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600005	**MCM-07HT ASHPOND**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600006	**MCM-07HT**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600007	**MCM-06LT ASHPOND**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600008	**MCM-06LT**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600009	**MCM-05HT ASHPOND**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600010	**MCM-05HT**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600011	**MCM-05LT ASHPOND**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600012	**MCM-05LT**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600013	**DUP-1**	EPA 6020B	CSW	3
		EPA 6020B	CSW	3
2628600014	**T2-1HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600015	**T2-2HTS**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600016	**T2-2HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600017	**T2-3HTS**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600018	**T2-3HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600019	**T2-4HTS**	EPA 6020B	CSW	2

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SAMPLE ANALYTE COUNT

Project: Plant McManus SW
Pace Project No.: 2628600

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 6020B	CSW	2
2628600020	**T2-4HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600021	**T2-4LT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600022	**T2-3LT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600023	**T2-2LT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600024	**T1-1LT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600025	**T1-4LT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600026	**T1-3LT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600027	**T1-2LT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600028	**T1-4HTS**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600029	**T1-4HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600030	**T1-3HTS**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600031	**T1-3HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600032	**T1-1HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600033	**T1-2HTS**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600034	**T1-2HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600035	**T3-4HTS**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600036	**T3-4HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600037	**T3-3HTS**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2

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SAMPLE ANALYTE COUNT

Project: Plant McManus SW
Pace Project No.: 2628600

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2628600038	**T3-3HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600039	**T3-2HTS**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600040	**T3-2HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600041	**T3-1HT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600042	**T3-4LT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600043	**T3-3LT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2
2628600044	**T3-2LT**	EPA 6020B	CSW	2
		EPA 6020B	CSW	2

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SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 2628600

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628600001	**MCM-07LT ASHPOND**					
EPA 6020B	Lithium	0.022J	mg/L	0.30	02/06/20 19:16	D3
EPA 6020B	Arsenic, Dissolved	0.0061J	mg/L	0.050	02/12/20 19:51	D3
EPA 6020B	Lithium, Dissolved	0.022J	mg/L	0.30	02/12/20 19:51	D3
2628600002	**MCM-07LT**					
EPA 6020B	Arsenic	0.022J	mg/L	0.050	02/06/20 19:39	D3
EPA 6020B	Lithium	0.053J	mg/L	0.30	02/06/20 19:39	D3
EPA 6020B	Arsenic, Dissolved	0.022J	mg/L	0.050	02/12/20 19:57	D3
EPA 6020B	Lithium, Dissolved	0.055J	mg/L	0.30	02/12/20 19:57	D3
2628600003	**MCM-06HT ASHPOND**					
EPA 6020B	Arsenic	0.0045J	mg/L	0.050	02/06/20 19:44	D3
EPA 6020B	Lithium	0.023J	mg/L	0.30	02/06/20 19:44	D3
EPA 6020B	Arsenic, Dissolved	0.0040J	mg/L	0.050	02/12/20 20:03	D3
EPA 6020B	Lithium, Dissolved	0.023J	mg/L	0.30	02/12/20 20:03	D3
2628600004	**MCM-06HT**					
EPA 6020B	Arsenic	0.46	mg/L	0.050	02/06/20 19:50	
EPA 6020B	Lithium	0.11J	mg/L	0.30	02/06/20 19:50	D3
EPA 6020B	Arsenic, Dissolved	0.25	mg/L	0.050	02/12/20 20:08	
EPA 6020B	Lithium, Dissolved	0.11J	mg/L	0.30	02/12/20 20:08	D3
2628600005	**MCM-07HT ASHPOND**					
EPA 6020B	Lithium	0.020J	mg/L	0.30	02/06/20 20:07	D3
EPA 6020B	Lithium, Dissolved	0.020J	mg/L	0.30	02/12/20 20:26	D3
2628600006	**MCM-07HT**					
EPA 6020B	Arsenic	0.022J	mg/L	0.050	02/06/20 20:13	D3
EPA 6020B	Lithium	0.050J	mg/L	0.30	02/06/20 20:13	D3
EPA 6020B	Arsenic, Dissolved	0.023J	mg/L	0.050	02/12/20 20:31	D3
EPA 6020B	Lithium, Dissolved	0.048J	mg/L	0.30	02/12/20 20:31	D3
2628600007	**MCM-06LT ASHPOND**					
EPA 6020B	Arsenic	0.0047J	mg/L	0.050	02/06/20 20:19	D3
EPA 6020B	Lithium	0.022J	mg/L	0.30	02/06/20 20:19	D3
EPA 6020B	Lithium, Dissolved	0.021J	mg/L	0.30	02/12/20 20:37	D3
2628600008	**MCM-06LT**					
EPA 6020B	Arsenic	0.50	mg/L	0.050	02/06/20 20:24	
EPA 6020B	Lithium	0.10J	mg/L	0.30	02/06/20 20:24	D3
EPA 6020B	Arsenic, Dissolved	0.50	mg/L	0.050	02/12/20 20:43	
EPA 6020B	Lithium, Dissolved	0.099J	mg/L	0.30	02/12/20 20:43	D3
2628600009	**MCM-05HT ASHPOND**					
EPA 6020B	Lithium	0.022J	mg/L	0.30	02/06/20 20:30	D3
EPA 6020B	Arsenic, Dissolved	0.0051J	mg/L	0.050	02/12/20 20:48	D3
EPA 6020B	Lithium, Dissolved	0.021J	mg/L	0.30	02/12/20 20:48	D3
2628600010	**MCM-05HT**					
EPA 6020B	Lithium	0.022J	mg/L	0.30	02/06/20 20:36	D3
EPA 6020B	Arsenic, Dissolved	0.0039J	mg/L	0.050	02/12/20 09:55	B,D3

