# GROUNDWATER MONITORING PLAN

## AP-4 – DEWATERED SURFACE IMPOUNDMENT
## 5 YEAR PERMIT REVIEW

## PLANT HAMMOND
### FLOYD COUNTY, GEORGIA

**FOR**

Georgia Power

**JULY 2025 (REVISION 2)**

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

**Approved**
**Solid Waste Management Program**

Approved By: Mark Wescott P.G. Digitally signed by Mark Wescott P.G. Date: 2025.09.19 08:26:57 -04'00'

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# I. CERTIFICATION

This *Groundwater Monitoring Plan, Georgia Power Company - AP-4 – Dewatered Surface Impoundment* has been prepared by a qualified groundwater scientist or engineer with Geosyntec Consultants, Inc. (Geosyntec) to meet the requirements contained in Chapter 391-3-4-.10 of the Georgia Environmental Protection Division Rules of Georgia, Solid Waste Management, Coal Combustion Residuals (i.e., State CCR Rule). References to the appropriate sections of the State CCR Rule are incorporated throughout this document.

I hereby certify that this Groundwater Monitoring Plan was prepared by, or under the direct supervision of, a "qualified groundwater scientist," in accordance with the State of Georgia Rules of Solid Waste Management. According to 391-3-4-.01, a qualified groundwater scientist is "a professional engineer or geologist registered to practice in Georgia who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields that enable individuals to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action." The design of the groundwater monitoring system was developed in compliance with Georgia Environmental Protection Division (EPD) Rules of Solid Waste Management, Chapter 391-3-4-.10(6).

Signature: _____

Date: July 22, 2025

GEORGIA REGISTERED No. PE036641 PROFESSIONAL ENGINEER WHITNEY B. LAW

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

**Approved**

**Solid Waste Management Program**

Approved By: Mark Wescott P.G. Digitally signed by Mark Wescott P.G. Date: 2025.09.19 08:26:08 -04'00'

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Date: July 22, 2025

CHRISTINE HUG GEORGIA REGISTERED PROFESSIONAL GEOLOGIST No. 2221

# 1. INTRODUCTION

Groundwater monitoring is required by the Georgia Environmental Protection Division (EPD) to detect and quantify potential changes in groundwater chemistry. This Groundwater Monitoring Plan (plan) describes the groundwater monitoring program for Ash Pond 4 (AP-4 or Site) at Georgia Power Company's (Georgia Power's) Plant Hammond. This plan meets the requirements of EPD rules and uses EPD's Manual for Ground Water Monitoring dated September 1991 as a guide. Groundwater monitoring well locations are presented on Figure A-1 of **Appendix A** and well construction details in Table A-1 of **Appendix A**.

Groundwater monitoring will occur in accordance with 391-3-4-.10 of the Georgia Solid Waste Management Rules. If the monitoring requirements specified in this plan conflict with EPD rules (391-3-4), the EPD rules will take precedent.

In accordance with the Georgia State CCR Rule 391-3-4-.10, a detection monitoring well network for AP-4 has been installed and certified by a qualified groundwater scientist. The existing monitoring wells were installed following the guidelines presented herein. Additionally, this plan documents the methods for future monitoring well installation and/or replacement, and procedures for well abandonment. As required by 391-3-4-.10(6)(g), a minor modification will be submitted to the EPD prior to the unscheduled installation or abandonment of monitoring wells. Well installation and/or abandonment must be directed by a qualified groundwater scientist.

# 2. GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

The following section presents the geologic and hydrogeologic conditions for the Site as described in the "*Hydrogeologic Assessment Report (Revision 1)"* (HAR) (Geosyntec, 2020).

## 2.1 SITE GEOLOGY

AP-4 is located within the Great Valley and Ridge Physiographic Province (Valley and Ridge) in northwest Georgia. The Valley and Ridge is characterized by Paleozoic sedimentary rocks that have been folded and faulted into the ridges and valleys that gave this region its name. Geologic mapping performed at the Site by Petrologic Solutions, Inc. under the direction of Golder (Golder, 2018) indicates that AP-4 is underlain by the lower units of the Cambrian age Conasauga Formation, consisting of mostly calcareous shale. Based on review of subsurface investigations, the bedrock underneath AP-4 was described as predominantly shale. AP-4 is underlain primarily by five lithologic units: (i) terrace alluvium, (ii) colluvium, (iii) residuum, (iv) partially weathered shale bedrock, and (v) unweathered shale bedrock.

Based on subsurface investigations, the alluvial deposits generally grade from a silt and silty clay to a clayey sand and silty sand to a sand and gravelly sand at depth. The colluvium consists of silty sand, silty clay with the presence of angular fragments of rocks/materials not expected in the lower units of the Conasauga, such as chert, sandstone, limestone, or coal. Residual or native soils have been derived from the in-place weathering of the shale bedrock. The residuum is generally described as brown to yellow brown firm clayey silt with weathered shale fragments. The partially weathered shale zone occurs as an intermediate weathering stage between the residuum and the unweathered shale bedrock. The weathered material is described as black to dark gray to dark red hard, fissile shale and claystone. The unweathered shale bedrock was not encountered or directly observed in the historical borings advanced at AP-4, until 2020 when well HGWA-48D was installed upgradient of the unit and screened in bedrock. Based on geologic conditions in the region, weathering, fracturing and jointing decreases with depth and the weathered rock material grades into competent bedrock.

## 2.2 SITE HYDROGEOLOGY

The uppermost aquifer at AP-4 is a regional groundwater aquifer that occurs primarily in the alluvium, colluvium, and residuum, but also to some degree within the weathered and fractured bedrock. Under natural conditions the water table surface would be expected to be a subdued reflection of the topography. Groundwater recharge is by precipitation and then percolating through alluvial, colluvial, and residual soils to the bedrock. Based on observations of alluvium, colluvium, and residuum soil types and horizontal conductivity values, the movement of groundwater in the soil can be characterized as low- to moderate permeability, porous media flow. The groundwater flow in the shallow underlying bedrock is characterized as fracture flow, and due to the preponderance of shale beneath AP-4, is expected to be very low permeability. Groundwater flow direction is generally from north to south as shown on the potentiometric surface map, Figure A-2 in **Appendix A**. The potentiometric surface map represents data recorded in August 2022.

Aquifer testing was conducted by Southern Company Services (SCS) in 2013 to evaluate hydraulic conditions in the vicinity of AP-4. Results of these field events are discussed in detail in the HAR. The representative groundwater hydraulic gradient for AP-4, based on the February 2025 water level data, is 0.017 feet/foot (ft/ft), averaged from hydraulic gradients calculated along the eastern, central, and

western portions of the unit. The well pairs correlating to these flow areas are, respectively: GWA-14 and GWC-19; HGWA-112 and GWC-4; HGWA-111 and GWC-6. Horizontal hydraulic conductivity ($K_h$) was estimated for units above the top of bedrock by performing rising head tests (slug out) and falling head tests (slug in). The tests were conducted at wells screened in the terrace alluvium or colluvial material, and averages for alluvium and for colluvium were calculated. Undisturbed soil samples of the alluvial material were collected for the purpose of hydraulic conductivity testing, representing vertical hydraulic conductivity ($K_v$). Very little residuum was encountered beneath either the alluvial or colluvial sediments at the Site. The majority of the wells are screened in either alluvial or alluvial/colluvial materials; therefore, no hydraulic conductivity testing was conducted on the residuum, weathered shale, or unweathered shale.

## 2.3 HYDRAULIC GRADIENT AND GROUNDWATER FLOW VELOCITY

Aquifer testing was conducted by Southern Company Services in 2013 to evaluate hydraulic conditions in the vicinity of AP-4. Results of these field events are discussed in detail in the HAR Rev 01 (Geosyntec, 2020).

The horizontal groundwater hydraulic gradients within the uppermost aquifer beneath AP-4 were calculated using the groundwater elevation data from the February 2025 event. The horizontal hydraulic gradient is commonly calculated between two points along the groundwater flow path perpendicular to groundwater elevation contours. Ideally, this flow path originates and concludes with groundwater elevations reported for two wells, but this may not be feasible and still remain perpendicular to the contours. Given the surface area covered by AP-4, horizontal hydraulic gradients were calculated along the eastern, central, and western portions of the unit. The well pairs correlating to these flow areas for February 2025 are: GWA-14 and GWC-19; HGWA-112 and GWC-4; and HGWA-111 and GWC-6. The presented hydraulic gradients from the three portions were averaged for the February 2025 gauging event to provide a representative gradient of 0.017 feet per foot (ft/ft) across AP-4.

The groundwater flow velocity calculation was performed using the geometric mean for $K_h$ of 1.67 ft/day (Geosyntec, 2020). An estimated effective porosity ($n_e$) of 0.15 is used to represent average conditions for the silty clay alluvium/colluvium, derived based on review of literature, observed site lithology, and professional judgement. With these variables assigned, and accounting for the representative hydraulic gradient discussed above, the representative groundwater flow velocity underneath AP-4 was calculated to be 0.19 ft/day for the February 2025 well gauging event.

$$V = linear\ velocity = \frac{K_h * i}{n_e}$$

where:

$V$ = Groundwater flow velocity $\left(\frac{feet}{day}\right)$

$K_h$ = Horizontal Hydraulic Conductivity $\left(\frac{feet}{day}\right)$

$i$ = Horizontal hydraulic gradient $\left(\frac{feet}{foot}\right) = \frac{h_1 - h_2}{L}$

$h_1$ and $h_2$ = Groundwater elevation at location 1 and 2

$L$ = distance between location 1 and 2

$n_e$ = Effective porosity

The supporting hydraulic gradient calculations and groundwater flow velocity calculations are presented in Table A-2 of **Appendix A**.

# 3. SELECTION OF WELL LOCATIONS

Groundwater monitoring wells were installed to monitor the uppermost occurrence of groundwater beneath the Site. Locations were selected based on the AP-4 footprint and geologic and hydrogeologic considerations. Georgia Power follows the recommendation as stated in Chapter 2 of the *Manual for Groundwater Monitoring* (1991) to establish well spacings based on site-specific conditions. The monitoring well network for AP-4 is depicted on Figure A-1 included in **Appendix A**, Monitoring System Details. A more detailed discussion of the hydrogeological investigation conducted in support of monitoring well placement is provided in the HAR.

The groundwater detection monitoring well (formerly known as "compliance monitoring well") network locations were chosen to monitor upgradient (HGWA), and downgradient (HGWC) conditions at the Site based on groundwater flow direction determined by potentiometric evaluation. The potentiometric surface map, Figure A-2 in **Appendix A**, depicts the groundwater flow direction beneath AP-4, based on August 2022 conditions. Wells are positioned to provide adequate coverage to detect potential impacts from the CCR impoundment. Both upgradient and downgradient wells are screened in the uppermost aquifer, in the alluvium, colluvium, residuum, and/or partial weathered shale above the competent shale bedrock, except for HGWA-48D which was installed within bedrock to characterize background conditions at a deeper interval upgradient of the unit. Recorded groundwater level data indicate that HGWA-48D is hydraulically connected with the surficial aquifer.

Monitoring wells are generally located outside of areas with frequent auto traffic (Figure A-1); however, wells may be installed in heavily trafficked areas when necessary to meet the groundwater monitoring objectives of the EPD rules. **Appendix A** includes Table A-1 which provides a tabulated list of location coordinates for the individual wells and piezometers. Additional well and piezometer construction details (i.e., top-of-casing elevation, well depths and screened intervals) are also provided on this table. Well survey data certified by a Georgia-registered professional surveyor are included in **Appendix A**.

# 4. MONITORING WELL DRILLING, CONSTRUCTION, ABANDONMENT AND REPORTING

The AP-4 monitoring well network described in this plan is already in place. The existing monitoring wells were installed following USEPA Region 4 Laboratory Services and Applied Science Division (LSASD) *Operating Procedure for Design and Installation of Monitoring Wells* (SESDGUID-101-R#) (USEPA, 2008, 2013, 2018) as a general guide for best practices. Boring and well construction logs are provided in **Appendix A** for all wells and piezometers listed in Table A-1. Additional monitoring wells, if necessary, will be installed in accordance with the following procedures.

## 4.1 DRILLING

A variety of well drilling methods are available for the purpose of installing groundwater monitoring wells. Drilling methodologies include but are not limited to: hollow stem augers, direct push, air rotary, mud rotary, and rotosonic techniques. The drilling method will be selected to minimize the disturbance of subsurface materials and not cause impacts to groundwater. Borings will be advanced using an appropriate drilling technology capable of drilling and installing a well in the site-specific geology. Monitoring wells will be installed using the most current version of the USEPA SESDGUID-101-R# as a general guide for best practices. Also, drilling equipment will be decontaminated before use and between borehole locations using the procedures described in the most current version of USEPA LSASD's *Operating Procedure for Field Equipment Cleaning and Decontamination* (USEPA, SESDGUID-205-R#). Well installation will be directed by a qualified groundwater scientist.

Sampling and/or coring may be used to help determine the stratigraphy and geology at the well location. Samples and cores will be logged by a qualified groundwater scientist. Screen depths will be chosen based on the target installation depth.

All drilling for any subsurface hydrologic investigation, or for installation or abandonment of groundwater monitoring wells, will be performed by a driller that has, at the time of installation, a performance bond on file with the Water Well Standards Advisory Council. **Appendix A** includes the performance bonds applicable to the wells and piezometers listed in Table A-1.

## 4.2 DESIGN AND CONSTRUCTION

Well construction materials will be sufficiently durable to resist chemical and physical degradation and will not interfere with the quality of groundwater samples.

<u>WELL CASINGS AND SCREENS</u>

American Society for Testing and Materials (ASTM), National Science Foundation (NSF) rated, Schedule 40, 2-inch diameter polyvinyl chloride (PVC) pipe with flush threaded connections will be used for the well riser and screens. Compounds that can cause PVC to deteriorate (e.g., organic compounds) are not expected at this facility. If conditions warrant, other USEPA-approved and appropriate materials may be used for construction.

WELL INTAKE DESIGN

Intake for groundwater monitoring wells will be designed and constructed to: (1) allow sufficient groundwater flow to the well for sampling; (2) minimize the passage of formation materials (turbidity) into the well; and (3) ensure sufficient structural integrity to prevent the collapse of the intake structure.

Each groundwater monitoring well will include a well screen designed to limit the amount of formation material passing into the well when it is purged and sampled. Screens with 0.010-inch slots have proven effective for the earth materials at the Site and will be used unless geologic conditions discovered at the time of installation dictate a different size. Screen length will not exceed 10 feet without justification as to why a longer screen is necessary (e.g., significant variation in groundwater level). If these specifications prove ineffective for developing a well with sufficient yield or acceptable turbidity, further steps will be taken to assure that the well screen is appropriately sized for the formation material. This may include performing sieve analysis of the formation material and determining well screen slot size based on the grain size distribution.

Pre-packed dual-wall well screens may be used for well construction. Pre-packed well screens combine a centralized inner well screen, a developed filter sand pack, and an outer conductor screen in one integrated unit composed of inert materials. If utilized, pre-packed well screens will be installed following general industry standards and using the current version of USEPA SESDGUID-101-R# as a general guide. If the dual-wall pre-packed-screened wells do not yield sufficient water or are excessively turbid after development, further steps will be taken to assure that the well screen is appropriately sized for the formation material. This may include performing sieve analysis of the formation material and determining well screen slot size based on the grain size distribution.

FILTER PACK AND ANNULAR SEAL

The materials used to construct the filter pack will be clean quartz sand of a size that is appropriate for the screened formation. Fabric filters will not be used as filter pack material. Sufficient filter material will be placed in the boring and measurements taken to ensure that no bridging occurs. Upon placement of the filter pack, the well may be pumped to assure settlement of the pack. If pumping is performed, the top elevation of filter pack depth will be monitored, and additional sand added if necessary. The filter pack will extend a minimum of one to two feet above the top of the well screen.

The materials used to seal the annular space in the boring above the well pack must prevent hydraulic communication between strata and prevent migration from overlying areas into the well screen interval. A minimum of two feet of bentonite (chips, pellets, or slurry) will be placed immediately above the filter pack. The bentonite seal will extend up to the base of any overlying confining zone or the top of the water-bearing zone to prevent cementitious grout from entering the water-bearing or screened zones. If dry bentonite is used, the bentonite must be hydrated with potable water prior to grouting the remaining annulus.

The annulus above the bentonite seal will be grouted with a bentonite or cement and bentonite mixture (approximately 94 pounds cement / 3 to 5 pounds bentonite / 6.5 gallons of potable water) placed via tremie pipe from the top of the bentonite seal. During grouting, care will be taken to assure that the bentonite seal is not disturbed by locating the base of the tremie pipe approximately two feet above the bentonite seal and injecting grout at low pressure/velocity.

PROTECTIVE CASING AND WELL COMPLETION

After allowing the grout to settle, the well will be finished by installing a flush-mount or above-ground protective casing as appropriate, and building a surface cap. The use of flush-mount wells will generally be limited to paved surfaces unless Site operations warrant otherwise. The surface cap will extend from the top of the cementitious grout to ground surface, where it will become a concrete apron extending outward with a radius of at least 2 feet from the edge of the well casing and sloped to drain water away from the well.

Each well will be fitted with a cap that contains a hole or opening to allow the air pressure in the well to equalize with atmospheric pressure. In wells with above-ground protection, the space between the well casing and the protective casing will be filled with coarse sand or pea-gravel to within approximately 6 inches of the top of the well casing. A small weep hole will be drilled at the base of the metal casing for the drainage of moisture from the casing. Above ground protective covers will be locked.

Protective bollards will be installed around each above-grade groundwater monitoring well. Well construction in high traffic areas will generally be limited unless Site conditions warrant otherwise.

The groundwater monitoring well detail attached in **Appendix B**, Groundwater Monitoring Well Detail, illustrates the general design and construction details for a monitoring well.

WELL DEVELOPMENT

Well development will be conducted under supervision of a qualified groundwater scientist. After well construction is completed, wells will be developed by alternately purging and surging until relatively clear discharge water with little turbidity is observed. The goal will be to achieve a turbidity of less than 5 nephelometric turbidity units (NTUs); however, formation-specific conditions may not allow this target to be accomplished. Development can be discontinued once a minimum of 10 NTU is achieved. Additionally, the stabilization criteria contained in **Appendix C** should be met. A variety of techniques may be used to develop Site groundwater monitoring wells. The method used must create reversals or surges in flow to eliminate bridging by particles around the well screen. These reversals or surges can be created by using surge blocks, bailers, or pumps. The wells will be developed using a pump capable of inducing the stress necessary to achieve the development goals. All development equipment will be decontaminated prior to first use and between wells.

In low-yielding wells, potable water may be added to the well to facilitate surging of the well screen interval and removal of fine-grained sediment. If water is added, the volume will be documented and at minimum, an equal volume purged from the well.