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

SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 2628600

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628600010	**MCM-05HT**					
EPA 6020B	Lithium, Dissolved	0.023J	mg/L	0.30	02/12/20 09:55	D3
2628600011	**MCM-05LT ASHPOND**					
EPA 6020B	Lithium	0.022J	mg/L	0.30	02/06/20 20:42	D3
EPA 6020B	Arsenic, Dissolved	0.0051J	mg/L	0.050	02/12/20 10:01	B,D3
EPA 6020B	Lithium, Dissolved	0.022J	mg/L	0.30	02/12/20 10:01	D3
2628600012	**MCM-05LT**					
EPA 6020B	Lithium	0.022J	mg/L	0.30	02/06/20 20:47	D3
EPA 6020B	Arsenic, Dissolved	0.0041J	mg/L	0.050	02/12/20 10:24	B,D3
EPA 6020B	Lithium, Dissolved	0.023J	mg/L	0.30	02/12/20 10:24	D3
2628600013	**DUP-1**					
EPA 6020B	Arsenic	0.0054J	mg/L	0.050	02/06/20 20:53	D3
EPA 6020B	Lithium	0.082J	mg/L	0.30	02/06/20 20:53	D3
EPA 6020B	Arsenic, Dissolved	0.0078J	mg/L	0.050	02/12/20 10:30	B,D3
EPA 6020B	Lithium, Dissolved	0.081J	mg/L	0.30	02/12/20 10:30	D3
2628600014	**T2-1HT**					
EPA 6020B	Lithium	0.055J	mg/L	0.30	02/06/20 12:02	D3
EPA 6020B	Lithium, Dissolved	0.060J	mg/L	0.30	02/13/20 14:15	D3
2628600015	**T2-2HTS**					
EPA 6020B	Lithium	0.071J	mg/L	0.30	02/06/20 12:07	D3
EPA 6020B	Lithium, Dissolved	0.065J	mg/L	0.30	02/13/20 14:20	D3
2628600016	**T2-2HT**					
EPA 6020B	Lithium	0.10J	mg/L	0.30	02/06/20 12:13	D3
EPA 6020B	Lithium, Dissolved	0.093J	mg/L	0.30	02/13/20 14:26	D3
2628600017	**T2-3HTS**					
EPA 6020B	Lithium	0.10J	mg/L	0.30	02/06/20 12:19	D3
EPA 6020B	Lithium, Dissolved	0.10J	mg/L	0.30	02/13/20 14:49	D3
2628600018	**T2-3HT**					
EPA 6020B	Lithium	0.10J	mg/L	0.30	02/06/20 12:24	D3
EPA 6020B	Lithium, Dissolved	0.11J	mg/L	0.30	02/13/20 14:55	D3
2628600019	**T2-4HTS**					
EPA 6020B	Lithium	0.10J	mg/L	0.30	02/06/20 12:30	D3
EPA 6020B	Lithium, Dissolved	0.10J	mg/L	0.30	02/13/20 15:35	D3
2628600020	**T2-4HT**					
EPA 6020B	Lithium	0.10J	mg/L	0.30	02/06/20 12:36	D3
EPA 6020B	Lithium, Dissolved	0.11J	mg/L	0.30	02/13/20 15:43	D3
2628600021	**T2-4LT**					
EPA 6020B	Lithium	0.085J	mg/L	0.30	02/06/20 12:42	D3
EPA 6020B	Lithium, Dissolved	0.086J	mg/L	0.30	02/13/20 15:49	D3
2628600022	**T2-3LT**					
EPA 6020B	Lithium	0.046J	mg/L	0.30	02/06/20 12:47	D3

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(770)734-4200

SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 2628600

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628600022	**T2-3LT**					
EPA 6020B	Lithium, Dissolved	0.049J	mg/L	0.30	02/13/20 15:54	D3
2628600023	**T2-2LT**					
EPA 6020B	Lithium	0.066J	mg/L	0.30	02/06/20 12:53	D3
EPA 6020B	Lithium, Dissolved	0.063J	mg/L	0.30	02/13/20 16:29	D3
2628600024	**T1-1LT**					
EPA 6020B	Lithium	0.027J	mg/L	0.30	02/05/20 18:26	
EPA 6020B	Lithium, Dissolved	0.025J	mg/L	0.30	02/13/20 16:35	D3
2628600025	**T1-4LT**					
EPA 6020B	Lithium	0.095J	mg/L	0.30	02/05/20 18:49	
EPA 6020B	Lithium, Dissolved	0.099J	mg/L	0.30	02/13/20 16:41	D3
2628600026	**T1-3LT**					
EPA 6020B	Lithium	0.023J	mg/L	0.30	02/05/20 18:55	
EPA 6020B	Lithium, Dissolved	0.025J	mg/L	0.30	02/13/20 16:47	D3
2628600027	**T1-2LT**					
EPA 6020B	Lithium	0.029J	mg/L	0.30	02/05/20 19:00	
EPA 6020B	Lithium, Dissolved	0.031J	mg/L	0.30	02/13/20 16:52	D3
2628600028	**T1-4HTS**					
EPA 6020B	Lithium	0.092J	mg/L	0.30	02/05/20 19:06	
EPA 6020B	Lithium, Dissolved	0.10J	mg/L	0.30	02/13/20 16:58	D3
2628600029	**T1-4HT**					
EPA 6020B	Lithium	0.099J	mg/L	0.30	02/05/20 19:23	
EPA 6020B	Lithium, Dissolved	0.10J	mg/L	0.30	02/13/20 17:15	D3
2628600030	**T1-3HTS**					
EPA 6020B	Lithium	0.069J	mg/L	0.30	02/05/20 19:29	
EPA 6020B	Lithium, Dissolved	0.091J	mg/L	0.30	02/13/20 17:21	D3
2628600031	**T1-3HT**					
EPA 6020B	Lithium	0.096J	mg/L	0.30	02/05/20 19:35	
EPA 6020B	Lithium, Dissolved	0.11J	mg/L	0.30	02/13/20 17:27	D3
2628600032	**T1-1HT**					
EPA 6020B	Lithium	0.039J	mg/L	0.30	02/05/20 19:41	
EPA 6020B	Lithium, Dissolved	0.049J	mg/L	0.30	02/13/20 17:32	D3
2628600033	**T1-2HTS**					
EPA 6020B	Lithium	0.066J	mg/L	0.30	02/05/20 19:46	
EPA 6020B	Lithium, Dissolved	0.070J	mg/L	0.30	02/13/20 17:38	D3
2628600034	**T1-2HT**					
EPA 6020B	Lithium	0.10J	mg/L	0.30	02/05/20 19:52	
EPA 6020B	Lithium, Dissolved	0.098J	mg/L	0.30	02/12/20 18:20	D3
2628600035	**T3-4HTS**					
EPA 6020B	Lithium	0.10J	mg/L	0.30	02/05/20 19:58	