Many geologic formations contain clay and silt particles that are small enough to work their way through a well's filter pack over time. Therefore, the turbidity of the groundwater from the monitoring wells may gradually increase over time after initial well development. As a result, monitoring wells may need to be redeveloped periodically to remove the silt and clay that has worked its way into the filter packs of the wells. Each monitoring well should be redeveloped when sample turbidity values have significantly increased since initial development or since prior redevelopment. The redevelopment should be performed as described above. Well development data will be included in the well installation report.

## 4.3 ABANDONMENT

Per Georgia Rule 391-3-4-.10(6)(g), monitoring wells require abandonment and replacement after two consecutive dry sampling events, unless an alternate schedule is approved by the EPD. Monitoring wells will be abandoned using industry-accepted practices and using the EPD Manual for Groundwater Monitoring (1991) and Georgia's Well Water Standards Act of 1985 [Official Code of Georgia Annotated (O.C.G.A.) § 12-5-120, 1985] as guides. The wells will be abandoned under the direction of a qualified groundwater scientist. Neat Portland cement or bentonite will be used as appropriate to complete abandonment and seal the well borehole. Any piezometers or groundwater wells located within the footprint of AP-4 will be over-drilled prior to abandonment.

## 4.4 DOCUMENTATION

Within 60 days of the construction, survey, development, or abandonment of each new groundwater monitoring well completed under the direction of a qualified groundwater scientist or engineer, a well installation/abandonment report will be submitted to the EPD. The following information will be documented in this report.

- Well identification
- Name of drilling contractor and type of drill rig
- Documentation that the driller, at the time the monitoring wells were installed, had a bond on file with the Water Well Standards Advisory Council
- Narrative of drilling technique applied, well construction details, and well development procedures, including dates, drilling fluids used (if applicable), well casing and screen materials, screen slot size, and joint type
- Details of filter pack material/size, emplacement method (narrative), and volume
- Seal emplacement method and type/volume of sealant
- Borehole diameter and well casing diameter
- Type of protective well cap and sump dimensions
- Surface seal and volumes/mix of annular seal material
- Screen length and interval reported in feet below ground surface and elevation
- Well location data given to within an accuracy of 0.5 feet based on survey data recorded from an acceptable survey point datum by a Georgia-registered professional surveyor
- Well elevation data given to within an accuracy of 0.01 feet based on survey data recorded from an acceptable survey point datum by a Georgia-registered professional surveyor
- Lithologic logs
- Documentation that water quality field parameters meet well development criteria (Section 4.2)
- Completed calibration field forms for the water quality instrumentation used during well development activities
- Documentation of ground surface elevation (±0.01 feet)
- Documentation of top of casing elevation (±0.01 feet)
- Schematic of the well with dimensions for all components (e.g., casing, screen, sump, well pad)

In accordance with the Georgia Water Well Standards Act (O.C.G.A §12-5-134(5)(d)(vii)), at least once every five years, the owner of the property on which a monitoring well is constructed shall have the

monitoring well(s) inspected by a qualified groundwater scientist, who shall direct appropriate remedial corrective work to be performed if the well does not conform to standards. Well inspection records and records of remedial corrective work are subject to review by EPD. Additionally, the cost estimate based upon current year cost for the well inspections will be provided as part of the cost calculations for the groundwater monitoring period.

# 5. GROUNDWATER MONITORING PARAMETERS AND FREQUENCY

The following describes groundwater sampling requirements with respect to parameters for analysis, sampling frequency, sample preservation and shipment, and analytical methods. Groundwater samples used to provide compliance monitoring data will not be filtered prior to collection.

**Table 1**, Groundwater Monitoring Parameters and Frequency, presents the groundwater monitoring parameters and sampling frequency. A minimum of eight independent samples from existing detection monitoring wells were collected between August 2016 and October 2018 and analyzed for 40 CFR § 257, Subpart D, Appendix III and Appendix IV parameters to establish a background statistical dataset. Exception to this is well HGWC-102, which was reclassified as a detection monitoring well in 2019, and wells HGWA-47 and HGWA-48D which were installed in 2020 and HGWC-117A installed in 2021. Subsequently, in accordance with 391-3-4-.10(6), the monitoring frequency for the Appendix III parameters will be at least semi-annual during closure activities and the post-CCR removal monitoring period. Pursuant to Chapter 391-3-4-.10(6), an assessment monitoring program was initiated for AP-4 in August 2019 based on statistically significant increases documented in the *2019 Annual Groundwater Monitoring and Corrective Action Report* (Geosyntec, 2019). Georgia Power will conduct assessment monitoring in accordance with Chapter 391-3-4-.10(6).

When referenced throughout this plan, Appendix III and Appendix IV parameters refer to the parameters contained in Appendix III and Appendix IV of 40 CFR § 257, Subpart D, 80 Fed. Reg. 21468 (April 17, 2015).

As shown on **Table 2**, Analytical Methods, the groundwater samples will be analyzed using methods specified in USEPA Manual SW-846, USEPA 600/4-79-020, Standard Methods for the Examination of Water and Wastewater (SM18-20), USEPA Methods for the Chemical Analysis of Water and Wastes (MCAWW), ASTM, or other suitable analytical methods approved by the EPD. The method used will be able to reach a suitable practical quantification limit to detect natural background conditions at the facility. The groundwater samples will be analyzed by licensed and accredited laboratories through the National Environmental Laboratory Accreditation Conference (NELAC). Field instruments used to measure pH must be accurate and reproducible to within 0.1 Standard Units (S.U.).

**TABLE 1**
**GROUNDWATER MONITORING PARAMETERS & FREQUENCY**

| MONITORING PARAMETER | | GROUNDWATER MONITORING | |
|---|---|---|---|
| | | Background | Semi-Annual Events |
| Field Parameters | Temperature | X | X |
| | pH | X | X |
| | ORP | X | X |
| | Turbidity | X | X |
| | Specific Conductance | X | X |
| | Dissolved Oxygen | X | X |
| Appendix III (Detection) | Boron | X | X |
| | Calcium | X | X |
| | Chloride | X | X |
| | Fluoride | X | X |
| | pH | X | X |
| | Sulfate | X | X |
| | Total Dissolved Solids | X | X |
| Appendix IV (Assessment) | Antimony | X | Assessment sampling frequency and parameter list determined in accordance with Georgia Chapter 391-3-4-.10(6). |
| | Arsenic | X | |
| | Barium | X | |
| | Beryllium | X | |
| | Cadmium | X | |
| | Chromium | X | |
| | Cobalt | X | |
| | Fluoride | X | |
| | Lead | X | |
| | Lithium | X | |
| | Mercury | X | |
| | Molybdenum | X | |
| | Selenium | X | |
| | Thallium | X | |
| | Radium 226 & 228 | X | |

**TABLE 2**
**ANALYTICAL METHODS**

| Parameters | USEPA Method Number |
|---|---|
| Boron | 6010D/6020B |
| Calcium | 6010D/6020B |
| Chloride | 300.0/300.1/9250/9251/9253/9056A |
| Fluoride | 300.0/300.1/9214/9056A |
| pH | 150.1 field |
| Sulfate | 9035/9036/9038/300.0/300.1/9056A |
| Total Dissolved Solids (TDS) | 160/2540C |
| | |
| Antimony | EPA 7040/7041/6010B/6020B |
| Arsenic | EPA 7060A/7061A/6010B/6020B |
| Barium | EPA 7080A/7081/6010B/6020B |
| Beryllium | EPA 7090/7091/6010B/6020B |
| Cadmium | EPA 7130/7131A/6020B |
| Chromium | EPA 7190/7191/6010B/6020B |
| Cobalt | EPA 7200/7201/6010B/6020B |
| Fluoride | 300.0/300.1/9214/9056A |
| Lead | EPA 7420/7421/6010B/6020B |
| Lithium | 6010/6020B |
| Mercury | 7470 |
| Molybdenum | 6010/6020B |
| Selenium | EPA 7740/7741A/6010B/6020B |
| Thallium | EPA 7840/7841/6010/6020B |
| Radium 226 and 228 combined | EPA 903/904/9320/9315 |

# 6. SAMPLE COLLECTION

During each sampling event, samples will be collected and handled in accordance with the procedures specified in **Appendix C**, Groundwater Sampling Procedure. Sampling procedures were developed using standard industry practice and USEPA Region 4 *Field Branches Quality System and Technical Procedures* as a guide. Low-flow sampling methodology will be utilized for sample collection. Alternative USEPA accepted sampling techniques may be used when appropriate. The applied groundwater purging and sampling methodologies will be discussed in the groundwater semi-annual monitoring reports submitted to the EPD.

For groundwater sampling, positive gas displacement Teflon or stainless-steel bladder pumps will be used for purging. If dedicated bladder pumps are not used, portable bladder pumps or peristaltic pumps (with dedicated or disposable tubing) may be used. When non-dedicated equipment is used, it will be decontaminated prior to use and between wells.

Per Georgia Rule 391-3-4-.10(6)(g) monitoring wells require replacement after two consecutive dry sampling events. Well installation will be directed by a qualified groundwater scientist. A minor modification will be submitted to the EPD in accordance with Rule 391-3-4-.02(3)(b)(6) prior to the installation or decommissioning of monitoring wells.

# 7. CHAIN-OF-CUSTODY

All samples will be handled under chain-of-custody (COC) procedures beginning in the field. The COC record will contain the following information:

- Sample identification numbers
- Signature of collector
- Date and time of collection
- Sample type
- Sample point identification
- Number of sample containers
- Signature of person(s) involved in the chain of possession
- Notated date(s) and time(s) of sample transfer between individuals

The samples will remain in the custody of assigned personnel, an assigned agent, or the laboratory. If the samples are transferred to other employees for delivery or transport, the sampler or possessor will relinquish possession and the samples must be received by the new owner, both documented on the COC.

If the samples are being shipped, a hard copy COC will be signed and enclosed within the shipping container.

Samplers will use COC forms provided by the analytical laboratory or use a COC form similarly formatted and containing the information listed above.

# 8. FIELD QUALITY ASSURANCE / QUALITY CONTROL

All field quality control samples will be prepared the same as compliance samples with regard to sample volume, containers, and preservation. The following quality control samples will be collected during each sampling event:

Field Equipment Rinsate Blanks - Where sampling equipment is not new or dedicated, an equipment rinsate blank will be collected at a rate of one blank per 10 samples using non-dedicated equipment.

Field Duplicates - Field duplicates are collected by filling additional containers at the same location, and the field duplicate is assigned a unique sample identification number. One blind field duplicate will be collected for every 20 samples.

Field Blanks - Field blanks are collected in the field using the same water source that is used for decontamination. The water is poured directly into the supplied sample containers in the field and submitted to the laboratory for analysis of target constituents. One field blank will be collected for every 20 samples.

The groundwater samples will be analyzed by licensed and accredited laboratories through the National Environmental Laboratory Accreditation Program (NELAP).

Calibration of field instruments will occur daily and follow the recommended (specific) instrument calibration procedures provided by the manufacturer and/or equipment manual specific to each instrument. Daily calibration will be documented on field forms and these field forms will be included in all groundwater monitoring reports. Instruments will be recalibrated as necessary (e.g., when calibration checks indicate significant variability), and all checks and recalibration steps will be documented on field calibration forms. Calibration of the instruments will also be checked if any readings during sampling activities are suspect. Replacement probes and meters will be obtained as a corrective action in the event that recalibration does not improve instrument function. Completed calibration field forms will be provided with the semi-annual groundwater monitoring reports.

# 9. REPORTING RESULTS

A semi-annual groundwater report that documents the results of sampling and analysis will be submitted to the EPD, added to the site Operating Record, and posted to Georgia Power's CCR Website. Semi-annual groundwater monitoring reports will be submitted to the EPD within 90 days of receipt and statistical analysis of the groundwater analytical data from the laboratory. At a minimum, semi-annual reports will include:

1. A narrative describing sampling activities and findings including a summary of the number of samples collected, the dates the samples were collected, and whether the samples were required by the detection or assessment monitoring programs.

2. A narrative of purging/sampling methodologies, which will include the type of sampling equipment used.

3. Discussion of results.

4. Recommendations for the future monitoring consistent with the Rules.

5. Potentiometric surface contour map for the aquifer(s) being monitored, signed and sealed by a Georgia-registered P.G. or P.E.

6. Table of as-built information for groundwater monitoring wells including top of casing elevations, ground elevations, screened elevations, current groundwater elevations and depth to water measurements.

7. Groundwater flow rate and direction calculations.

8. Identification of any groundwater wells that were installed or abandoned during the preceding year, along with a narrative description of why these actions were taken.

9. A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels).

10. If applicable, semi-annual assessment monitoring results.

11. Any alternate source demonstration completed during the reported monitoring period, if applicable.

12. Laboratory Reports and associated data validation reports.

13. COC documentation.

14. Field sampling logs including field instrument calibration, indicator parameters and parameter stabilization data.

15. Field logs and forms will be kept for each sampling event, and will include the following, but not be limited to, well signage, well access, sampling and purging equipment condition, and any site conditions that may affect sampling.

16. Documentation of non-functioning wells.

17. Table of current analytical results for each well, highlighting statistically significant increases and concentrations above maximum contaminant level (MCL).

18. Statistical analyses of Appendix III statistically significant increases (SSI) and Appendix IV statistically significant limits (SSL), including trend analyses of SSLs of Appendix IV constituents if the unit is currently undergoing assessment of corrective measures (if applicable).

19. Certification by a qualified groundwater scientist.

20. An iso-concentration map of each Appendix IV constituent identified at a statistically significant level (SSL) during the reporting period. The concentrations will be contoured to the current applicable groundwater protection standard. Inclusion of the map(s) is only applicable for a unit currently undergoing assessment of corrective measures and/or corrective action

21. Trend charts (only applicable for a unit currently undergoing assessment of corrective measures and/or corrective action)

22. Updated potable water well survey, annually (if applicable based on exceedance of groundwater protection standards)

# 10. STATISTICAL ANALYSIS

Groundwater quality data from each sampling event will be statistically evaluated to determine if there has been a statistically significant change in groundwater chemistry. Historical background data will be used to establish statistical limits. Statistical analysis techniques will be consistent with the USEPA document *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance* (Unified Guidance) (USEPA, 2009).

According to GA EPD rules [391-3-4-.10(6)(a)], the Site must specify in the operating record the statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent. The statistical test chosen will be conducted separately for each constituent in each well. As authorized by the rule, statistical tests that will be used include:

1. A prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each detection monitoring well is compared to the upper tolerance or prediction limit. [§257.93(f)(3)];

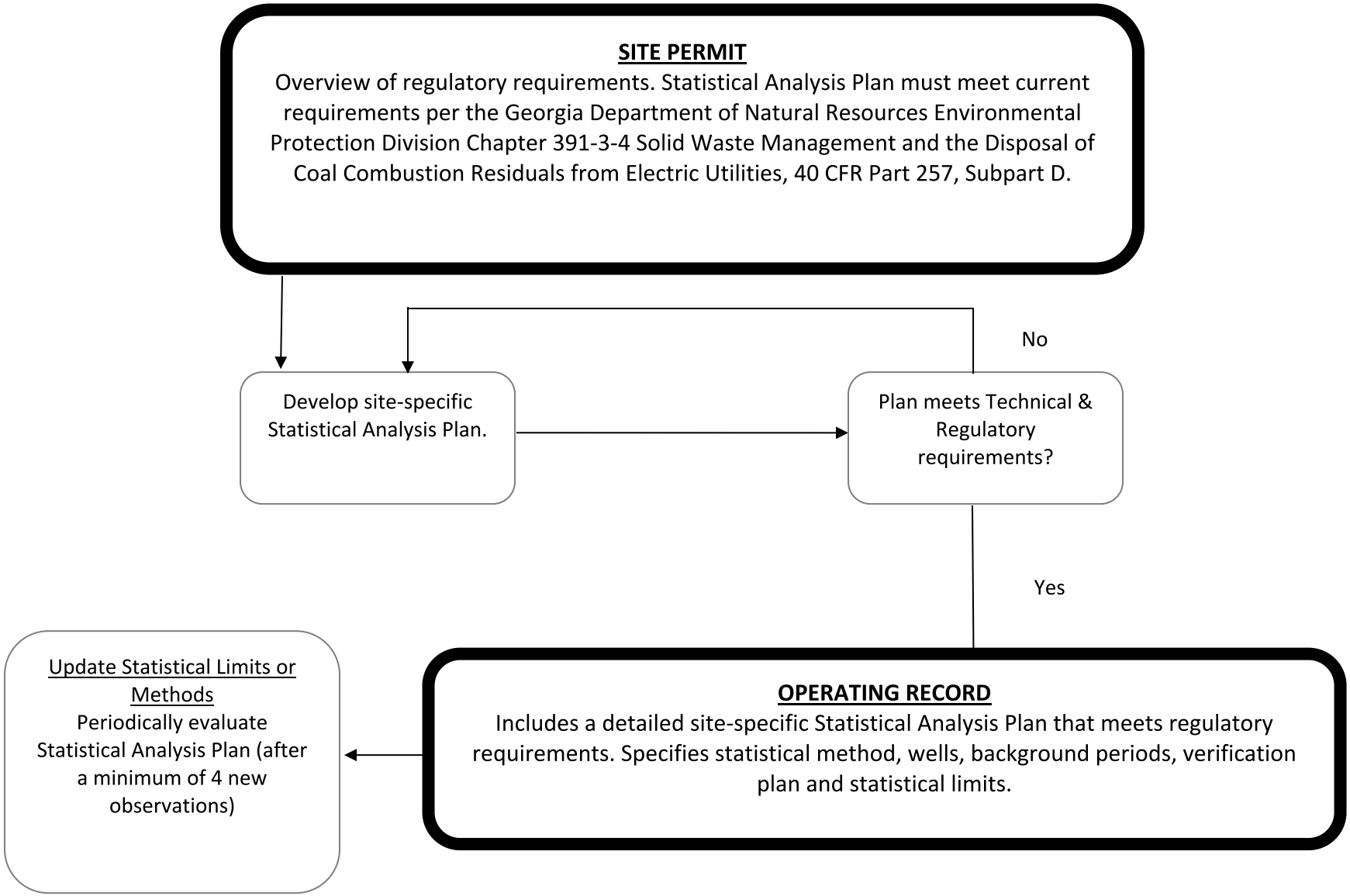
2. A control chart approach that gives control limits for each constituent. [§257.93(f)(4)]; and

3. Another statistical test method (such as prediction limits or control charts) that meets the performance standards of §257.93(g) [§257.93(f)(5)]. A justification for an alternative method will be placed in the operating record and the Director notified of the use of an alternative test. The justification will demonstrate that the alternative method meets the performance standards of §257.93(g).

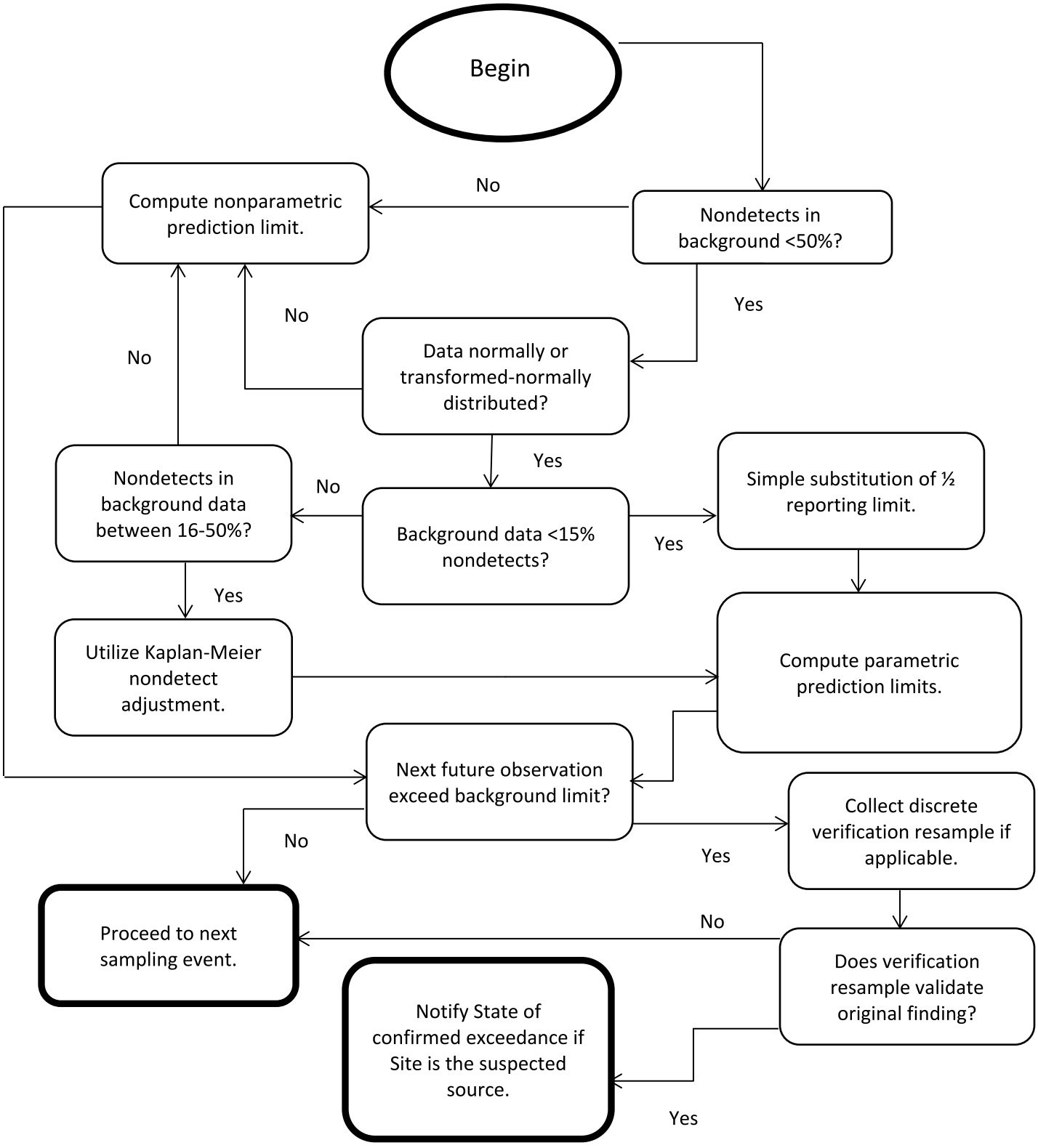
An interwell statistical method will be used to compare Appendix III groundwater monitoring data to background conditions. Confidence intervals will be constructed for each downgradient well and used to compare Appendix IV groundwater monitoring data to groundwater protection standards.

A site-specific statistical analysis plan that provides details regarding the statistical methods to be used will be placed in the Site's operating record pursuant to 391-3-4-.10(6). **Figure 1**, *Statistical Analysis Plan Overview*, presents a flowchart that depicts the process that will be followed to develop the site-specific plan. **Figure 2,** Decision Logic for Computing Prediction Limits, presents the logic that will be used to calculate site-specific statistical limits and test groundwater results from compliance monitoring wells against those limits.

# FIGURE 1. STATISTICAL ANALYSIS PLAN OVERVIEW



# FIGURE 2. DECISION LOGIC FOR COMPUTING PREDICTION INTERVALS



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# APPENDIX

A. MONITORING SYSTEM DETAILS
B. GROUNDWATER MONITORING WELL DETAIL
C. GROUNDWATER SAMPLING PROCEDURE

# A. MONITORING SYSTEM DETAILS

FIGURE A-1 GROUNDWATER MONITORING NETWORK MAP

FIGURE A-2 POTENTIOMETRIC SURFACE CONTOUR MAP – FEBRUARY 2025

TABLE A-1 AP-4 WELL AND PIEZOMETER NETWORK DETAILS

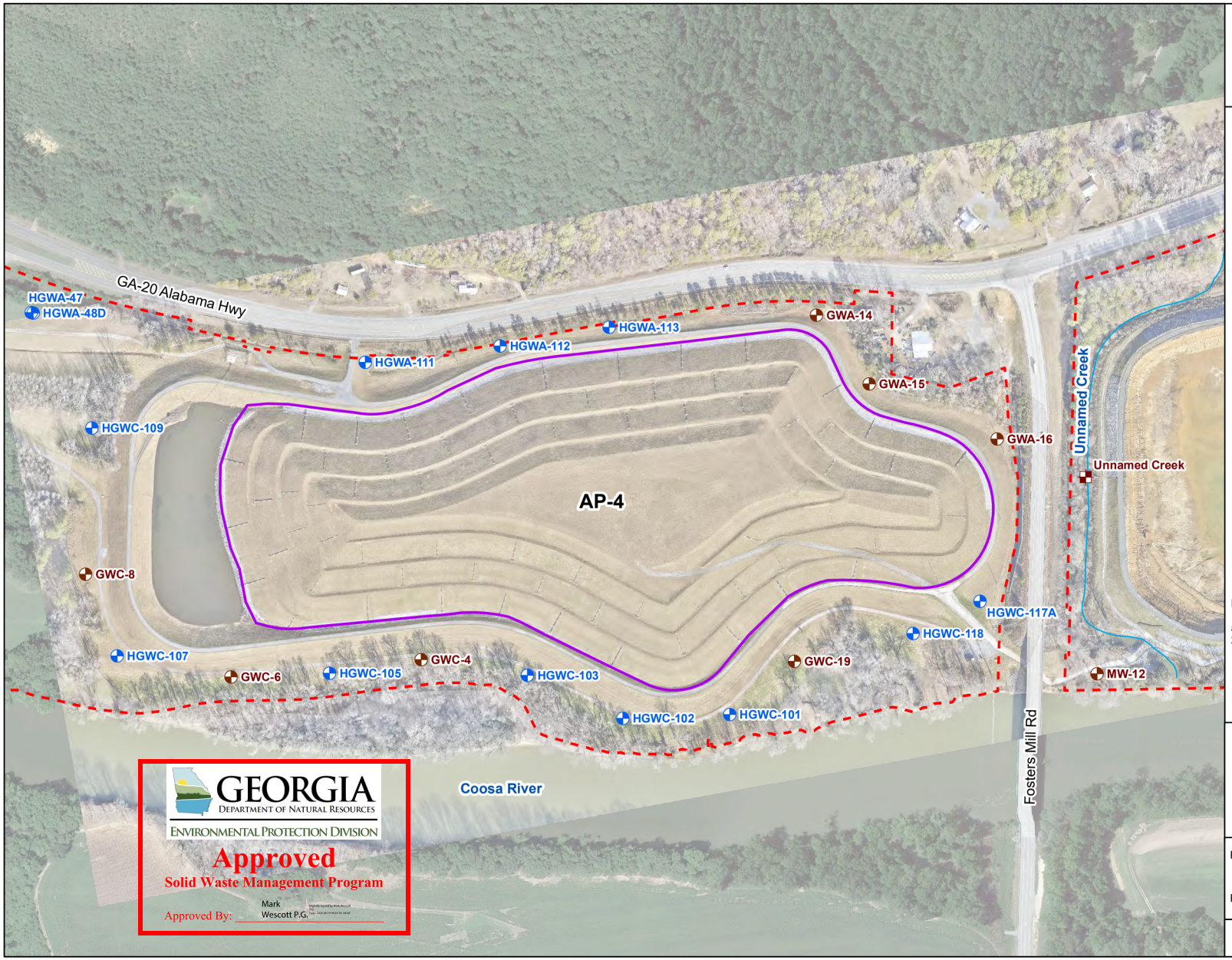
TABLE A-2 HORIZONTAL GROUNDWATER GRADIENT AND FLOW VELOCITY CALCULATIONS

BORING AND WELL CONSTRUCTION LOGS

CERTIFIED WELL NETWORK SURVEY DATA

PERFORMANCE BOND FOR DRILLERS

# FIGURE A-1
# GROUNDWATER MONITORING NETWORK MAP




GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

**Approved**

Solid Waste Management Program

Approved By: Mark Wescott P.G.

N

**LEGEND**

- Detection Monitoring Well
- Piezometer
- Surface Water Level Gauge Point
- Unnamed Creek
- Approximate AP-4 Boundary
- Plant Hammond Property Boundary


Note:
1. Aerial photograph source: Google Earth Pro August 2019 and Georgia Power Company, January 2024 and January 2025.

0 150 300 600

**SCALE IN FEET**

# GROUNDWATER MONITORING NETWORK MAP

GEORGIA POWER COMPANY
PLANT HAMMOND AP-4
ROME, FLOYD COUNTY, GEORGIA

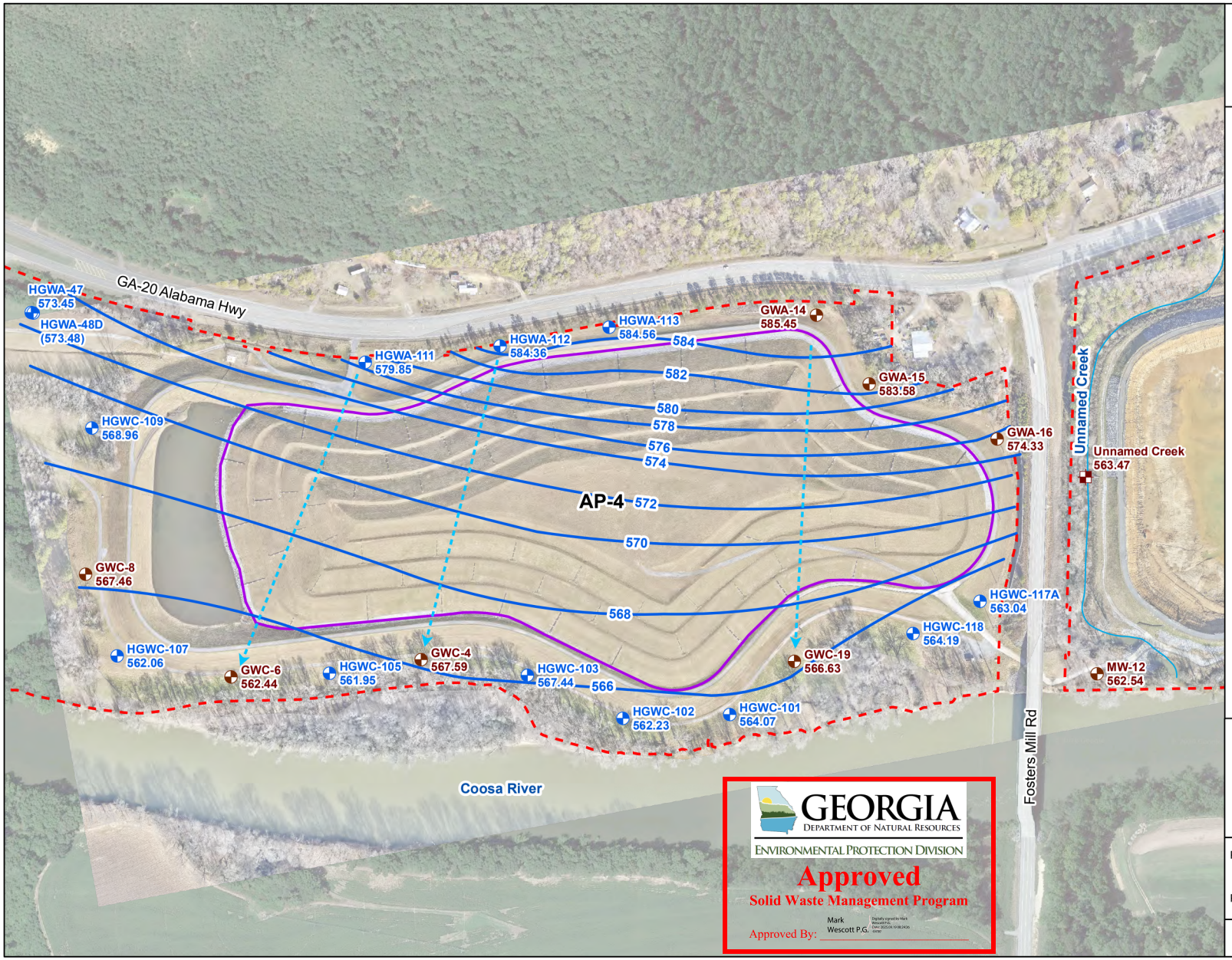
Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JULY 2025

**FIGURE A-1**

# FIGURE A-2
# POTENTIOMETRIC SURFACE CONTOUR MAP - FEBRUARY 2025




GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

**Approved**

Solid Waste Management Program

Approved By: Mark Wescott P.G.

N

**LEGEND**

- Detection Monitoring Well
- Piezometer
- Surface Water Level Gauge Point
- Groundwater Elevation Contour
- Approximate Groundwater Flow Direction
- Unnamed Creek
- Approximate AP-4 Boundary
- Plant Hammond Property Boundary

GEORGIA REGISTERED No. PE036570 PROFESSIONAL ENGINEER WHITNEY B. LAW

Notes:
1. Water level elevation recorded on February 10, 2025. Elevation provided in feet (ft) referenced to the North American Vertical Datum of 1988 (NAVD 88).
2. Groundwater elevations in parentheses were not used to make the groundwater contours because these wells are screened at a different elevation in the formation/aquifer.
3. Aerial photograph source: Google Earth Pro August 2019 and Georgia Power Company, January 2024 and January 2025.

0 150 300 600

SCALE IN FEET

**POTENTIOMETRIC SURFACE CONTOUR MAP - FEBRUARY 2025**

GEORGIA POWER COMPANY
PLANT HAMMOND AP-4
ROME, FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JULY 2025

**FIGURE A-2**

# TABLE A-1
# AP-4 WELL AND PIEZOMETER NETWORK DETAILS

**Table A-1**
**AP-4 Well and Piezometer Network Details**
**Georgia Power Company**
**Plant Hammond Ash Pond 4**
**Floyd County, Georgia**

| Well ID | Installation Date | Northing [1] | Easting [1] | Ground Surface Elevation [2] (ft) | Top of Casing Elevation (ft) | Top of Screen Elevation (ft) | Bottom of Screen Elevation (ft) | Well Depth [3] (ft BTOC) | Mean $K_h$, (cm/sec) | Mean $K_v$, (cm/sec) | Screened Media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Detection Monitoring Well*** | | | | | | | | | | | |
| HGWA-111 | 8/21/2012 | 1548834.26 | 1935222.81 | 588.79 | 591.75 | 558.48 | 548.48 | 43.67 | -- | -- | Overburden |
| HGWA-112 | 8/21/2012 | 1548885.63 | 1935647.00 | 593.46 | 596.27 | 566.52 | 556.52 | 40.15 | 1.04E-04 | -- | Overburden |
| HGWA-113 | 10/2/2012 | 1548944.62 | 1935990.09 | 592.07 | 594.58 | 568.87 | 558.87 | 36.11 | -- | -- | Overburden |
| HGWA-47 | 8/21/2020 | 1548990.96 | 1934171.84 | 577.39 | 580.33 | 546.84 | 536.84 | 43.74 | -- | -- | Overburden/PWR |
| HGWA-48D | 8/20/2020 | 1548989.39 | 1934178.15 | 577.29 | 580.26 | 517.54 | 507.54 | 72.97 | -- | -- | Bedrock |
| HGWC-101 | 8/7/2012 | 1547725.50 | 1936369.58 | 575.91 | 578.85 | 551.31 | 541.31 | 37.94 | -- | -- | Overburden |
| HGWC-102 | 8/7/2012 | 1547713.50 | 1936033.33 | 574.54 | 577.54 | 550.51 | 540.51 | 37.43 | -- | -- | Overburden |
| HGWC-103 | 8/8/2012 | 1547848.88 | 1935732.96 | 577.76 | 580.79 | 553.51 | 543.51 | 37.68 | -- | -- | Overburden |
| HGWC-105 | 8/8/2012 | 1547855.56 | 1935110.36 | 579.08 | 582.09 | 547.72 | 537.72 | 44.67 | -- | 3.10E-05 | Overburden |
| HGWC-107 | 8/8/2012 | 1547909.99 | 1934442.24 | 576.43 | 579.31 | 551.51 | 541.51 | 38.20 | -- | -- | Overburden |
| HGWC-109 | 8/15/2012 | 1548627.41 | 1934362.77 | 573.66 | 576.77 | 555.81 | 545.81 | 31.36 | -- | -- | Overburden |
| HGWC-117A | 7/21/2021 | 1548082.04 | 1937157.25 | 578.85 | 581.76 | 551.85 | 541.85 | 37.40 | -- | -- | Overburden |
| HGWC-118 | 10/1/2012 | 1547980.56 | 1936946.37 | 576.52 | 579.02 | 548.51 | 538.51 | 40.91 | -- | -- | Overburden |
| ***Piezometer*** | | | | | | | | | | | |
| MW-12 | 10/21/2014 | 1547853.78 | 1937525.46 | 580.59 | 583.27 | 555.84 | 545.84 | 37.83 | -- | -- | Overburden |
| GWC-4 | 8/8/2012 | 1547898.31 | 1935398.70 | 577.73 | 580.65 | 543.47 | 533.47 | 47.58 | 4.65E-03 | -- | Overburden/PWR |
| GWC-6 | 8/13/2012 | 1547843.93 | 1934800.45 | 578.55 | 581.63 | 553.90 | 543.90 | 38.13 | -- | -- | Overburden |
| GWC-8 | 8/9/2012 | 1548167.13 | 1934342.94 | 577.13 | 579.99 | 549.47 | 539.47 | 40.92 | 3.28E-04 | 3.10E-05 | Overburden |
| GWA-14 | 10/2/2012 | 1548982.59 | 1936642.58 | 589.70 | 592.14 | 561.40 | 551.40 | 41.14 | -- | -- | Overburden |
| GWA-15 | 8/22/2012 | 1548766.17 | 1936808.47 | 588.37 | 591.56 | 571.44 | 561.44 | 30.52 | 3.79E-04 | -- | Overburden |
| GWA-16 | 8/21/2012 | 1548592.74 | 1937210.99 | 579.58 | 582.55 | 569.94 | 559.94 | 23.01 | -- | -- | Overburden |
| GWC-19 | 8/14/2012 | 1547892.89 | 1936572.97 | 576.90 | 579.83 | 554.04 | 544.04 | 36.19 | -- | -- | Overburden |

Notes:
-- = not available
cm/sec = centimeters per second
ft = feet
ft BTOC = feet below top of casing
$K_h$ = Horizontal Hydraulic Conductivity
$K_v$ = Vertical Hydraulic conductivity
PWR = Partially weathered rock
(1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet.
(2) Elevations are referenced to the North American Vertical Datum (NAVD) 1988.
(3) Total well depth accounts for sump if data provided on well construction logs.