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SUMMARY OF DETECTION

Project: Plant McManus SW
Pace Project No.: 2628600

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628600035	**T3-4HTS**					
EPA 6020B	Lithium, Dissolved	0.097J	mg/L	0.30	02/12/20 18:25	D3
2628600036	**T3-4HT**					
EPA 6020B	Lithium	0.097J	mg/L	0.30	02/05/20 20:03	
EPA 6020B	Lithium, Dissolved	0.094J	mg/L	0.30	02/12/20 18:48	D3
2628600037	**T3-3HTS**					
EPA 6020B	Lithium	0.087J	mg/L	0.30	02/05/20 20:09	
EPA 6020B	Lithium, Dissolved	0.087J	mg/L	0.30	02/12/20 18:54	D3
2628600038	**T3-3HT**					
EPA 6020B	Lithium	0.095J	mg/L	0.30	02/05/20 20:15	
EPA 6020B	Lithium, Dissolved	0.095J	mg/L	0.30	02/12/20 19:00	D3
2628600039	**T3-2HTS**					
EPA 6020B	Lithium	0.081J	mg/L	0.30	02/05/20 20:32	
EPA 6020B	Lithium, Dissolved	0.077J	mg/L	0.30	02/12/20 19:17	D3
2628600040	**T3-2HT**					
EPA 6020B	Lithium	0.097J	mg/L	0.30	02/05/20 20:38	
EPA 6020B	Lithium, Dissolved	0.093J	mg/L	0.30	02/12/20 19:23	D3
2628600041	**T3-1HT**					
EPA 6020B	Lithium	0.086J	mg/L	0.30	02/05/20 20:44	
EPA 6020B	Lithium, Dissolved	0.084J	mg/L	0.30	02/12/20 19:28	D3
2628600042	**T3-4LT**					
EPA 6020B	Lithium	0.076J	mg/L	0.30	02/05/20 20:49	
EPA 6020B	Lithium, Dissolved	0.077J	mg/L	0.30	02/12/20 19:34	D3
2628600043	**T3-3LT**					
EPA 6020B	Lithium	0.081J	mg/L	0.30	02/05/20 20:55	
EPA 6020B	Lithium, Dissolved	0.078J	mg/L	0.30	02/12/20 19:40	D3
2628600044	**T3-2LT**					
EPA 6020B	Lithium	0.083J	mg/L	0.30	02/06/20 19:10	D3
EPA 6020B	Lithium, Dissolved	0.087J	mg/L	0.30	02/12/20 19:45	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: MCM-07LT ASHPOND **Lab ID: 2628600001** Collected: 02/01/20 09:40 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 19:16	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 19:16	7440-48-4	D3
Lithium	**0.022J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 19:16	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0061J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 19:51	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 19:51	7440-48-4	D3
Lithium, Dissolved	**0.022J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 19:51	7439-93-2	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: MCM-07LT **Lab ID: 2628600002** Collected: 02/01/20 10:15 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.022J**	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 19:39	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 19:39	7440-48-4	D3
Lithium	**0.053J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 19:39	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.022J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 19:57	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 19:57	7440-48-4	D3
Lithium, Dissolved	**0.055J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 19:57	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW

Pace Project No.: 2628600

Sample: MCM-06HT ASHPOND **Lab ID: 2628600003** Collected: 02/01/20 13:55 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0045J**	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 19:44	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 19:44	7440-48-4	D3
Lithium	**0.023J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 19:44	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0040J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 20:03	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 20:03	7440-48-4	D3
Lithium, Dissolved	**0.023J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 20:03	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: MCM-06HT **Lab ID: 2628600004** Collected: 02/01/20 13:55 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.46**	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 19:50	7440-38-2	
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 19:50	7440-48-4	D3
Lithium	**0.11J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 19:50	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.25**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 20:08	7440-38-2	
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 20:08	7440-48-4	D3
Lithium, Dissolved	**0.11J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 20:08	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW

Pace Project No.: 2628600

Sample: MCM-07HT ASHPOND **Lab ID: 2628600005** Collected: 02/01/20 14:20 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 20:07	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 20:07	7440-48-4	D3
Lithium	**0.020J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 20:07	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	ND	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 20:26	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 20:26	7440-48-4	D3
Lithium, Dissolved	**0.020J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 20:26	7439-93-2	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: MCM-07HT **Lab ID: 2628600006** Collected: 02/01/20 14:20 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.022J**	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 20:13	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 20:13	7440-48-4	D3
Lithium	**0.050J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 20:13	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.023J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 20:31	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 20:31	7440-48-4	D3
Lithium, Dissolved	**0.048J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 20:31	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: MCM-06LT ASHPOND **Lab ID: 2628600007** Collected: 02/02/20 08:50 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0047J**	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 20:19	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 20:19	7440-48-4	D3
Lithium	**0.022J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 20:19	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	ND	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 20:37	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 20:37	7440-48-4	D3
Lithium, Dissolved	**0.021J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 20:37	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: MCM-06LT **Lab ID: 2628600008** Collected: 02/02/20 09:00 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.50**	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 20:24	7440-38-2	
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 20:24	7440-48-4	D3
Lithium	**0.10J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 20:24	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.50**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 20:43	7440-38-2	
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 20:43	7440-48-4	D3
Lithium, Dissolved	**0.099J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 20:43	7439-93-2	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: MCM-05HT ASHPOND **Lab ID: 2628600009** Collected: 02/02/20 14:30 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 20:30	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 20:30	7440-48-4	D3
Lithium	**0.022J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 20:30	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0051J**	mg/L	0.050	0.0035	10	02/11/20 15:11	02/12/20 20:48	7440-38-2	D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 20:48	7440-48-4	D3
Lithium, Dissolved	**0.021J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 20:48	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: MCM-05HT **Lab ID: 2628600010** Collected: 02/02/20 14:46 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 20:36	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 20:36	7440-48-4	D3
Lithium	**0.022J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 20:36	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0039J**	mg/L	0.050	0.0035	10	02/11/20 12:56	02/12/20 09:55	7440-38-2	B,D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 12:56	02/12/20 09:55	7440-48-4	D3
Lithium, Dissolved	**0.023J**	mg/L	0.30	0.0078	10	02/11/20 12:56	02/12/20 09:55	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: MCM-05LT ASHPOND **Lab ID: 2628600011** Collected: 02/03/20 09:45 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 20:42	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 20:42	7440-48-4	D3
Lithium	**0.022J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 20:42	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0051J**	mg/L	0.050	0.0035	10	02/11/20 12:56	02/12/20 10:01	7440-38-2	B,D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 12:56	02/12/20 10:01	7440-48-4	D3
Lithium, Dissolved	**0.022J**	mg/L	0.30	0.0078	10	02/11/20 12:56	02/12/20 10:01	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: MCM-05LT **Lab ID: 2628600012** Collected: 02/03/20 09:47 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 20:47	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 20:47	7440-48-4	D3
Lithium	**0.022J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 20:47	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0041J**	mg/L	0.050	0.0035	10	02/11/20 12:56	02/12/20 10:24	7440-38-2	B,D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 12:56	02/12/20 10:24	7440-48-4	D3
Lithium, Dissolved	**0.023J**	mg/L	0.30	0.0078	10	02/11/20 12:56	02/12/20 10:24	7439-93-2	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: DUP-1 **Lab ID: 2628600013** Collected: 02/03/20 00:00 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0054J**	mg/L	0.050	0.0035	10	02/06/20 13:10	02/06/20 20:53	7440-38-2	D3
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 20:53	7440-48-4	D3
Lithium	**0.082J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 20:53	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic, Dissolved	**0.0078J**	mg/L	0.050	0.0035	10	02/11/20 12:56	02/12/20 10:30	7440-38-2	B,D3
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 12:56	02/12/20 10:30	7440-48-4	D3
Lithium, Dissolved	**0.081J**	mg/L	0.30	0.0078	10	02/11/20 12:56	02/12/20 10:30	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T2-1HT **Lab ID: 2628600014** Collected: 02/01/20 13:55 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 09:25	02/06/20 12:02	7440-48-4	D3
Lithium	**0.055J**	mg/L	0.30	0.0078	10	02/04/20 09:25	02/06/20 12:02	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 14:15	7440-48-4	D3
Lithium, Dissolved	**0.060J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 14:15	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T2-2HTS **Lab ID: 2628600015** Collected: 02/01/20 14:28 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 09:25	02/06/20 12:07	7440-48-4	D3
Lithium	**0.071J**	mg/L	0.30	0.0078	10	02/04/20 09:25	02/06/20 12:07	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 14:20	7440-48-4	D3
Lithium, Dissolved	**0.065J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 14:20	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T2-2HT **Lab ID: 2628600016** Collected: 02/01/20 14:32 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 09:25	02/06/20 12:13	7440-48-4	D3
Lithium	**0.10J**	mg/L	0.30	0.0078	10	02/04/20 09:25	02/06/20 12:13	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 14:26	7440-48-4	D3
Lithium, Dissolved	**0.093J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 14:26	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T2-3HTS **Lab ID: 2628600017** Collected: 02/01/20 14:46 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 09:25	02/06/20 12:19	7440-48-4	D3
Lithium	**0.10J**	mg/L	0.30	0.0078	10	02/04/20 09:25	02/06/20 12:19	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 14:49	7440-48-4	D3
Lithium, Dissolved	**0.10J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 14:49	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T2-3HT **Lab ID: 2628600018** Collected: 02/01/20 14:50 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 09:25	02/06/20 12:24	7440-48-4	D3
Lithium	**0.10J**	mg/L	0.30	0.0078	10	02/04/20 09:25	02/06/20 12:24	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 14:55	7440-48-4	D3
Lithium, Dissolved	**0.11J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 14:55	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T2-4HTS **Lab ID: 2628600019** Collected: 02/01/20 15:00 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 09:25	02/06/20 12:30	7440-48-4	D3
Lithium	**0.10J**	mg/L	0.30	0.0078	10	02/04/20 09:25	02/06/20 12:30	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 15:35	7440-48-4	D3
Lithium, Dissolved	**0.10J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 15:35	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T2-4HT **Lab ID: 2628600020** Collected: 02/01/20 15:14 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 09:25	02/06/20 12:36	7440-48-4	D3
Lithium	**0.10J**	mg/L	0.30	0.0078	10	02/04/20 09:25	02/06/20 12:36	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 15:43	7440-48-4	D3
Lithium, Dissolved	**0.11J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 15:43	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T2-4LT **Lab ID: 2628600021** Collected: 02/02/20 09:46 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 09:25	02/06/20 12:42	7440-48-4	D3
Lithium	**0.085J**	mg/L	0.30	0.0078	10	02/04/20 09:25	02/06/20 12:42	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 15:49	7440-48-4	D3
Lithium, Dissolved	**0.086J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 15:49	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T2-3LT **Lab ID: 2628600022** Collected: 02/02/20 11:20 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 09:25	02/06/20 12:47	7440-48-4	D3
Lithium	**0.046J**	mg/L	0.30	0.0078	10	02/04/20 09:25	02/06/20 12:47	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 15:54	7440-48-4	D3
Lithium, Dissolved	**0.049J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 15:54	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T2-2LT **Lab ID: 2628600023** Collected: 02/02/20 11:38 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 09:25	02/06/20 12:53	7440-48-4	D3
Lithium	**0.066J**	mg/L	0.30	0.0078	10	02/04/20 09:25	02/06/20 12:53	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 16:29	7440-48-4	D3
Lithium, Dissolved	**0.063J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 16:29	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T1-1LT **Lab ID: 2628600024** Collected: 02/01/20 09:50 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 18:26	7440-48-4	
Lithium	**0.027J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 18:26	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 16:35	7440-48-4	D3
Lithium, Dissolved	**0.025J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 16:35	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T1-4LT **Lab ID: 2628600025** Collected: 02/01/20 09:56 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 18:49	7440-48-4	
Lithium	**0.095J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 18:49	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 16:41	7440-48-4	D3
Lithium, Dissolved	**0.099J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 16:41	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T1-3LT **Lab ID: 2628600026** Collected: 02/01/20 10:06 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 18:55	7440-48-4	
Lithium	**0.023J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 18:55	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 16:47	7440-48-4	D3
Lithium, Dissolved	**0.025J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 16:47	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T1-2LT **Lab ID: 2628600027** Collected: 02/01/20 10:16 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 19:00	7440-48-4	
Lithium	**0.029J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 19:00	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 16:52	7440-48-4	D3
Lithium, Dissolved	**0.031J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 16:52	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T1-4HTS **Lab ID: 2628600028** Collected: 02/01/20 13:34 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 19:06	7440-48-4	
Lithium	**0.092J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 19:06	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 16:58	7440-48-4	D3
Lithium, Dissolved	**0.10J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 16:58	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T1-4HT **Lab ID: 2628600029** Collected: 02/01/20 13:40 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 19:23	7440-48-4	
Lithium	**0.099J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 19:23	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 17:15	7440-48-4	D3
Lithium, Dissolved	**0.10J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 17:15	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T1-3HTS **Lab ID: 2628600030** Collected: 02/01/20 13:52 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 19:29	7440-48-4	
Lithium	**0.069J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 19:29	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 17:21	7440-48-4	D3
Lithium, Dissolved	**0.091J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 17:21	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T1-3HT **Lab ID: 2628600031** Collected: 02/01/20 13:56 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 19:35	7440-48-4	
Lithium	**0.096J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 19:35	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 17:27	7440-48-4	D3
Lithium, Dissolved	**0.11J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 17:27	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T1-1HT **Lab ID: 2628600032** Collected: 02/01/20 14:08 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 19:41	7440-48-4	
Lithium	**0.039J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 19:41	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 17:32	7440-48-4	D3
Lithium, Dissolved	**0.049J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 17:32	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T1-2HTS **Lab ID: 2628600033** Collected: 02/01/20 14:16 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 19:46	7440-48-4	
Lithium	**0.066J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 19:46	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/13/20 17:38	7440-48-4	D3
Lithium, Dissolved	**0.070J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/13/20 17:38	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T1-2HT **Lab ID: 2628600034** Collected: 02/01/20 14:20 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 19:52	7440-48-4	
Lithium	**0.10J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 19:52	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 18:20	7440-48-4	D3
Lithium, Dissolved	**0.098J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 18:20	7439-93-2	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T3-4HTS **Lab ID: 2628600035** Collected: 02/02/20 13:44 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 19:58	7440-48-4	
Lithium	**0.10J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 19:58	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 18:25	7440-48-4	D3
Lithium, Dissolved	**0.097J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 18:25	7439-93-2	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T3-4HT **Lab ID: 2628600036** Collected: 02/02/20 13:50 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 20:03	7440-48-4	
Lithium	**0.097J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 20:03	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 18:48	7440-48-4	D3
Lithium, Dissolved	**0.094J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 18:48	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T3-3HTS **Lab ID: 2628600037** Collected: 02/02/20 14:08 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 20:09	7440-48-4	
Lithium	**0.087J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 20:09	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 18:54	7440-48-4	D3
Lithium, Dissolved	**0.087J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 18:54	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T3-3HT **Lab ID: 2628600038** Collected: 02/02/20 14:10 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 20:15	7440-48-4	
Lithium	**0.095J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 20:15	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 19:00	7440-48-4	D3
Lithium, Dissolved	**0.095J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 19:00	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T3-2HTS **Lab ID: 2628600039** Collected: 02/02/20 14:28 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 20:32	7440-48-4	
Lithium	**0.081J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 20:32	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 19:17	7440-48-4	D3
Lithium, Dissolved	**0.077J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 19:17	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T3-2HT **Lab ID: 2628600040** Collected: 02/02/20 14:34 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 20:38	7440-48-4	
Lithium	**0.097J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 20:38	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 19:23	7440-48-4	D3
Lithium, Dissolved	**0.093J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 19:23	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T3-1HT **Lab ID: 2628600041** Collected: 02/02/20 14:35 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 20:44	7440-48-4	
Lithium	**0.086J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 20:44	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 19:28	7440-48-4	D3
Lithium, Dissolved	**0.084J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 19:28	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW

Pace Project No.: 2628600

Sample: T3-4LT **Lab ID: 2628600042** Collected: 02/03/20 10:40 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 20:49	7440-48-4	
Lithium	**0.076J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 20:49	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 19:34	7440-48-4	D3
Lithium, Dissolved	**0.077J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 19:34	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T3-3LT **Lab ID: 2628600043** Collected: 02/03/20 12:12 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/04/20 21:50	02/05/20 20:55	7440-48-4	
Lithium	**0.081J**	mg/L	0.30	0.0078	10	02/04/20 21:50	02/05/20 20:55	7439-93-2	
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 19:40	7440-48-4	D3
Lithium, Dissolved	**0.078J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 19:40	7439-93-2	D3

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ANALYTICAL RESULTS

Project: Plant McManus SW
Pace Project No.: 2628600

Sample: T3-2LT **Lab ID: 2628600044** Collected: 02/03/20 13:30 Received: 02/04/20 08:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt	ND	mg/L	0.050	0.0030	10	02/06/20 13:10	02/06/20 19:10	7440-48-4	D3
Lithium	**0.083J**	mg/L	0.30	0.0078	10	02/06/20 13:10	02/06/20 19:10	7439-93-2	D3
6020B MET ICPMS, Lab Filtered	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Cobalt, Dissolved	ND	mg/L	0.050	0.0030	10	02/11/20 15:11	02/12/20 19:45	7440-48-4	D3
Lithium, Dissolved	**0.087J**	mg/L	0.30	0.0078	10	02/11/20 15:11	02/12/20 19:45	7439-93-2	D3

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628600

QC Batch: 42836 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2628600024, 2628600025, 2628600026, 2628600027, 2628600028, 2628600029, 2628600030, 2628600031, 2628600032, 2628600033, 2628600034, 2628600035, 2628600036, 2628600037, 2628600038, 2628600039, 2628600040, 2628600041, 2628600042, 2628600043