# TABLE A-2
# HORIZONTAL GROUNDWATER GRADIENT AND FLOW VELOCITY CALCULATIONS

**Table A-2**
**Horizontal Groundwater Gradient and Flow Velocity Calculations**
**Georgia Power Company**
**Plant Hammond Ash Pond 4**
**Floyd County, GA**

| Flow Path | Well Pair | Groundwater Elevations in Well Pairs[1] (ft) | | Change in Elevation (ft) | Distance Between Well 1 and Well 2 (L) (ft) | Horizontal Hydraulic Gradient (i) (ft/ft) | Horizontal Hydraulic Conductivity ($K_h$) (ft/day) | Estimated Effective Porosity ($n_e$) | Calculated Groundwater Flow Velocity (V) (ft/day) | Calculated Groundwater Flow Velocity (V) (ft/year) | Average Horizontal Hydraulic Gradient (i) (ft/ft) | Average Groundwater Flow Velocity (V) (ft/day) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Easterly Flow Path | GWA-14 to GWC-19 | 585.45 | 566.63 | 18.82 | 1090 | 0.017 | 1.67 | 0.15 | 0.19 | 70.2 | 0.017 | 0.19 |
| Central Flow Path | HGWA-112 to GWC-4 | 584.36 | 567.59 | 16.77 | 1018 | 0.016 | 1.67 | 0.15 | 0.18 | 66.9 | | |
| Westerly Flow Path | HGWA-111 to GWC-6 | 579.85 | 562.44 | 17.41 | 1077 | 0.016 | 1.67 | 0.15 | 0.18 | 65.7 | | |

Notes:
ft = feet
ft/day = feet per day
ft/ft = feet per foot
ft/year = feet per year
$K_h$ = Horizontal hydraulic conductivity
Horizontal hydraulic conductivity ($K_h$) of 1.67 feet per day (ft/day) is the geometric mean of slug testing data in the Plant Hammond Ash Pond 4 Hydraulic Assessment Report (Revision 1).
$n_e$ = effective porosity
V = groundwater flow velocity
Groundwater flow velocity equation: $V= (K_h * i)/n_e$
$i = h_1-h_2/L$ = horizontal hydraulic gradient ($h_1$ and $h_2$ = groundwater elevation at location 1 and 2)
L = distance between well 1 and well 2 along the flow path. See Figure A-2 for illustrated flow paths.
(1) Elevations shown are referenced to datum NAVD88, which indicates feet (ft) in elevation referenced to the North American Vertical Datum 1988.

# BORING AND WELL CONSTRUCTION LOGS

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: HGWA-111**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 588.79 feet | BORING STARTED: 8/20/2012 | RIG TYPE:CME-550 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/20/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 30 feet ATD
- 7.3 feet on 8/21/12

Remarks: Monitoring well set at 40.4 feet below ground surface
Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|
| | 588.5 | 0 | CLAYEY SILT (ML) with rounded to subrounded chert pebbles and yellow shale fragments, brown, damp, stiff — ALLUVIUM | | | | | | |
| | 578.5 | 10 | 10' CLAYEY SILT/SILTY CLAY (CH-MH), with scattered round pebbles and trace fine sand, yellow-brown with black oxidation staining, damp, stiff | | | | | | |
| | 574.5 | 15 | 14' CLAYEY SILT (ML) with trace fine sand, yellow-brown, orange, and gray with black oxidaiton staining, damp, very stiff | | | | | | |
| | 569.5 | 20 | 19' SANDY CLAYEY SILT (ML) with trace mica, weathered light gray and yellow-brown dolomite fragments, yellow-brown with zones of light blue-gray clayey sand, damp to moist, stiff to very stiff | | | | | | |
| | 558.5 | 30 | 30' SILTY CLAY (CH), with dark gray dolomite and claystone fragments, yellow-brown and orange, wet, stiff, soft and hard — RESIDUUM | | | | | | |
| | 548.0 | 40 | *Boring terminated at 40.5 feet* | | | | | | |
| | | 45 | | | | | | | |
| | | 50 | | | | | | | |

| Depth | Blows | N |
|---|---|---|
| 5 | 5 - 9 - 4 | (13) |
| 10 | 3 - 2 - 7 | (9) |
| 15 | 6 - 7 - 10 | (17) |
| 20 | 5 - 6 - 7 | (13) |
| 25 | 6 - 9 - 14 | (23) |
| 30 | 4 - 7 - 7 | (14) |
| 35 | 6 - 2 - 2 | (4) |
| 40 | >> 50/2 | (50+) |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

Borehole ID: 11

*Project Manager: J. Heywood, PE*

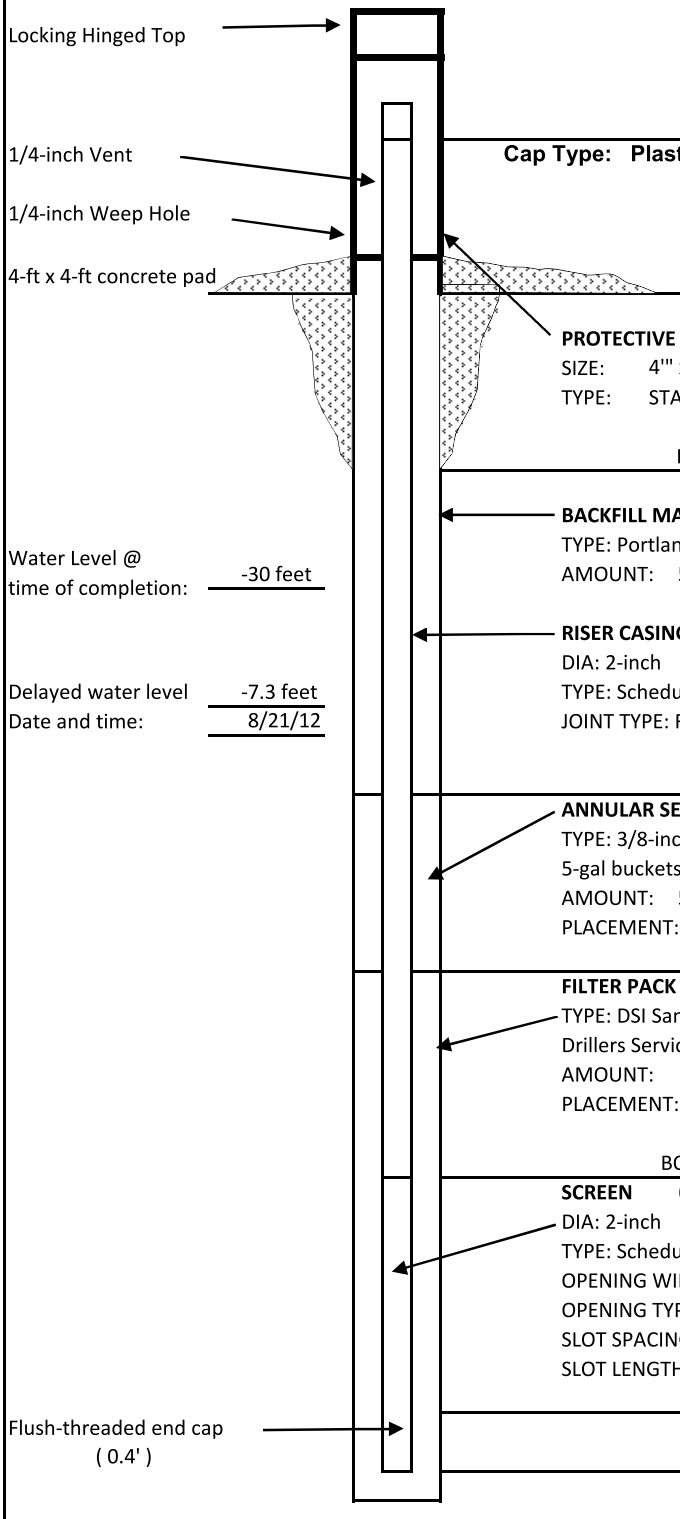
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | HGWA-111 |
| RIG TYPE: CME-550 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 21, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 3.27 | 591.75 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.31 | 588.79 |
| GROUND SURFACE | 0.0 | 588.48 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.25 | 587.23 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 50 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -23.5 | 564.98 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 4.4 feet | | |
| TOP OF FILTER PACK | -27.9 | 560.58 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 4.5 bags<br>PLACEMENT: 12.5 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -30.0 | 558.48 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -40.0 | 548.48 |
| BOTTOM OF CASING | -40.4 | 548.08 |

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: HGWA-112**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 593.46 feet | BORING STARTED: 8/21/2012 | RIG TYPE:CME-550 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/21/2012 | HAMMER: Automatic | |

GROUNDWATER:
▽ 16 feet ATD

Remarks: Monitoring well set at 37.0 feet below ground surface

Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) 0 10 20 30 40 50 60 70 80 90 100 | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|---|
| | 593.1 | 0 | 0.5' TOPSOIL, dark brown, grass, roots<br>CLAYEY SILT-SILTY CLAY (CL-ML) with dolomite, chert, shale, and coal fragments, yellow-brown, orange, gray, damp to moist, firm (FILL) | | | | | | 6 | 3 - 3 - 3 **(6)** |
| | 587.1 | 5 | 6' SILTY CLAY (CH) with scattered subrounded chert fragments, orange-brown, moist, firm (ALLUVIUM) | | | | | | 8 | 4 - 4 - 4 **(8)** |
| ▽ | 578.6 | 10 | 14.5' CLAYEY SILT/SANDY SILT (ML) with trace mica and scattered chert fragments, yellow-brown, orange, light blue-gray, dry to wet, very stiff to stiff | | | | | | 29 | 9 - 12 - 17 **(29)** |
| | 568.6 | 15 | 24.5' SANDY CLAY (CL) with trace mica, brown and light blue gray, moist to wet, firm to soft | | | | | | 11 | 5 - 5 - 6 **(11)** |
| | 558.4 | 20 | 34.7' CLAYEY FINE SAND (SC) with trace mica and scattered subround pebble, gray and orange, wet, firm | | | | | | 7 | 3 - 3 - 4 **(7)** |
| | 556.1 | 25 | *Boring terminated at 37 feet* | | | | | | 4 | 3 - 2 - 2 **(4)** |
| | | 30 | | | | | | | 13 | 3 - 5 - 8 **(13)** |
| | | 35 | | | | | | | | |
| | | 40 | | | | | | | | |
| | | 45 | | | | | | | | |
| | | 50 | | | | | | | | |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

Borehole ID: 12

*Project Manager: J. Heywood, PE*

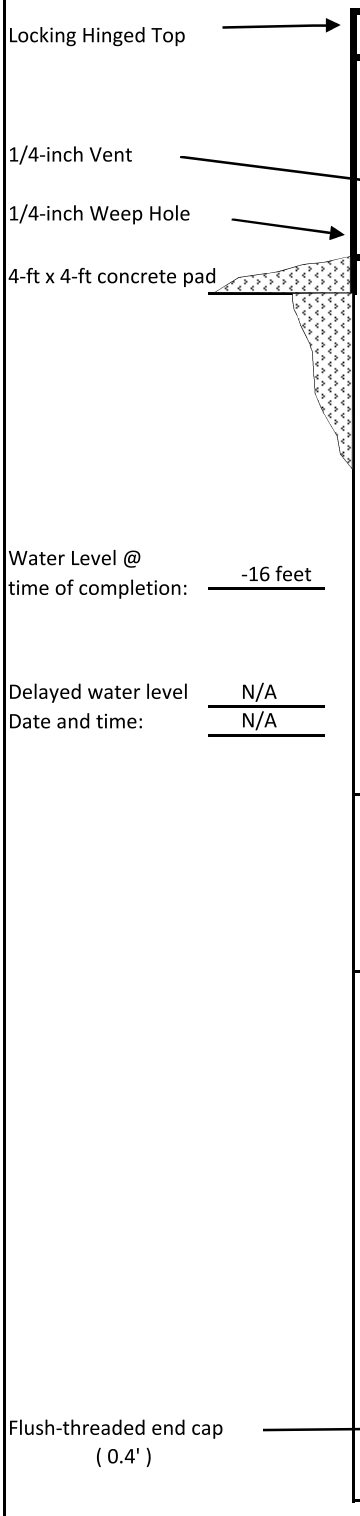
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | **HGWA-112** |
| RIG TYPE: CME-550 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 21, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 3.15 | 596.27 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.34 | 593.46 |
| GROUND SURFACE | 0.0 | 593.12 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.45 | 591.67 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 26 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -21.5 | 571.62 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 2.8 feet | | |
| TOP OF FILTER PACK | -24.3 | 568.82 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 5.5 bags<br>PLACEMENT: 12.7 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -26.6 | 566.52 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -36.6 | 556.52 |
| BOTTOM OF CASING | -37.0 | 556.12 |

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: HGWA-113**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 592.07 feet | BORING STARTED: 10/2/2012 | RIG TYPE:CME-550 | AUGER DIA. (IN): 6¼ |
| DRILLING METHOD: Hollow Stem Augers | BORING COMPLETED: 10/2/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 10 feet ATD
- 10.75 feet on 10/3/12

Remarks: Monitoring well set at 33.7 feet below ground surface

Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) 0 10 20 30 40 50 60 70 80 90 100 | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|---|
| | 591.8 | 0 | SILTY CLAY (CH) with rock fragments, orange-brown, wet (vacuum excavated and backfilled for underground utility clearance) FILL | | | | | | | |
| | 581.8 | 10 10' | SILTY CLAY (CL) with sandstone fragments and trace sand, orange-brown, wet, firm ALLUVIUM | | | | | | 7 | 2 - 3 - 4 **(7)** |
| | 576.8 | 15 15' | CLAYEY SILT (ML), yellow-brown, damp to moist, very stiff | | | | | | 18 | 6 - 8 - 10 **(18)** |
| | 570.5 | 20 21.3' | CLAYEY SANDY SILT (ML) with trace mica, yellow-brown and orange, moist, very stiff to stiff | | | | | | 16 | 6 - 7 - 9 **(16)** |
| | | 25 | | | | | | | 14 | 4 - 7 - 7 **(14)** |
| | 560.8 | 30 31' | SANDY CLAY (CL) with trace mica, gray-brown, moist, firm | | | | | | 5 | 3 - 2 - 3 **(5)** |
| | 558.1 | 35 | *Boring terminated at 33.7 feet* | | | | | | | |
| | | 40 | | | | | | | | |
| | | 45 | | | | | | | | |
| | | 50 | | | | | | | | |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

Borehole ID: 13

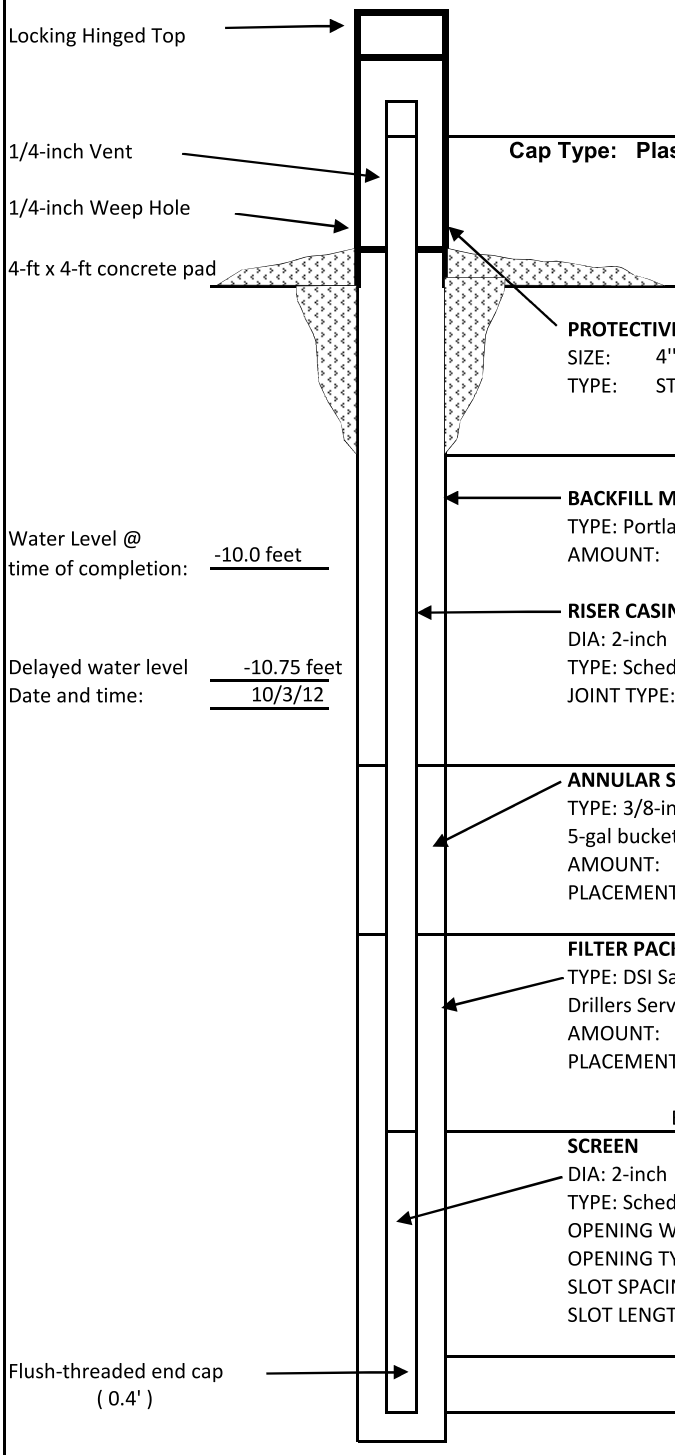
*Project Manager: J. Heywood, PE*

*Logged by: P. Gribben, PG*

**Log updated with revised survey certified 5/11/2020.**

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA
## WELL CONSTRUCTION LOG

| | |
|---|---|
| CLIENT: SOUTHERN COMPANY | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) LOGGED BY: PAT GRIBBEN (S&ME) | **HGWA-113** |
| RIG TYPE: CME-550 DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: October 2, 2012 | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 2.83 | 594.58 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.32 | 592.07 |
| GROUND SURFACE | 0.0 | 591.75 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.7 | 590.05 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 31.25 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -18.7 | 573.05 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 2.9 feet | | |
| TOP OF FILTER PACK | -21.6 | 570.15 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 6 bags<br>PLACEMENT: 11.68 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -22.88 | 568.87 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -32.88 | 558.87 |
| BOTTOM OF CASING | -33.28 | 558.47 |

Elevation in NAVD 88.