METHOD BLANK: 195730 Matrix: Water
Associated Lab Samples: 2628600024, 2628600025, 2628600026, 2628600027, 2628600028, 2628600029, 2628600030, 2628600031, 2628600032, 2628600033, 2628600034, 2628600035, 2628600036, 2628600037, 2628600038, 2628600039, 2628600040, 2628600041, 2628600042, 2628600043

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cobalt	mg/L	ND	0.0050	0.00030	02/05/20 18:15	
Lithium	mg/L	ND	0.030	0.00078	02/05/20 18:15	

LABORATORY CONTROL SAMPLE: 195731

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cobalt	mg/L	0.1	0.099	99	80-120	
Lithium	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 195732 195733

Parameter	Units	2628598001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cobalt	mg/L	ND	0.1	0.1	0.10	0.096	101	96	75-125	5	20	
Lithium	mg/L	0.027J	0.1	0.1	0.13J	0.13J	103	99	75-125		20	

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QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628600

QC Batch: 42953 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2628600001, 2628600002, 2628600003, 2628600004, 2628600005, 2628600006, 2628600007, 2628600008, 2628600009, 2628600010, 2628600011, 2628600012, 2628600013, 2628600044

METHOD BLANK: 196325 Matrix: Water
Associated Lab Samples: 2628600001, 2628600002, 2628600003, 2628600004, 2628600005, 2628600006, 2628600007, 2628600008, 2628600009, 2628600010, 2628600011, 2628600012, 2628600013, 2628600044

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	02/06/20 18:59	
Cobalt	mg/L	ND	0.0050	0.00030	02/06/20 18:59	
Lithium	mg/L	ND	0.030	0.00078	02/06/20 18:59	

LABORATORY CONTROL SAMPLE: 196326

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.10	102	80-120	
Cobalt	mg/L	0.1	0.11	106	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 196330 196331

Parameter	Units	2628600001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0061J	0.1	0.1	0.11	0.11	110	107	75-125	3	20	
Cobalt	mg/L	ND	0.1	0.1	0.11	0.10	105	104	75-125	0	20	
Lithium	mg/L	0.022J	0.1	0.1	0.13J	0.12J	103	102	75-125		20	

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QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628600

QC Batch: 43169 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET Dissolved
Associated Lab Samples: 2628600010, 2628600011, 2628600012, 2628600013

METHOD BLANK: 197290 Matrix: Water
Associated Lab Samples: 2628600010, 2628600011, 2628600012, 2628600013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	mg/L	ND	0.0050	0.00035	02/12/20 09:44	
Cobalt, Dissolved	mg/L	ND	0.0050	0.00030	02/12/20 09:44	
Lithium, Dissolved	mg/L	ND	0.030	0.00078	02/12/20 09:44	

LABORATORY CONTROL SAMPLE: 197291

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	mg/L	0.1	0.11	106	80-120	
Cobalt, Dissolved	mg/L	0.1	0.10	101	80-120	
Lithium, Dissolved	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 197292 197293

Parameter	Units	2628600011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	mg/L	0.0051J	0.1	0.1	0.11	0.11	102	104	75-125	1	20	
Cobalt, Dissolved	mg/L	ND	0.1	0.1	0.10	0.10	100	102	75-125	2	20	
Lithium, Dissolved	mg/L	0.022J	0.1	0.1	0.13J	0.13J	105	105	75-125		20	

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QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628600

QC Batch: 43170 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET Dissolved
Associated Lab Samples: 2628600014, 2628600015, 2628600016, 2628600017, 2628600018, 2628600019, 2628600020, 2628600021, 2628600022, 2628600023, 2628600024, 2628600025, 2628600026, 2628600027, 2628600028, 2628600029, 2628600030, 2628600031, 2628600032, 2628600033

METHOD BLANK: 197294 Matrix: Water
Associated Lab Samples: 2628600014, 2628600015, 2628600016, 2628600017, 2628600018, 2628600019, 2628600020, 2628600021, 2628600022, 2628600023, 2628600024, 2628600025, 2628600026, 2628600027, 2628600028, 2628600029, 2628600030, 2628600031, 2628600032, 2628600033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cobalt, Dissolved	mg/L	ND	0.0050	0.00030	02/13/20 14:03	
Lithium, Dissolved	mg/L	ND	0.030	0.00078	02/13/20 14:03	

LABORATORY CONTROL SAMPLE: 197295

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cobalt, Dissolved	mg/L	0.1	0.11	105	80-120	
Lithium, Dissolved	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 197296 197297

Parameter	Units	2628595003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cobalt, Dissolved	mg/L	ND	0.1	0.1	0.11	0.12	114	116	75-125	1	20	
Lithium, Dissolved	mg/L	0.093J	0.1	0.1	0.21J	0.22J	118	129	75-125		20	M6

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QUALITY CONTROL DATA

Project: Plant McManus SW
Pace Project No.: 2628600

QC Batch: 43171 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET Dissolved

Associated Lab Samples: 2628600001, 2628600002, 2628600003, 2628600004, 2628600005, 2628600006, 2628600007, 2628600008, 2628600009, 2628600034, 2628600035, 2628600036, 2628600037, 2628600038, 2628600039, 2628600040, 2628600041, 2628600042, 2628600043, 2628600044

METHOD BLANK: 197298 Matrix: Water

Associated Lab Samples: 2628600001, 2628600002, 2628600003, 2628600004, 2628600005, 2628600006, 2628600007, 2628600008, 2628600009, 2628600034, 2628600035, 2628600036, 2628600037, 2628600038, 2628600039, 2628600040, 2628600041, 2628600042, 2628600043, 2628600044

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic, Dissolved	mg/L	ND	0.0050	0.00035	02/12/20 18:08	
Cobalt, Dissolved	mg/L	ND	0.0050	0.00030	02/12/20 18:08	
Lithium, Dissolved	mg/L	ND	0.030	0.00078	02/12/20 18:08	