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Geosyntec Consultants
1255 Roberts Boulevard
Kennesaw, GA 30144

# HGWA-47



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Hammond Well Installation
**PROJECT NUMBER** GW6581B
**PROJECT LOCATION** Plant Hammond
**DATE STARTED** 8/21/20 **COMPLETED** 8/21/20
**NORTHING** 1548990.96 ft **EASTING** 1934171.84 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 577.39 ft **BORING DIAMETER** 6 in
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 580.33 ft
**SAMPLING METHOD** 4" core 6" override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** A. Ramsey **CHECKED BY** J. Ivanowski

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | 575 | | | Hydro Excavation (0 ft to 10 ft)<br>NO SAMPLE |
| 10 | 565 | | | 567.4<br>GRAVELLEY CLAY, Reddish yellow to Yellowish red, trace light gray mottling, angular to sub rounded gravel from 1/2 to 1 in diameter, gravel content decreases to moderate between 17 ft to 20 ft, low plasticity, some coal fragments throughout, trace brick fragments, hard, moist. |
| 20 | 555 | | | 557.4<br>20 ft to 23 ft: No recovery.<br>554.4<br>SANDY CLAY, Reddish yellow to light brown, high plasticity, trace gravel, firm, wet. |
| 25 | 550 | | | 551.9<br>GRAVELLEY CLAY, Brown to light gray, some shale fragments and claystone gravel, hard, non plastic, dry to moist. |
| 30 | 545 | | | 547.4<br>30 ft to 31 ft: No recovery.<br>546.4<br>CLAYSTONE, Gray, recovered as gravel and cobbles, with large calcite minerals, saturated from drill water, hard.<br>545.4<br>PARTIALLY WEATHERED ROCK, Light brown to gray, partially weathered, recovered as shaley clay, medium plasticity, soft to firm, wet. |
| 40 | 540 | | | 536.4<br>Bottom of borehole at 41.0 feet. |

CONSTRUCTION DIAGRAM

- Schedule 40 PVC 2"
- Aquaguard Sodium Bentonite Grout
- Bentonite coated 3/8" pellets
- 20/40 Silica Sand
- 0.010 slot size 2" Pre Pack, U-Pack Screen
- Bottom of well: 40.8 ft

Easting and Northing in NAD 1983.
Elevation in NAVD 88.

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1255 Roberts Boulevard
Kennesaw, GA 30144

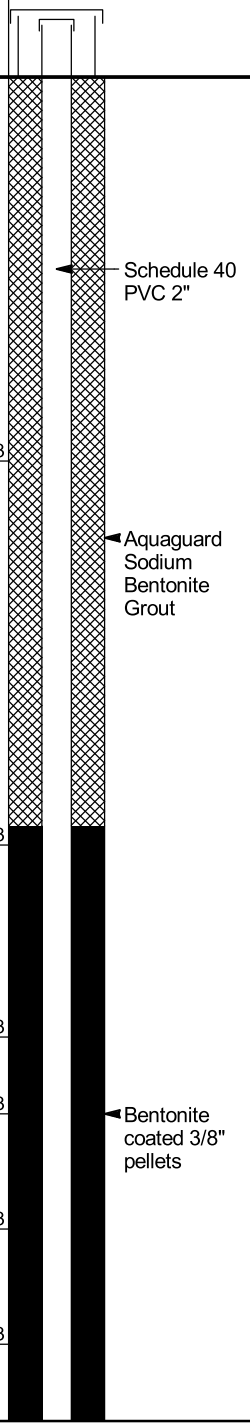


# HGWA-48D

**CLIENT** Southern Company Services
**PROJECT NAME** Plant Hammond Well Installation
**PROJECT NUMBER** GW6581B
**PROJECT LOCATION** Plant Hammond
**DATE STARTED** 8/20/20 **COMPLETED** 8/20/20
**NORTHING** 1548989.39 ft **EASTING** 1934178.14 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 577.29 ft **BORING DIAMETER** 6 in
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 580.26 ft
**SAMPLING METHOD** 4" core 6" override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** A. Ramsey **CHECKED BY** J. Ivanowski

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | 575 | | | Hydro Excavation (0 ft to 10 ft)<br>NO SAMPLE |
| 5 | 570 | | | |
| 10 | 565 | | | 567.3<br>CLAY, Yellowish red with reddish yellow mottling, friable, non plastic to low plasticity, trace sand and rounded gravel, hard, dry to moist.<br>13 ft: Yellowish red with light gray mottling, some sub angular to sub round gravel, trace fine sand, very hard. |
| 15 | 560 | | | |
| 20 | 555 | | | 557.3<br>18 ft: Trace gravel and sand.<br>20 ft to 25 ft: No recovery. |
| 25 | 550 | | | 552.3<br>SANDY CLAY, Reddish yellow, medium plasticity, fine grained, very soft, wet.<br>550.3<br>GRAVELLEY CLAY, Reddish yellow to light brown, some sand, gravel up to 4 in diameter, non plastic to low plasticity, soft, wet to moist. |
| 30 | 545 | | | 547.3<br>30 ft to 33 ft: No recovery.<br>544.3<br>PARTIALLY WEATHERED ROCK, Gray, dry to moist, firm to hard, non plastic, shale fragments, thinly bedded, few light gray gravel claystone. |

CONSTRUCTION DIAGRAM






(Continued Next Page)

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Kennesaw, GA 30144



**CLIENT** Southern Company Services **PROJECT NAME** Plant Hammond Well Installation

**PROJECT NUMBER** GW6581B **PROJECT LOCATION** Plant Hammond

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | CONSTRUCTION DIAGRAM |
|---|---|---|---|---|---|
| 35 | | | | PARTIALLY WEATHERED ROCK, Gray, dry to moist, firm to hard, non plastic, shale fragments, thinly bedded, few light gray gravel claystone. *(continued)* | |
| | | | | 540.8 | |
| | 540 | | | SHALE, Light gray to brown, partially weathered, claystone gravel, medium to thin bedding, mostly pulverized by drilling, wet, some clay throughout. | Bentonite coated 3/8" pellets |
| 40 | | | | 537.3 | |
| | 535 | | | SHALE, Light to dark gray with some light brown, mostly pulverized by drilling, thinly bedded massively, dry, 40 ft to 41 ft and 46 ft to 47 ft are wet due to drilling water, hard. | |
| 45 | | | | | |
| | 530 | | | | |
| 50 | | | | 527.3 | |
| | 525 | | | 50 ft to 54 ft: No recovery. | |
| | | | | 523.3 | |
| 55 | | | | CLAYSTONE, Light gray to yellowish red, thinly to massively bedded, gravel to cobble sized fragments, hard, wet. | |
| | | | | 522.3 | |
| | 520 | | | SHALE, Light gray, thinly bedded, partially pulverized, wet to saturated, fissile. | |
| | | | | 59 ft: Dry. | |
| 60 | | | | 517.3 | 20/40 Silica Sand |
| | 515 | | | 60 ft to 63 ft: No recovery. | |
| | | | | 514.3 | |
| 65 | | | | SHALE, Light gray, thinly bedded to massive, gravel sized fragments, hard, wet. | 0.010 slot size 2" Pre Pack, U-Pack Screen |
| | 510 | | | | |
| 70 | | | | 69 ft: Dry. | Bottom of well: 70 ft |
| | | | | 507.3 | |

Bottom of borehole at 70.0 feet.

Easting and Northing in NAD 1983.
Elevation in NAVD 88.

SCS MONITORING WELLS PLANT HAMMOND HGWA7 TO HGWA114 AND MW46D_AUGUST 2020.GPJ ACP GINT LIBRARY CH.GLB 9/23/20

Log updated with revised survey certified 5/11/2020.

S&ME

# TEST BORING RECORD

**BORING NO.: HGWC-101**

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 575.91 feet | BORING STARTED: 8/7/2012 | RIG TYPE:CME-55 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/7/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 26.9 feet ATD
- 10.2 feet on 8/7/12

Remarks: Monitoring well set at 34.7 feet below ground surface

Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|
| | 575.91 | 0 | | | | | | | |
| | 573.39 | 1.5' | TOPSOIL, grass roots | | | | | | |
| | | | SILT (ML) with trace mica, dark brown, dry, firm | | | | | | |
| | 571.39 | 4.5' | CLAYEY SILT (ML) with trace mica and fine sand, brown to dark brown, damp to moist, firm to soft | ALLUVIUM | | | | | 3 - 4 - 4 **(8)** |
| ▼ | | 10 | | | | | | | 2 - 2 - 2 **(4)** |
| | | 15 | | | | | | | 1 - 2 - 1 **(3)** |
| | 556.39 | 19.5' | SANDY CLAYEY SILT (ML) with trace mica, brown and light gray, damp, firm | | | | | | 2 - 3 - 3 **(6)** |
| | 551.39 | 24.5' | SILTY SAND (SM) with trace mica, dark olive to brown, moist to wet, very loose | | | | | | 0 - 1 - 2 **(3)** |
| ▽ | | 30 | | | | | | | 0 - 0 - 0 **(0)** |
| | 542.39 | 33.5' | CLAYEY FINE SAND (SC) with trace mica, dark gray, wet, very loose | | | | | | |
| | 540.89 | 35' | | | | | | | 0 - 11 - 2 **(13)** |
| | 539.89 | | SAND (SP), yellow-brown, coarse, wet, firm | | | | | | |
| | | 40 | *Boring terminated at 36 feet* | | | | | | |
| | | 45 | | | | | | | |
| | | 50 | | | | | | | |

BORING SOUTHERN 12-153.GPJ S&ME 1-18-2012.GDT 9/18/12

Borehole ID: 1

*Project Manager: J. Heywood, PE*

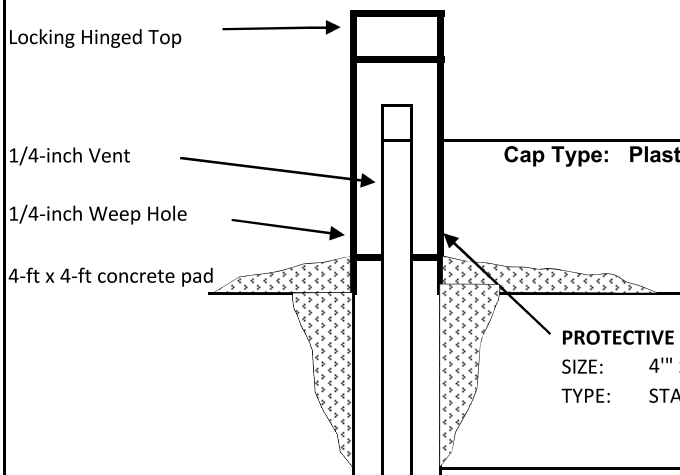
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | |
|---|---|
| CLIENT: SOUTHERN COMPANY | WELL ID: HGWC-101 |
| DRILLED BY: CHAD ODOM (S&ME) LOGGED BY: PAT GRIBBEN (S&ME) | |
| RIG TYPE: CME-55 DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 7, 2012 | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 3.24 | 578.85 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.30 | 575.91 |
| GROUND SURFACE | 0.0 | 575.61 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.25 | 574.36 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 26 gallons | | |
| Water Level @ time of completion: -26.9 feet | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| Delayed water level -10.2 feet<br>Date and time: 8/7/12 | | |
| TOP OF SEAL | -19.2 | 556.41 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 2.8 feet | | |
| TOP OF FILTER PACK | -22.0 | 553.91 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 6 bags<br>PLACEMENT: 12.7 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -24.3 | 551.31 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -34.3 | 541.31 |
| Flush-threaded end cap ( 0.4' ) | | |
| BOTTOM OF CASING | -34.7 | 540.91 |

HOLE DIA: 6.75"

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: HGWC-102**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 574.54 feet | BORING STARTED: 8/7/2012 | RIG TYPE:CME-550 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/7/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 11.9 feet ATD
- 10.15 feet on 8/15/12

Remarks: Monitoring well set at 34.1 feet below ground surface

Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) 0 10 20 30 40 50 60 70 80 90 100 | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|---|
| | 574.54 | 0 | SILT (ML) with trace mica, dark brown, dry, soft | ALLUVIUM | | | | | 4 | 2 - 2 - 2 **(4)** |
| | 565.04 | 9.5' | CLAYEY SILT (ML) with trace mica and fine sand, brown, very moist, soft to very soft | | | | | | 2 | 0 - 0 - 2 **(2)** |
| | | | | | | | | | 0 | 0 - 0 - 0 **(0)** |
| | 555.04 | 19.5' | SILTY SAND (SM) with trace mica, brown, moist to damp, very loose | | | | | | 1 | 1 - 0 - 1 **(1)** |
| | 548.54 | 26' | CLAYEY FINE SAND (SC) with trace mica, dark gray, moist to wet, very loose | | | | | | 2 | 0 - 0 - 2 **(2)** |
| | 543.34 | 31.2' | Saturated wood at 31' | | | | | | 4 | 7 - 2 - 2 **(4)** |
| | 538.54 | | SAND (SP), coarse to medium, brown to yellow-brown, very firm<br>Clayey silt and weathered shale, green-gray at 36' | | | | | | 22 | 7 - 13 - 9 **(22)** |
| | | | *Boring terminated at 36 feet* | | | | | | | |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

Borehole ID: 2

*Project Manager: J. Heywood, PE*

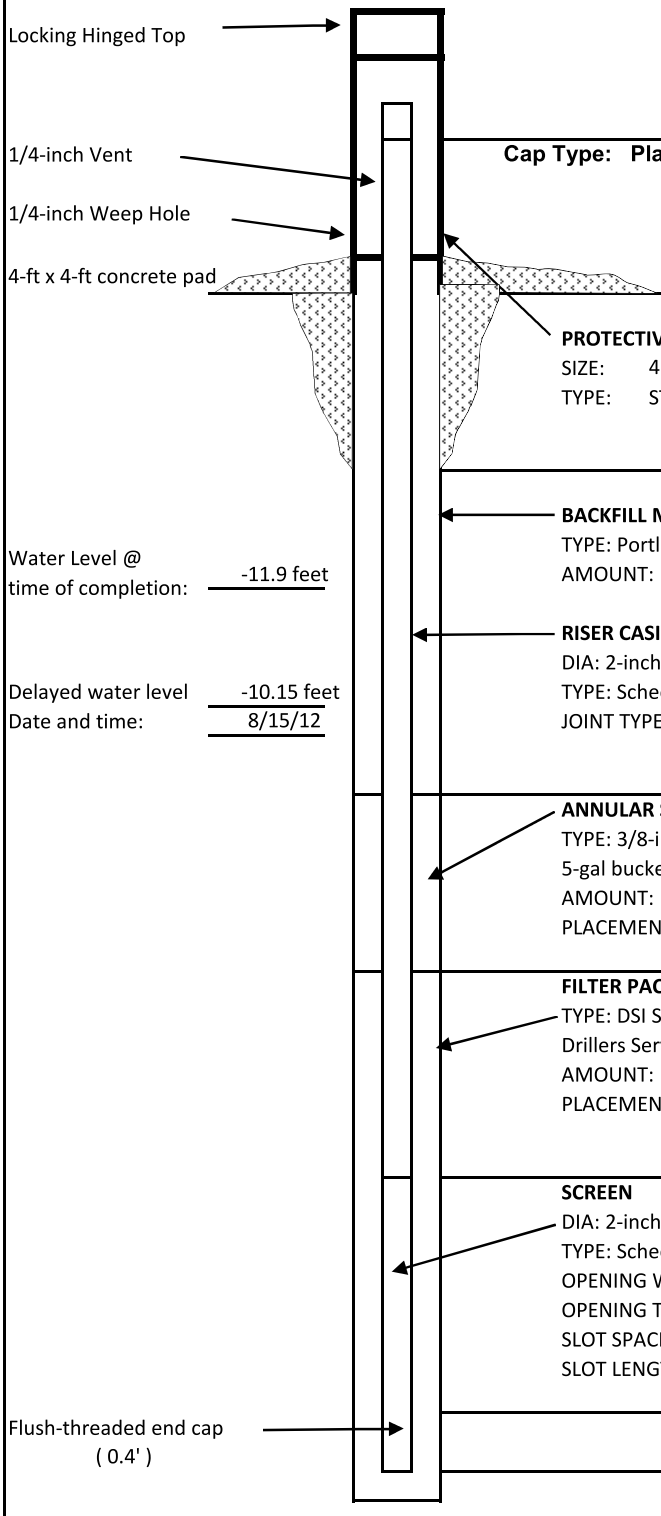
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | |
|---|---|
| CLIENT: SOUTHERN COMPANY | WELL ID: |
| DRILLED BY: Sean Denty (Southern Co.) LOGGED BY: PAT GRIBBEN (S&ME) | HGWC-102 |
| RIG TYPE: CME-550 DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 7, 2012 | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 3.33 | 577.54 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.33 | 574.54 |
| GROUND SURFACE | 0.0 | 574.21 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.35 | 572.86 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 51 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -18.2 | 556.01 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 2.7 feet | | |
| TOP OF FILTER PACK | -20.9 | 553.31 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 6.5 bags<br>PLACEMENT: 13.2 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -23.7 | 550.51 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -33.7 | 540.51 |
| BOTTOM OF CASING | -34.1 | 540.11 |

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: HGWC-103**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 577.76 feet | BORING STARTED: 8/7/2012 | RIG TYPE:CME-55 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/7/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 11.5 feet ATD
- 12.60 feet on 8/16/12

Remarks: Monitoring well set at 34.3 feet below ground surface

Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|
| | 577.8 | 0 | 0.4' TOPSOIL, grass, roots | | | | | | |
| | | | SILT (ML) with trace mica, dark brown to brown, dry, stiff | ALLUVIUM | | | | | |
| | 571.5 | 5 | 6' CLAYEY SILT (ML) with trace mica, brown and light gray, damp to moist, stiff to firm | | | | | | 9 — 2 - 4 - 5 **(9)** |
| | | 10 | | | | | | | 9 — 7 - 5 - 4 **(9)** |
| | | 15 | | | | | | | 7 — 2 - 3 - 4 **(7)** |
| | 557.5 | 20 | 20' CLAYEY SILT (ML) with trace mica and fine sand, brown, moist, soft | | | | | | 4 — 2 - 2 - 2 **(4)** |
| | 552.5 | 25 | 25' CLAYEY FINE SAND (SC), micaceous, brown, moist, very loose | | | | | | 2 — 1 - 1 - 1 **(2)** |
| | 548.0 | 30 | 29.5' SANDY CLAYEY SILT (MH), organic with trace mica and shell fragments, dark gray, moist, very soft | | | | | | 0 — 0 - 0 - 0 **(0)** |
| | 543.0 | 35 | 34.5' SAND (SP), medium to coarse, yellow-brown, wet, firm | | | | | | 15 — 6 - 8 - 7 **(15)** |
| | 541.5 | | *Boring terminated at 36 feet* | | | | | | |
| | | 40 | | | | | | | |
| | | 45 | | | | | | | |
| | | 50 | | | | | | | |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