LABORATORY CONTROL SAMPLE: 197299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	mg/L	0.1	0.10	101	80-120	
Cobalt, Dissolved	mg/L	0.1	0.10	105	80-120	
Lithium, Dissolved	mg/L	0.1	0.10	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 197300 197301

Parameter	Units	2628599001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	mg/L	0.0065J	0.1	0.1	0.12	0.11	111	109	75-125	2	20	
Cobalt, Dissolved	mg/L	ND	0.1	0.1	0.10	0.11	101	105	75-125	3	20	
Lithium, Dissolved	mg/L	0.097J	0.1	0.1	0.20J	0.20J	99	99	75-125		20	

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

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

QUALIFIERS

Project: Plant McManus SW
Pace Project No.: 2628600

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McManus SW
Pace Project No.: 2628600

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628600001	**MCM-07LT ASHPOND**	EPA 3005A	42953	EPA 6020B	42956
2628600002	**MCM-07LT**	EPA 3005A	42953	EPA 6020B	42956
2628600003	**MCM-06HT ASHPOND**	EPA 3005A	42953	EPA 6020B	42956
2628600004	**MCM-06HT**	EPA 3005A	42953	EPA 6020B	42956
2628600005	**MCM-07HT ASHPOND**	EPA 3005A	42953	EPA 6020B	42956
2628600006	**MCM-07HT**	EPA 3005A	42953	EPA 6020B	42956
2628600007	**MCM-06LT ASHPOND**	EPA 3005A	42953	EPA 6020B	42956
2628600008	**MCM-06LT**	EPA 3005A	42953	EPA 6020B	42956
2628600009	**MCM-05HT ASHPOND**	EPA 3005A	42953	EPA 6020B	42956
2628600010	**MCM-05HT**	EPA 3005A	42953	EPA 6020B	42956
2628600011	**MCM-05LT ASHPOND**	EPA 3005A	42953	EPA 6020B	42956
2628600012	**MCM-05LT**	EPA 3005A	42953	EPA 6020B	42956
2628600013	**DUP-1**	EPA 3005A	42953	EPA 6020B	42956
2628600014	**T2-1HT**	EPA 3005A	42781	EPA 6020B	42798
2628600015	**T2-2HTS**	EPA 3005A	42781	EPA 6020B	42798
2628600016	**T2-2HT**	EPA 3005A	42781	EPA 6020B	42798
2628600017	**T2-3HTS**	EPA 3005A	42781	EPA 6020B	42798
2628600018	**T2-3HT**	EPA 3005A	42781	EPA 6020B	42798
2628600019	**T2-4HTS**	EPA 3005A	42781	EPA 6020B	42798
2628600020	**T2-4HT**	EPA 3005A	42781	EPA 6020B	42798
2628600021	**T2-4LT**	EPA 3005A	42781	EPA 6020B	42798
2628600022	**T2-3LT**	EPA 3005A	42781	EPA 6020B	42798
2628600023	**T2-2LT**	EPA 3005A	42781	EPA 6020B	42798
2628600024	**T1-1LT**	EPA 3005A	42836	EPA 6020B	42909
2628600025	**T1-4LT**	EPA 3005A	42836	EPA 6020B	42909
2628600026	**T1-3LT**	EPA 3005A	42836	EPA 6020B	42909
2628600027	**T1-2LT**	EPA 3005A	42836	EPA 6020B	42909
2628600028	**T1-4HTS**	EPA 3005A	42836	EPA 6020B	42909
2628600029	**T1-4HT**	EPA 3005A	42836	EPA 6020B	42909
2628600030	**T1-3HTS**	EPA 3005A	42836	EPA 6020B	42909
2628600031	**T1-3HT**	EPA 3005A	42836	EPA 6020B	42909
2628600032	**T1-1HT**	EPA 3005A	42836	EPA 6020B	42909
2628600033	**T1-2HTS**	EPA 3005A	42836	EPA 6020B	42909
2628600034	**T1-2HT**	EPA 3005A	42836	EPA 6020B	42909
2628600035	**T3-4HTS**	EPA 3005A	42836	EPA 6020B	42909
2628600036	**T3-4HT**	EPA 3005A	42836	EPA 6020B	42909
2628600037	**T3-3HTS**	EPA 3005A	42836	EPA 6020B	42909
2628600038	**T3-3HT**	EPA 3005A	42836	EPA 6020B	42909
2628600039	**T3-2HTS**	EPA 3005A	42836	EPA 6020B	42909
2628600040	**T3-2HT**	EPA 3005A	42836	EPA 6020B	42909
2628600041	**T3-1HT**	EPA 3005A	42836	EPA 6020B	42909
2628600042	**T3-4LT**	EPA 3005A	42836	EPA 6020B	42909
2628600043	**T3-3LT**	EPA 3005A	42836	EPA 6020B	42909
2628600044	**T3-2LT**	EPA 3005A	42953	EPA 6020B	42956
2628600001	**MCM-07LT ASHPOND**	EPA 3005A	43171	EPA 6020B	43192
2628600002	**MCM-07LT**	EPA 3005A	43171	EPA 6020B	43192
2628600003	**MCM-06HT ASHPOND**	EPA 3005A	43171	EPA 6020B	43192

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McManus SW
Pace Project No.: 2628600

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628600004	**MCM-06HT**	EPA 3005A	43171	EPA 6020B	43192
2628600005	**MCM-07HT ASHPOND**	EPA 3005A	43171	EPA 6020B	43192
2628600006	**MCM-07HT**	EPA 3005A	43171	EPA 6020B	43192
2628600007	**MCM-06LT ASHPOND**	EPA 3005A	43171	EPA 6020B	43192
2628600008	**MCM-06LT**	EPA 3005A	43171	EPA 6020B	43192
2628600009	**MCM-05HT ASHPOND**	EPA 3005A	43171	EPA 6020B	43192
2628600010	**MCM-05HT**	EPA 3005A	43169	EPA 6020B	43190
2628600011	**MCM-05LT ASHPOND**	EPA 3005A	43169	EPA 6020B	43190
2628600012	**MCM-05LT**	EPA 3005A	43169	EPA 6020B	43190
2628600013	**DUP-1**	EPA 3005A	43169	EPA 6020B	43190
2628600014	**T2-1HT**	EPA 3005A	43170	EPA 6020B	43193
2628600015	**T2-2HTS**	EPA 3005A	43170	EPA 6020B	43193
2628600016	**T2-2HT**	EPA 3005A	43170	EPA 6020B	43193
2628600017	**T2-3HTS**	EPA 3005A	43170	EPA 6020B	43193
2628600018	**T2-3HT**	EPA 3005A	43170	EPA 6020B	43193
2628600019	**T2-4HTS**	EPA 3005A	43170	EPA 6020B	43193
2628600020	**T2-4HT**	EPA 3005A	43170	EPA 6020B	43193
2628600021	**T2-4LT**	EPA 3005A	43170	EPA 6020B	43193
2628600022	**T2-3LT**	EPA 3005A	43170	EPA 6020B	43193
2628600023	**T2-2LT**	EPA 3005A	43170	EPA 6020B	43193
2628600024	**T1-1LT**	EPA 3005A	43170	EPA 6020B	43193
2628600025	**T1-4LT**	EPA 3005A	43170	EPA 6020B	43193
2628600026	**T1-3LT**	EPA 3005A	43170	EPA 6020B	43193
2628600027	**T1-2LT**	EPA 3005A	43170	EPA 6020B	43193
2628600028	**T1-4HTS**	EPA 3005A	43170	EPA 6020B	43193
2628600029	**T1-4HT**	EPA 3005A	43170	EPA 6020B	43193
2628600030	**T1-3HTS**	EPA 3005A	43170	EPA 6020B	43193
2628600031	**T1-3HT**	EPA 3005A	43170	EPA 6020B	43193
2628600032	**T1-1HT**	EPA 3005A	43170	EPA 6020B	43193
2628600033	**T1-2HTS**	EPA 3005A	43170	EPA 6020B	43193
2628600034	**T1-2HT**	EPA 3005A	43171	EPA 6020B	43192
2628600035	**T3-4HTS**	EPA 3005A	43171	EPA 6020B	43192
2628600036	**T3-4HT**	EPA 3005A	43171	EPA 6020B	43192
2628600037	**T3-3HTS**	EPA 3005A	43171	EPA 6020B	43192
2628600038	**T3-3HT**	EPA 3005A	43171	EPA 6020B	43192
2628600039	**T3-2HTS**	EPA 3005A	43171	EPA 6020B	43192
2628600040	**T3-2HT**	EPA 3005A	43171	EPA 6020B	43192
2628600041	**T3-1HT**	EPA 3005A	43171	EPA 6020B	43192
2628600042	**T3-4LT**	EPA 3005A	43171	EPA 6020B	43192
2628600043	**T3-3LT**	EPA 3005A	43171	EPA 6020B	43192
2628600044	**T3-2LT**	EPA 3005A	43171	EPA 6020B	43192

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CHAIN-OF-CUSTODY / Analytical Reques

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant field:

WO# : 2628600

2628600

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:		Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency:

State / Location: GA

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020 Co,Li	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T2-4HT	WT	G	2/1/20	1514				1			1							1		
2	MCM-06LT Background	WT	G	2/2/20	0850				1			1							1		
3	MCM-06LT	WT	G	2/2/20	0900				1			1							1		
4	T2-4LT	WT	G	2/2/20	0946				1			1							1		
5	T2-3LT	WT	G	2/2/20	1120				1			1							1		
6	T2-2LT	WT	G	2/2/20	1138				1			1							1		
7	T3-4HTS	WT	G	2/2/20	1344				1			1							1		
8	T3-4HT	WT	G	2/2/20	1350				1			1							1		
9	T3-3HTS	WT	G	2/2/20	1408				1			1							1		
10	T3-3LT	WT	G	2/2/20	1410				1			1							1		
11	T3-2HTS	WT	G	2/2/20	1428				1			1							1		
12	MCM-05HT Background	WT	G	2/2/20	1430				1			1							1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Co,Li Only	Kevin Stephenson	2/3/20	1646	FedEx						
				K. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson | Scott Coleman

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

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CHAIN-OF-CUSTODY / Analytical Request D

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields mu

WO#: 2628600
PM: KH Due Date: 02/11/20
CLIENT: 26-GA Power

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power	Report To:	Millet, Lea	Attention:	
Address:	1003 Weatherstone Parkway	Copy To:		Company Name:	
Suite 320, Woodstock, GA 30188				Address:	
Email:	lea.millet@resoluteenv.com	Purchase Order #:		Pace Quote:	
Phone:	(251)776-2760 Fax:	Project Name:	Plant McManus SW	Pace Project Manager:	kevin.herring@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	2919

Regulatory Agency
State / Location
GA

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

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals by 6020 Coll	Dissolved Metals by 6020	Residual Chlorine (Y/N)
1	T3-2WT	WT	G	2/2/20	1434				1			1							1		
2	T3-1WT	WT	G	2/2/20	1435				1			1							1		
3	MCM-05WT	WT	G	2/2/20	1446				1			1							1		
4	MCM-05LT Amped	WT	G	2/3/20	0945				1			1							1		
5	MCM-05LT	WT	G	2/3/20	0947				1			1							1		
6	T3-4LT	WT	G	2/3/20	1040				1			1							1		
7	~~MCM~~ T3-3LT	WT	G	2/3/20	1212				1			1							1		
8	T3-2LT	WT	G	2/2/20	1330				1			1							1		
9	Dup-1	WT	G	2/3/20	—				1			1							1		
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Coll Only	Kevin Stephenson	2/3/20	1646	FedEx						
				K. Wellington / Pace	2/4/20	0800	1.4	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kevin Stephenson | Scott Green

SIGNATURE of SAMPLER: [signature]

DATE Signed: 2/3/20

Sample Condition Upon Receipt

Pace Analytical

Client Name: Georgia Power

WO# : 2628600

PM: KH Due Date: 02/11/20

CLIENT: 26-GA Power

[redacted]

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

Tracking #: ____________

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

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

Thermometer Used THR214 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 4.0 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KW 2/4/20

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

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: ____________ Date/Time: ____________

Comments/ Resolution: ____________

Project Manager Review: ____________ **Date:** ____________

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

Arcadis U.S., Inc.

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