*Borehole ID: 3*

*Project Manager: J. Heywood, PE*

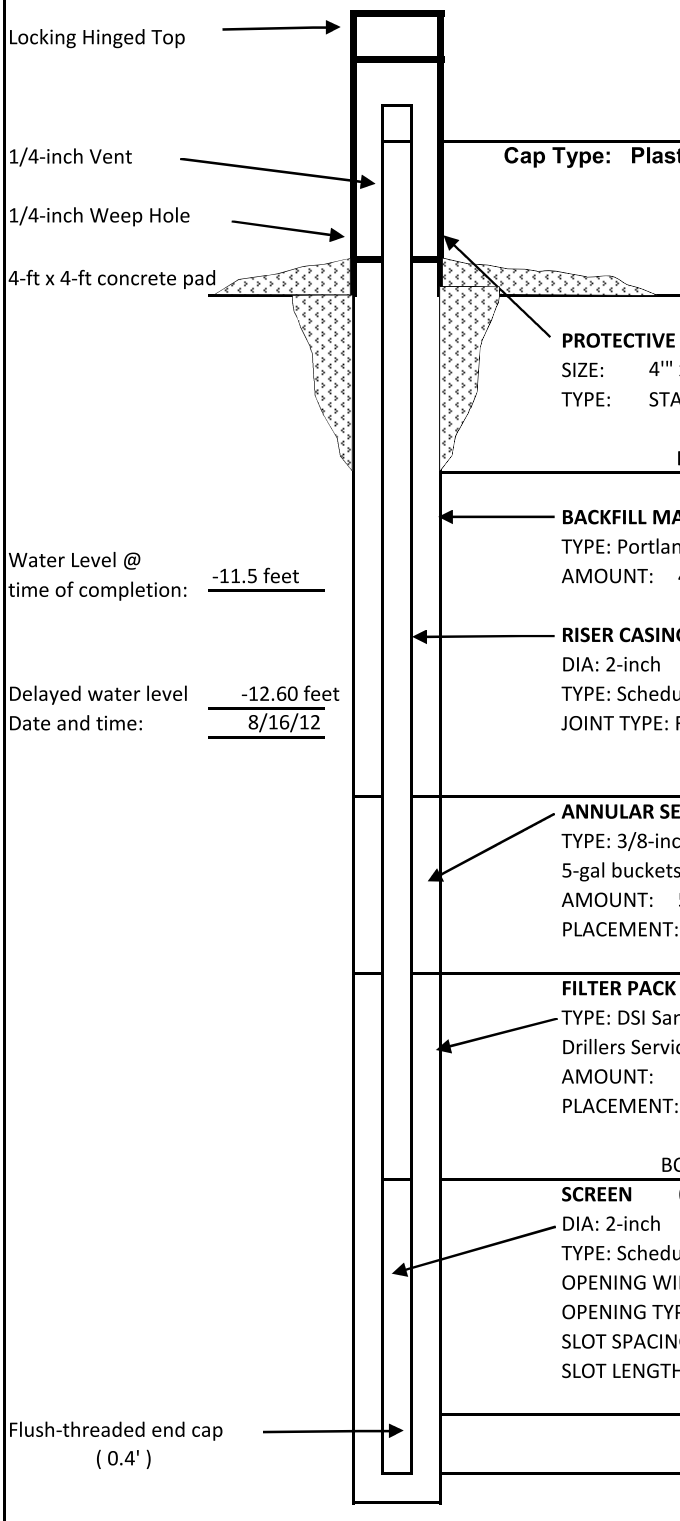
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | HGWC-103 |
| RIG TYPE: CME-55 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 8, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 3.38 | 580.79 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.35 | 577.76 |
| GROUND SURFACE | 0.0 | 577.41 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.3 | 576.11 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 43 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -19.7 | 557.71 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 2.2 feet | | |
| TOP OF FILTER PACK | -21.9 | 555.88 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 5.5 bags<br>PLACEMENT: 12.4 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -23.9 | 553.51 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -33.9 | 543.51 |
| BOTTOM OF CASING | -34.3 | 543.11 |

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: HGWC-105**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 579.08 feet | BORING STARTED: 8/8/2012 | RIG TYPE:CME-55 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/8/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 18 feet ATD
- 15.12 feet on 8/16/12

Remarks: Monitoring well set at 41.4 feet below ground surface

Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|
| | 579.08 | 0 | 0.1' TOPSOIL, grass, roots<br>SILT (ML) with trace mica and fine sand, brown to light brown, damp, firm | ALLUVIUM | | | | | |
| | 567.1 | 12' | Undisturbed sample | | | | | | |
| | 565.0 | 14' | CLAYEY SILT (ML) with trace mica and fine sand, light brown, moist, soft | | | | | | |
| | 561.0 | 18' | SILTY CLAY (CH) with trace mica, brown, wet, very soft | | | | | | |
| | 555.0 | 24' | CLAYEY SILT (MH) with trace mica and fine sand, light brown, wet, very soft | | | | | | |
| | 551.0 | 28' | CLAYEY FINE SAND (SC) with trace mica, dark gray, wet, very loose | | | | | | |
| | 543.5 | 35.5' | SAND (SP) intermittent layers of yellow-brown coarse sand and light brown medium sand, wet, firm | | | | | | |
| | 538.7 | 40.3' | WEATHERED SHALE with clayey silt, yellow-brown, moist, stiff - RESIDUUM | RES. | | | | | |
| | 538.0 | | *Boring terminated at 41 feet* | | | | | | |

STANDARD PENETRATION RESISTANCE (N) scale: 0 10 20 30 40 50 60 70 80 90 100

| | |
|---|---|
| 7 | 2 - 3 - 4 **(7)** |
| 5 | 2 - 2 - 3 **(5)** |
| 3 | 0 - 1 - 2 **(3)** |
| 0 | 0 - 0 - 0 **(0)** |
| 0 | 0 - 0 - 0 **(0)** |
| 3 | 0 - 1 - 2 **(3)** |
| 8 | 0 - 2 - 6 **(8)** |
| 14 | 5 - 6 - 8 **(14)** |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

*Borehole ID: 5*

*Project Manager: J. Heywood, PE*

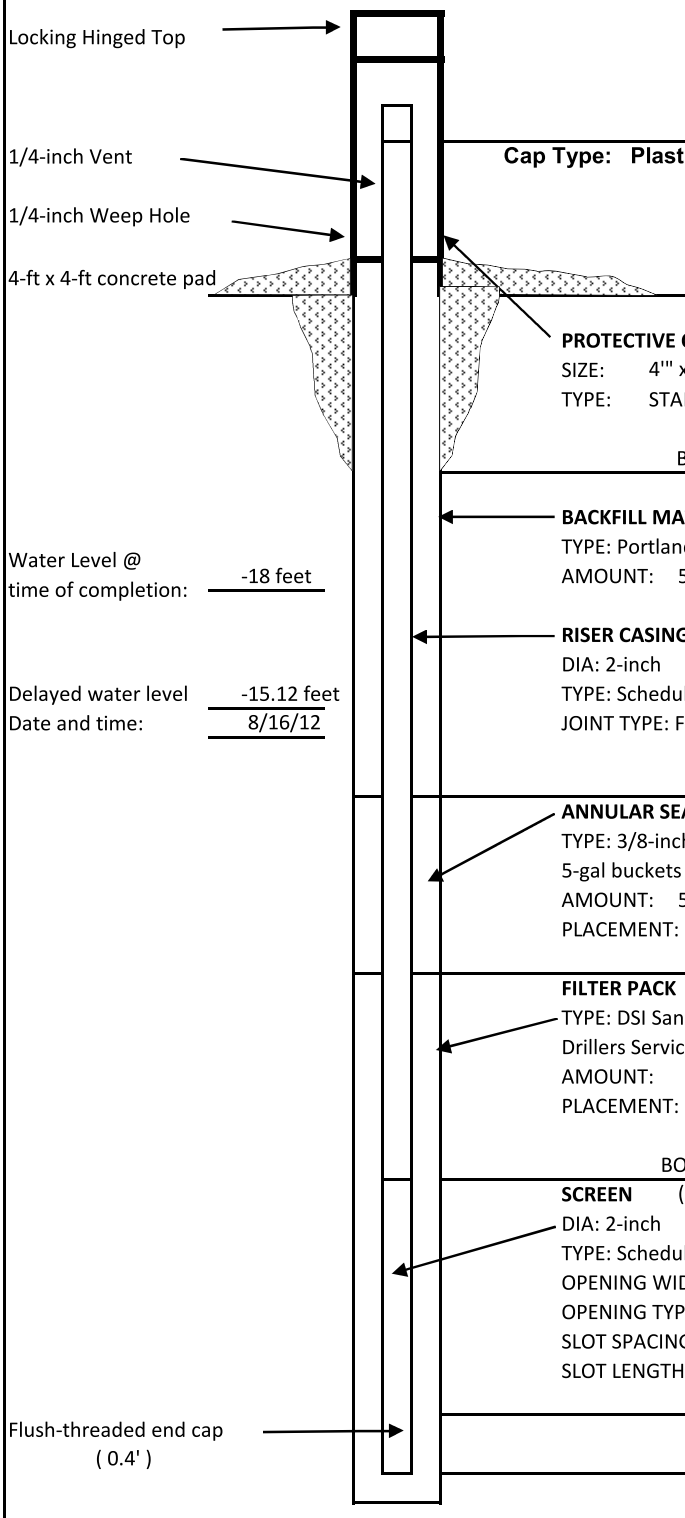
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | HGWC-105 |
| RIG TYPE: CME-55 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 8, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | (3.37) | 582.09 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.36 | 579.08 |
| GROUND SURFACE | 0.0 | 578.72 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.45 | 577.27 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 55 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -25.0 | 553.72 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 2 feet | | |
| TOP OF FILTER PACK | -27.0 | 552.09 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 5.5 bags<br>PLACEMENT: 14.4 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -31.0 | 547.72 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -41.0 | 537.72 |
| BOTTOM OF CASING | -41.3 | 537.42 |

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: HGWC-107**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 576.43feet | BORING STARTED: 8/8/2012 | RIG TYPE:CME-55 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/8/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 14.5 feet ATD
- 12.35 feet on 8/14/12

Remarks: Monitoring well set at 35.0 feet below ground surface
Elevation in NAVD 88.

| ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 576.4 | 0 | 0.3' TOPSOIL, roots, grass<br>SILT (ML) with trace mica and fine sand, brown, damp, firm | ALLUVIUM | | | | | |
| 566.9 | 10 | 9.5' SILTY FINE SAND (SM), with trace mica, light brown to brown, damp, loose | | | | | | 3 - 4 - 3 **(7)** |
| 561.9 | 15 | 14.5' CLAYEY FINE SAND (SC) with trace mica, brown, wet, very loose | | | | | | 3 - 3 - 2 **(5)** |
| 557.9 | 20 | 19.5' SAND (SP), medium to fine with trace mica, brown, wet, very loose | | | | | | 2 - 2 - 2 **(4)** |
| 551.9 | 25 | 24.5' CLAYEY FINE SAND (SC), brown to light brown, wet, very loose | | | | | | 1 - 2 - 2 **(4)** |
| 546.4 | 30 | 30' SAND (SP) with some gravel increasing with depth, medium to coarse, yellow-brown, wet, very firm to dense | | | | | | 2 - 2 - 2 **(4)** |
| 540.4 | 35 | *Boring terminated at 36 feet* | | | | | | 6 - 12 - 11 **(23)** |
| | 40 | | | | | | | 12 - 19 - 24 **(43)** |
| | 45 | | | | | | | |
| | 50 | | | | | | | |



*Project Manager: J. Heywood, PE*

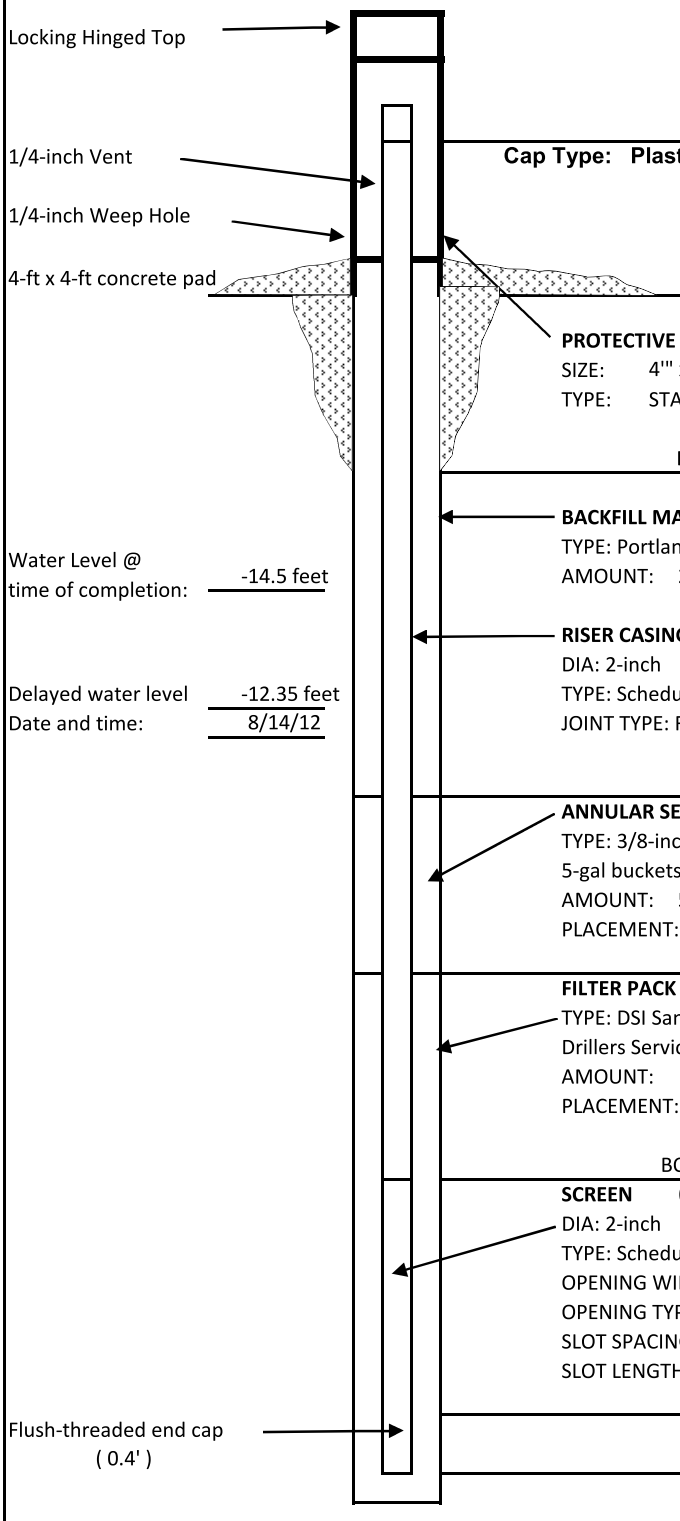
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | **HGWC-107** |
| RIG TYPE: CME-55 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 8, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 3.2 | 579.31 |
| **Cap Type: Plastic Locking** | | |
| TOP OD NAIL | 0.32 | 576.43 |
| GROUND SURFACE | 0.0 | 576.11 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.5 | 574.61 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 22 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -20.0 | 556.11 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 2 feet | | |
| TOP OF FILTER PACK | -22.0 | 554.11 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 6.25 bags<br>PLACEMENT: 13 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -24.6 | 551.51 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -34.6 | 541.51 |
| BOTTOM OF CASING | -35 | 541.11 |

Elevation in NAVD 88.

Log updated with revised survey certified 5/11/2020.

**BORING NO.: HGWC-109**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 573.66 feet | BORING STARTED: 8/14/2012 | RIG TYPE:CME-55 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/14/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 24.5 feet ATD
- 6.0 feet on 8/16/12

Remarks: Monitoring well set at 27.9 feet below ground surface

Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) 0 10 20 30 40 50 60 70 80 90 100 | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|---|
| | 573.6 | 0 | 0.4' TOPSOIL, grass, roots | | | | | | | |
| | | | SILTY CLAY (CH) with scattered angular pebbles, orange-brown, damp | FILL | | | | | | |
| ▼ | 569.1 | 5 | 4.5' SILTY CLAY (OH), organic, with trace mica, dark gray-brown, damp to moist, soft | ALLUVIUM | | | | | 3 | 2 - 1 - 2 **(3)** |
| | 563.9 | 10 | 9.7' CLAYEY SILT (MH) with trace mica, yellow-brown and gray with black oxidation staining, damp to moist (thin vertical zones of free water), firm | | | | | | 7 | 2 - 3 - 4 **(7)** |
| | | 15 | | | | | | | 7 | 2 - 3 - 4 **(7)** |
| | | 20 | | | | | | | 5 | 2 - 2 - 3 **(5)** |
| ▽ | 549.1 | | | | | | | | | |
| | | 25 | 24.5' 25.5' SANDY SILT (MH) with trace mica, dark gray, wet, firm | | | | | | 7 | 0 - 0 - 7 **(7)** |
| | 548.1 | | SAND AND GRAVEL (SP-GP) with silt, poorly sorted, angular to rounded, coarse, brown to gray, wet, loose to very firm | | | | | | | |
| | 542.6 | 30 | *Boring terminated at 31 feet* | | | | | | 25 | 11 - 12 - 13 **(25)** |
| | | 35 | | | | | | | | |
| | | 40 | | | | | | | | |
| | | 45 | | | | | | | | |
| | | 50 | | | | | | | | |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

Borehole ID: 9

*Project Manager: J. Heywood, PE*

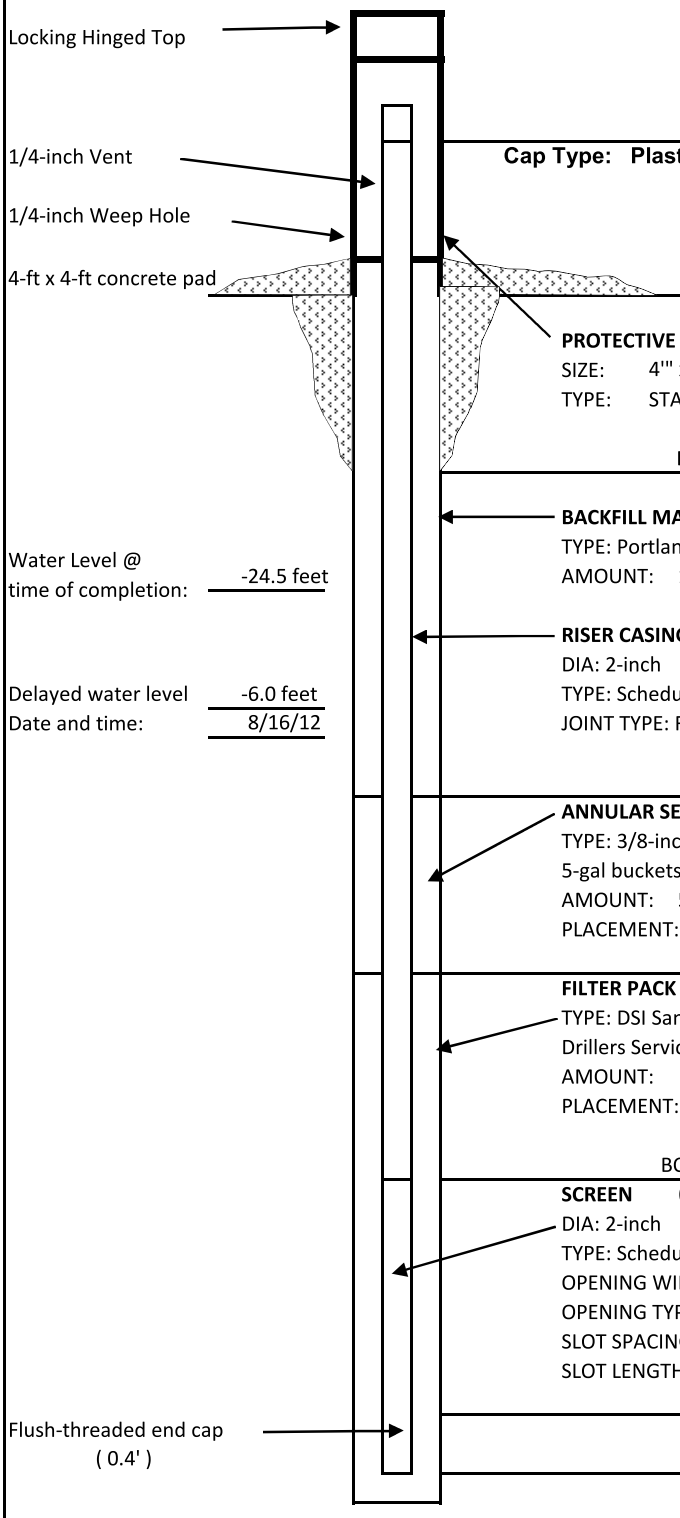
*Logged by: P. Gribben, PG*

**Log updated with revised survey certified 5/11/2020.**

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | **HGWC-109** |
| RIG TYPE: CME-55 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 15, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 3.46 | 576.77 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.35 | 573.66 |
| GROUND SURFACE | 0.0 | 573.31 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.3 | 572.01 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 13.5 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -13.4 | 559.91 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 2.1 feet | | |
| TOP OF FILTER PACK | -15.5 | 557.81 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 7 bags<br>PLACEMENT: 12.4 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -17.5 | 555.81 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -27.5 | 545.81 |
| BOTTOM OF CASING | -27.9 | 545.41 |

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

**Well was abandoned on July 13, 2023.**

**BORING NO.: HGWC-117**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 579.02 feet | BORING STARTED: 8/14/2012 | RIG TYPE:CME-55 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/14/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 18.5 feet ATD
- 13.70 feet on 8/20/12

Remarks: Monitoring well set at 37.3 feet below ground surface

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|
| | 579.0 | 0 | 0.3' TOPSOIL, grass, roots<br>CLAYEY SILT (ML) yellow-brown, gray, and brown, damp, stiff | ALLUVIUM | | | | | 5 - 7 - 8 **(15)** |
| | 572.0 | 5 | 7' SANDY SILT (ML) with trace mica, yellow-brown, damp to moist, firm | | | | | | 2 - 3 - 3 **(6)** |
| ▼ | 564.0 | 10 | 15' CLAYEY FINE SAND (SC) with trace mica, yellow-brown to light brown, moist to wet, loose to very loose, visible layering from 29.5-35.5 | | | | | | 2 - 2 - 2 **(4)** |
| ▽ | | 15 | | | | | | | 2 - 3 - 4 **(7)** |
| | | 20 | | | | | | | 0 - 0 - 2 **(2)** |
| | | 25 | | | | | | | 1 - 2 - 1 **(3)** |
| | 543.5 | 30 | 35.5' SAND AND GRAVEL (SP-GP) medium to coarse angular to rounded, brown to yellow-brown, wet, very firm | | | | | | 13 - 13 - 17 **(30)** |
| | 538.3 | 35 | 40.7' CLAYEY SILT (ML)/WEATHERED SHALE, dark brown, wet, very stiff | RESIDUUM | | | | | 4 - 17 - 4 **(21)** |
| | 538.0 | 40 | *Boring terminated at 41 feet* | | | | | | |
| | | 45 | | | | | | | |
| | | 50 | | | | | | | |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

Borehole ID: 17

*Project Manager: J. Heywood, PE*

*Logged by: P. Gribben, PG*

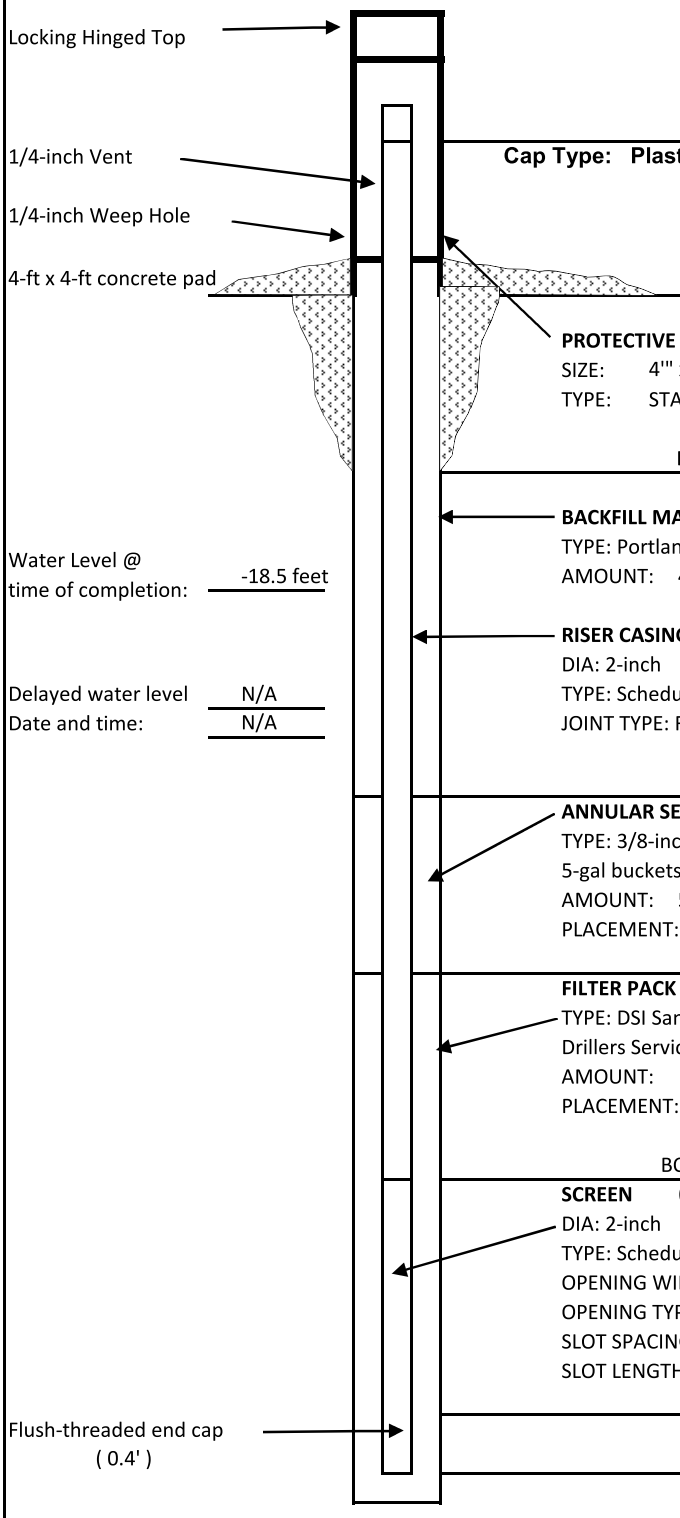
**Log updated with revised survey certified 5/11/2020.**

**Well was abandoned on July 13, 2023.**

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | **HGWC-117** |
| RIG TYPE: CME-55 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 14, 2012 | | |




| | DEPTH FEET | ELEVATION FT, MSL |
|---|---|---|
| TOP OF RISER | 2.96 | 581.98 |
| **Cap Type: Plastic Locking** | | |
| GROUND SURFACE | 0.0 | 579.02 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.5 | 577.52 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 41 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -21.7 | 557.32 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 3.2 feet | | |
| TOP OF FILTER PACK | -24.9 | 554.12 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 6 bags<br>PLACEMENT: 12.4 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -26.9 | 552.12 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -36.9 | 542.12 |
| BOTTOM OF CASING | -37.3 | 541.72 |

Geosyntec consultants
engineers | scientists | innovators
Geosyntec Consultants
1255 Roberts Boulevard
Kennesaw, GA 30144

# HGWC-117A

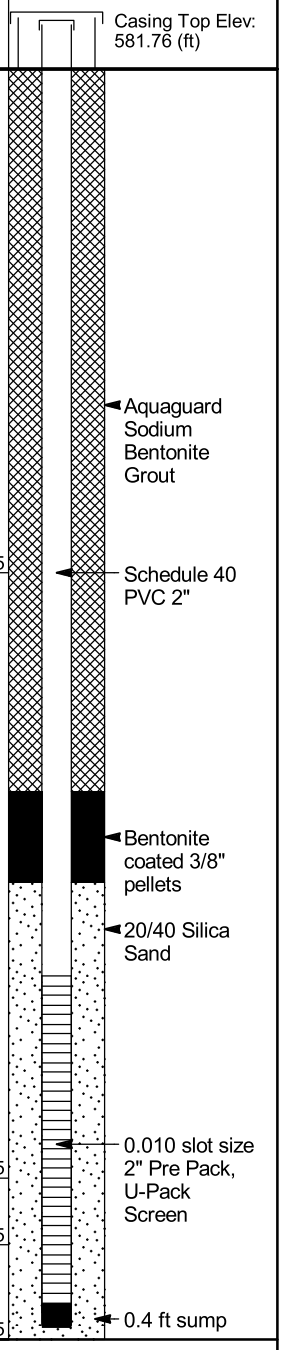


**CLIENT** Southern Company Services
**PROJECT NAME** Plant Hammond Well Installation
**PROJECT NUMBER** GW6581B
**PROJECT LOCATION** Plant Hammond
**DATE STARTED** 7/20/21 **COMPLETED** 7/21/21
**NORTHING** 1548082.04 ft **EASTING** 1937157.25 ft
**DRILLER** Sean Denty, Civil Field Services
**GROUND ELEVATION** 578.85 ft **BORING DIAMETER** 6 in
**DRILLING METHOD** Hollow Stem Auger
**TOP OF CASING ELEVATION** 581.76 ft
**SAMPLING METHOD** Split spoon
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Geoprobe 7822DT
**LOGGED BY** T. Kessler **CHECKED BY** J. Ivanowski

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | | 0 to 10 ft: Air Knife. | | Air knife (0 to 10 ft)<br>NO SAMPLE |
| | 575 | | | |
| 5 | | | | |
| | 570 | 10 to 15 ft: Hollow stem auger, no sample. | | |
| 10 | | | | |
| | 565 | | | |
| 15 | | From 15 ft bgs: Continuous split spoon samples were used solely for sample collection. | | SILTY CLAY, Strong brown, medium plasticity, trace sands and mica, very soft, moist to wet. |
| | 560 | | | |
| 20 | | | | 20 ft: Abundant sands, trace mica, very soft, wet. |
| | 555 | | | |
| 25 | | | | 25 ft: Red and black mottling throughout, very soft, wet.<br>27 ft: Yellowish brown, abundant fine sands, trace mica, red and black mottling thorughout, very soft, wet. |
| | 550 | | | |
| 30 | | | | 29ft: Dark yellowish brown with black mottling throughout, low plasticity, fine sands throughout, trace mica, very soft, wet.<br>31 ft: Light yellowish brown, shale and chert fragments (subangular and subrounded) very soft, wet. |
| | 545 | | | SAND, Yellowish brown, subangular and subrounded chert and shale fragments, trace quartz fragments, trace mica, very loose, wet. |
| 35 | | | | SANDY GRAVEL, Yellowish brown, medium to coarse grained, subangular and subrounded chert, calcite and shale fragments, red, brown, and white mottling, very dense, moist. |

563.85
545.85
543.85
541.05

CONSTRUCTION DIAGRAM




Bottom of borehole at 37.8 feet.

SCS MONITORING WELLS MW-51 AND HGWC-117A.GPJ ACP GINT LIBRARY CH.GLB 9/9/21

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: HGWC-118**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 576.52 feet | BORING STARTED: 10/1/2012 | RIG TYPE:CME-550 | AUGER DIA. (IN): 6¼ |
| DRILLING METHOD: Hollow Stem Augers | BORING COMPLETED: 10/1/2012 | HAMMER: Automatic | |

GROUNDWATER:
- ▽ 20 feet ATD
- ▼ 13.85 feet on 10/3/12

Remarks: Monitoring well set at 38.2 feet below ground surface

Elevation in NAVD 88.

| ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|
| 576.5 | 0 | 0.5' CRUSHED LIMESTONE | | |
| | | SILTY CLAY-CLAYEY SILT (CL-ML) with trace mica, red-brown to orange-brown, damp to moist, stiff | ALLUVIUM | 9 — 3 - 4 - 5 **(9)** |
| | 5 | | | |
| | | | | 11 — 4 - 5 - 6 **(11)** |
| | 10 | | | |
| 561.7 | 15 | 15' CLAYEY SILT (ML) with trace mica, orange-brown, moist, firm | | 8 — 3 - 3 - 5 **(8)** |
| 557.4 | 20 | 19.5' SANDY CLAYEY SILT (ML) with trace mica, orange-brown, wet, soft | | 2 — 1 - 1 - 1 **(2)** |
| 552.0 | 25 | 24.5' SILTY FINE SAND (SM) with trace mica, orange-brown, wet, very loose | | 3 — 2 - 1 - 2 **(3)** |
| 547.2 | 30 | 29.3' SAND (SW) well sorted, medium and coarse grained with trace mica, dark brown to orange, dense | | 42 — 6 - 20 - 22 **(42)** |
| 541.4 | 35 | 35.1' SAND AND GRAVEL (SP-GP), brown, wet, firm | | 15 — 9 - 9 - 6 **(15)** |
| 535.7 | 40 | 40.8' Weathered gray dolomite with yellow-brown silty clay | RESIDUUM | >> — 29 - 7 - 50/1 **(50+)** |
| 533.5 | | *Boring terminated at 43 feet* | | |
| | 45 | | | |
| | 50 | | | |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

*Borehole ID: 18*

*Project Manager: J. Heywood, PE*

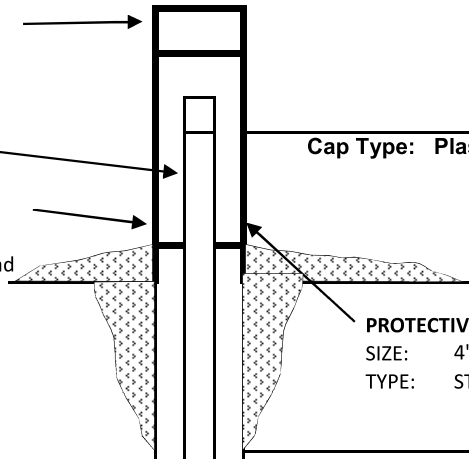
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA
## WELL CONSTRUCTION LOG

S&ME

| | |
|---|---|
| CLIENT: SOUTHERN COMPANY | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) LOGGED BY: PAT GRIBBEN (S&ME) | HGWC-118 |
| RIG TYPE: CME-550 DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: October 1, 2012 | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 2.85 | 579.02 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.35 | 576.52 |
| GROUND SURFACE | 0.0 | 576.17 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.8 | 574.37 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 37.5 gallons | | |
| Water Level @ time of completion: -20.0 feet | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| Delayed water level -13.85 feet<br>Date and time: 10/3/12 | | |
| TOP OF SEAL | -21.9 | 554.27 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 4.1 feet | | |
| TOP OF FILTER PACK | -26.0 | 550.17 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 6.5 bags<br>PLACEMENT: 12.06 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -27.66 | 548.51 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -37.66 | 538.51 |
| Flush-threaded end cap ( 0.4' ) | | |
| BOTTOM OF CASING | -38.06 | 538.11 |
| HOLE DIA: 6.75" | | |

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

SOUTHERN COMPANY

# LOG OF TEST BORING

**BORING AP02-MW12**
PAGE 1 OF 1
ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Hammond

**DATE STARTED** 10/21/2014 **COMPLETED** 10/21/2014 **SURF. ELEV.** 580.59 **COORDINATES:** N:1547853.78 E:1937525.45
**CONTRACTOR** SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
**DRILLED BY** T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
**BORING DEPTH** 35.2 ft. **GROUND WATER DEPTH: DURING** 20 ft. **COMP.** _____ **DELAYED** 16.4 ft. after 24 hrs.
**NOTES** Well installed. Refer to well data sheet.

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | SAMPLE TYPE NUMBER | SAMPLE DEPTH (ft.) | BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD) | COMMENTS |
|---|---|---|---|---|---|---|---|
| | | **Silt (ML)** | | | | | |
| 5 | | - brown and dark brown, dry, very stiff, clayey | | SS -1 | 3.5-5.0 | 5-7-8 ( **15**) | |
| 10 | | - brown and dark brown, dry, medium stiff, clayey | | SS -2 | 8.5-10.0 | 3-4-4 ( **8**) | |
| 15 | | - brown and brown-yellow, damp, medium stiff, mica | | SS -3 | 13.5-15.0 | 3-2-3 ( **5**) | |
| 20 | | - brown and brown-yellow, very moist to wet, medium stiff, some very fine grained sand | | SS -4 | 18.5-20.0 | 2-4-4 ( **8**) | |
| | | | 558.59 | | | | |
| 25 | | **Sandy Silt (ML)**<br>- brown, wet, soft, mica | | SS -5 | 23.5-25.0 | 2-2-2 ( **4**) | |
| | | | 554.59 | | | | |
| 30 | | **Silty Sand (SM)**<br>- brown, wet, loose, fine grain, trace coarse grained sand | | SS -6 | 28.5-30.0 | 2-4-3 ( **7**) | |
| | | - brown, wet, medium dense, fine grain, trace coarse grained sand | 546.59 | | | | |
| 35 | | **Well-graded Sand (SW)**<br>- fine to coarse grain, some fine gravel | 545.39 | SS -7 | 33.5-35.0 | 7-9-9 ( **18**) | |
| | | Bottom of borehole at 35.2 feet. | | | | | |

Easting and Northing in NAVD 88.
Elevation in NAD 83.

Log updated with revised survey certified 5/11/2020.

SOUTHERN COMPANY

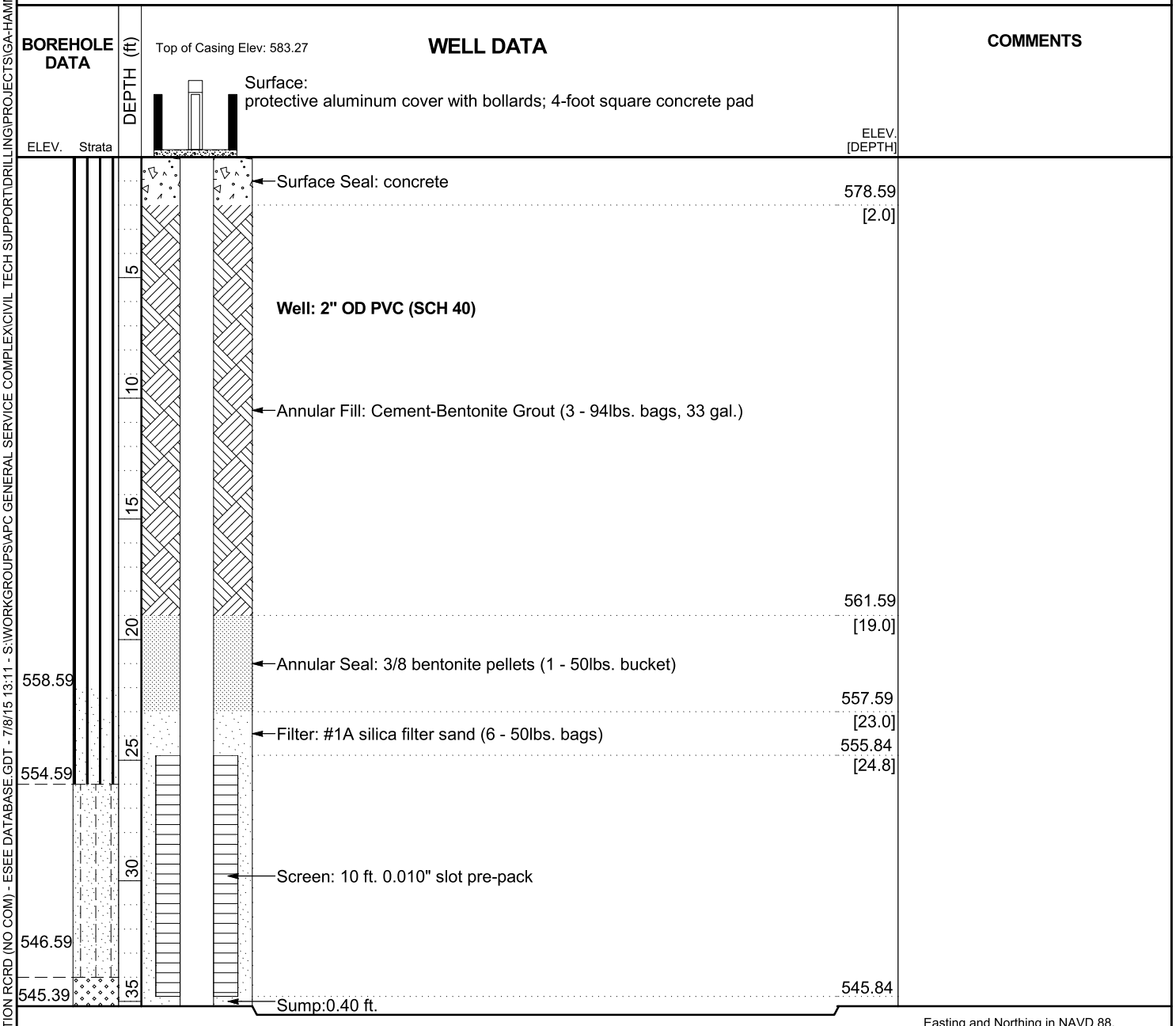
# RECORD OF WELL CONSTRUCTION

**WELL: AP02-MW12**
PAGE 1 OF 1
ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Hammond

**DATE STARTED** 10/21/2014 **COMPLETED** 10/21/2014 **SURF. ELEV.** 580.59 **COORDINATES:** N:1547853.78 E:1937525.45
**CONTRACTOR** SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
**DRILLED BY** T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 35.2 ft. **GROUND WATER DEPTH: DURING** 20 ft. **COMP.** **DELAYED** 16.4 ft. after 24 hrs.
**NOTES** Well installed. Refer to well data sheet.




Easting and Northing in NAVD 88.
Elevation in NAD 83.

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: GWC-4**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 577.73 feet | BORING STARTED: 8/8/2012 | RIG TYPE:CME-550 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/8/2012 | HAMMER: Automatic | |

GROUNDWATER:
▽ 20 feet ATD

Remarks: Monitoring well set at 44.3 feet below ground surface
Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|
| | 577.7 | 0 | SILT (ML) with trace mica, brown, dry, stiff | ALLUVIUM | | | | | |
| | | 5 | | | | | | | 3 - 4 - 5 **(9)** |
| | | 10 | | | | | | | 4 - 4 - 7 **(11)** |
| | 563.2 | 14.5' 15 | CLAYEY SILT (ML) with trace mica and fine sand, brown, moist, soft | | | | | | 2 - 2 - 2 **(4)** |
| ▽ | 557.7 | 20' 20 | SILTY CLAY/CLAYEY SILT (CH-MH) with trace mica, dark gray, moist to wet, very soft | | | | | | 0 - 0 - 2 **(2)** |
| | | 25 | | | | | | | 0 - 0 - 0 **(0)** |
| | | 30 | | | | | | | 1 - 0 - 0 **(0)** |
| | 542.2 | 35.5' 35 | SAND (SP), coarse to medium with some gravel, black and yellow-brown, wet, very firm to very dense | | | | | | 0 - 13 - 19 **(32)** |
| | | 40 | | | | | | | >>25 - 50/2 **(50+)** |
| | 536.7 | 41' | WEATHERED SHALE, light gray fissile, moist, hard | BEDROCK | | | | | |
| | 533.2 | 45 | *Auger refusal at 44.5 feet, boring terminated* | | | | | | >>50/3 **(50+)** |
| | | 50 | | | | | | | |

BORING SOUTHERN 12-153.GPJ S&ME 1-18-2012.GDT 9/18/12

Borehole ID: 4

*Project Manager: J. Heywood, PE*

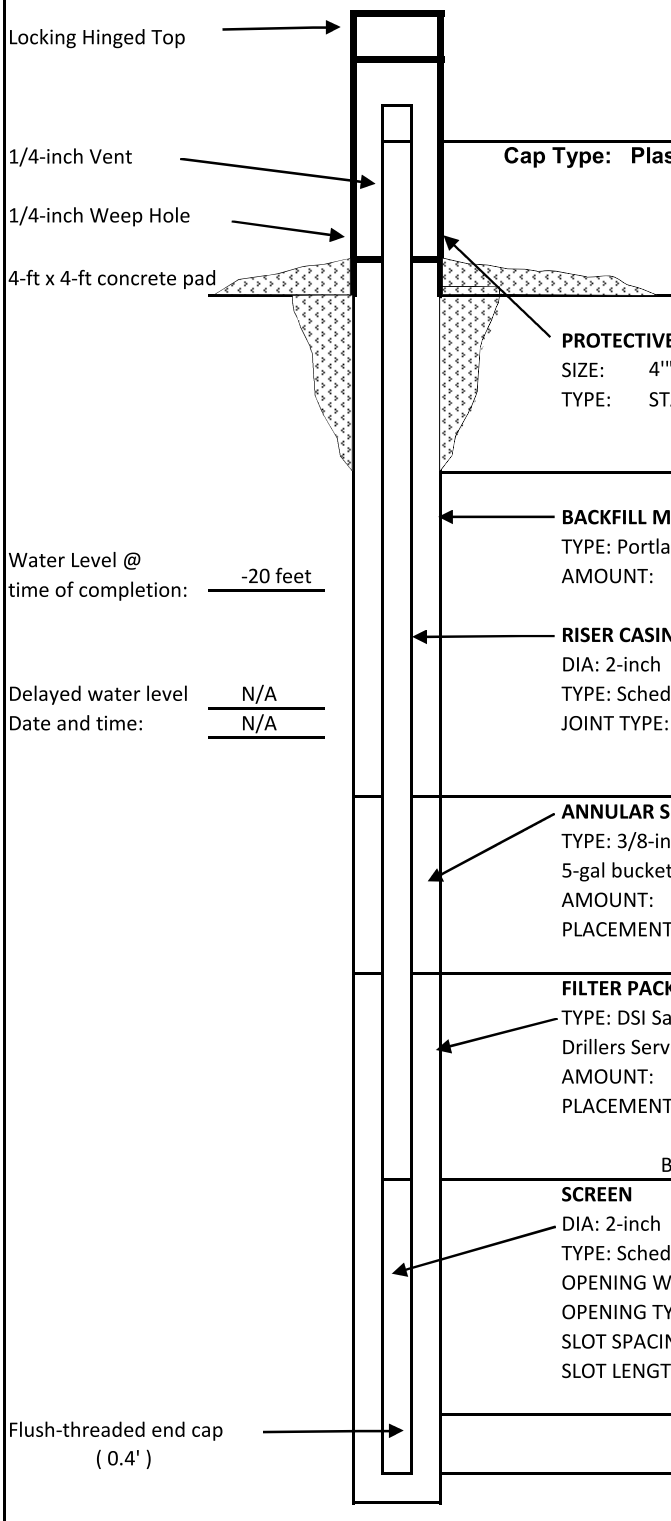
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Sean Denty (Southern Co.) | LOGGED BY: PAT GRIBBEN (S&ME) | GWC-4 |
| RIG TYPE: CME-550 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 8, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 2.92 | 580.65 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.36 | 577.73 |
| GROUND SURFACE | 0.0 | 577.37 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.45 | 575.92 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 47 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -27.6 | 549.77 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 4.3 feet | | |
| TOP OF FILTER PACK | -31.9 | 545.47 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 6 bags<br>PLACEMENT: 12.4 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -33.9 | 543.47 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -43.9 | 533.47 |
| BOTTOM OF CASING | -44.3 | 533.07 |

Elevation in NAVD 88.

Log updated with revised survey certified 5/11/2020.

**BORING NO.: GWC-6**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 578.55 feet | BORING STARTED: 8/13/2012 | RIG TYPE:CME-55 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/13/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 15 feet ATD
- 14.2 feet on 8/20/12

Remarks: Monitoring well set at 34.7 feet below ground surface
Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|
| | 578.5 | 0 | 0.5' TOPSOIL, grass, roots | | | | | | |
| | | | SILTY FINE SAND (SM) with trace mica, yellow-brown to brown, moist to damp, loose | ALLUVIUM | | | | | 8 — 5 - 5 - 3 **(8)** |
| | | 5 | | | | | | | |
| | | 10 | | | | | | | 6 — 3 - 3 - 3 **(6)** |
| | 563.5 | 15 | 15' SAND (SP), fine to medium with trace mica, brown, wet, very loose | | | | | | 4 — 1 - 2 - 2 **(4)** |
| | 559.0 | 20 | 19.5' CLAYEY FINE SAND (SC) with trace mica, brown, wet, very loose | | | | | | 4 — 1 - 2 - 2 **(4)** |
| | 553.5 | 25 | 25' SILTY FINE SAND (SM) with trace mica, brown, wet, very loose | | | | | | 4 — 1 - 2 - 2 **(4)** |
| | 549.5 | 30 | 29' SAND (SP), fine with trace mica, brown to light gray, occasional iron staining, wet, loose | | | | | | 5 — 0 - 2 - 3 **(5)** |
| | 543.5 | 35 | 35' SAND AND GRAVEL (SP-GP), medium to coarse, poorly sorted, some rounded quartz pebble, yellow-brown, wet, dense | | | | | | 38 — 6 - 19 - 19 **(38)** |
| | 540.5 | 40 | *Boring terminated at 38 feet* | | | | | | |
| | | 45 | | | | | | | |
| | | 50 | | | | | | | |

BORING SOUTHERN 12-153.GPJ S&ME 1-18-2012.GDT 9/18/12

Borehole ID: 6

*Project Manager: J. Heywood, PE*

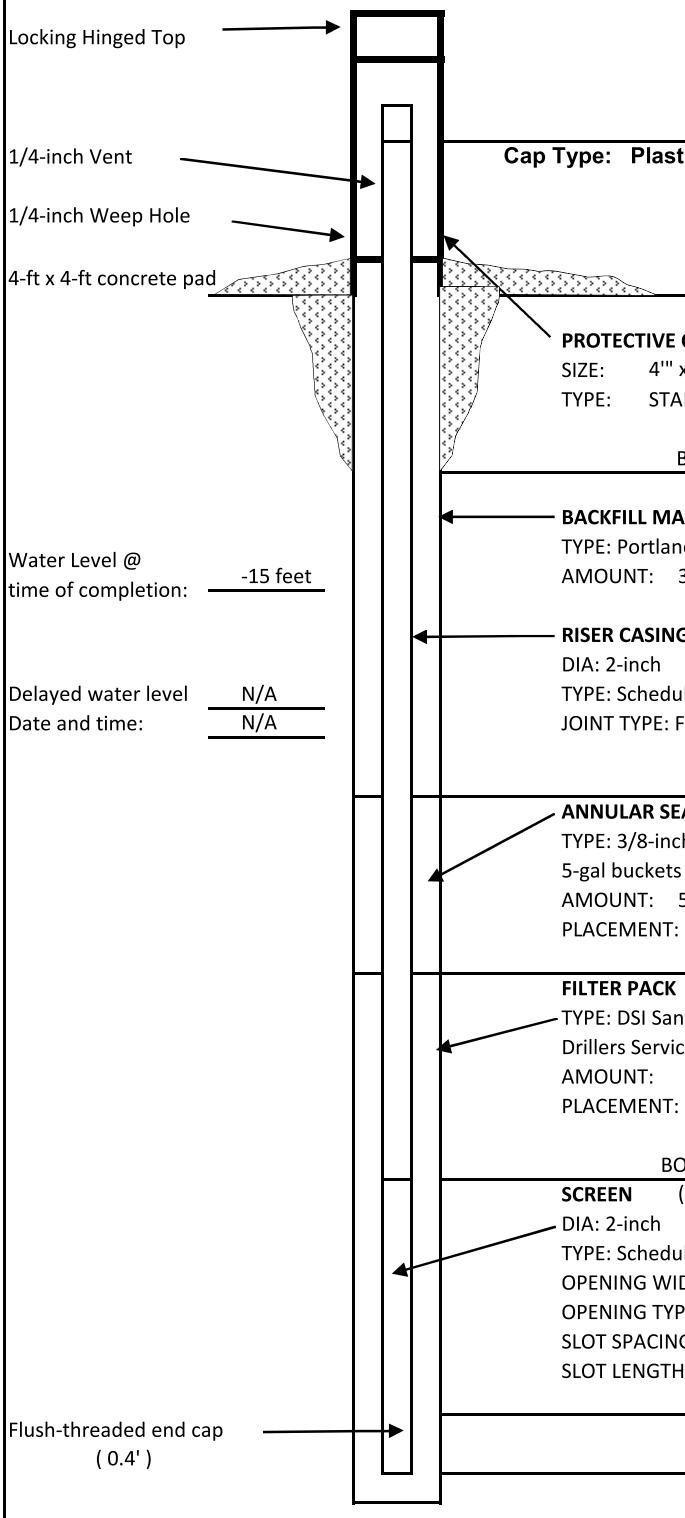
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | GWC-6 |
| RIG TYPE: CME-55 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 13, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 3.43 | 581.63 |
| **Cap Type: Plastic Locking** | | |
| GROUND SURFACE | 0.35 | 578.55 |
| GROUND SURFACE | 0.0 | 578.20 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.3 | 576.90 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 33 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -19.0 | 559.20 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 2 feet | | |
| TOP OF FILTER PACK | -21.0 | 557.20 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 5.5 bags<br>PLACEMENT: 13.7 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -24.3 | 553.90 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -34.3 | 543.90 |
| BOTTOM OF CASING | -34.7 | 543.50 |

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: GWC-8**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 577.13 feet | BORING STARTED: 8/9/2012 | RIG TYPE:CME-55 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/9/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 19 feet ATD
- 11.81 feet on 8/15/12

Remarks: Monitoring well set at 37.7 feet below ground surface
Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|
| | 577.1 | 0 | 0.3' TOPSOIL, grass, roots<br>SILT (ML) with trace mica and fine sand, red-brown, dry to damp | ALLUVIUM | | | | | |
| | 572.6 | 5 | 4.5' SILTY FINE SAND (SM) with trace mica, light brown, damp, loose | | | | | | 3 - 2 - 3 **(5)** |
| ▼ | 576.6 | 10 | 9.5' CLAYEY FINE SAND (SC) with trace mica, light brown, moist, very loose | | | | | | 2 - 1 - 2 **(3)** |
| | 565.1 | | 12' SANDY CLAY (CH) with trace mica, light brown, moist to wet, soft | | | | | | 1 - 1 - 2 **(3)** |
| ▽ | | 15 | | | | | | | |
| | | 20 | | | | | | | 1 - 1 - 2 **(3)** |
| | 555.1 | | 22' Undisturbed sample | | | | | | |
| | 552.8 | 25 | 24' CLAYEY SAND (SC) with trace mica, light brown,wet, very loose to loose | | | | | | 1 - 1 - 2 **(3)** |
| | 546.6 | 30 | 30.5' SAND (SP) with some gravel and rounded quartz pebbles, red-brown to gray, weathered shale fragments | | | | | | 1 - 5 - 4 **(9)** |
| | 545.1 | | 32' Undisturbed sample | | | | | | |
| | 543.1 | 35 | 34' SAND (SP) medium grained with some gravel and rounded quartz pebbles, red-brown to gray, weathered shale fragments and gray silty clay at 37', very stiff | | | | | | 3 - 6 - 17 **(23)** |
| | 540.1 | | *Boring terminated at 37 feet* | | | | | | |
| | | 40 | | | | | | | |
| | | 45 | | | | | | | |
| | | 50 | | | | | | | |

BORING SOUTHERN 12-153.GPJ S&ME 1-18-2012.GDT 9/18/12

*Borehole ID: 8*

*Project Manager: J. Heywood, PE*

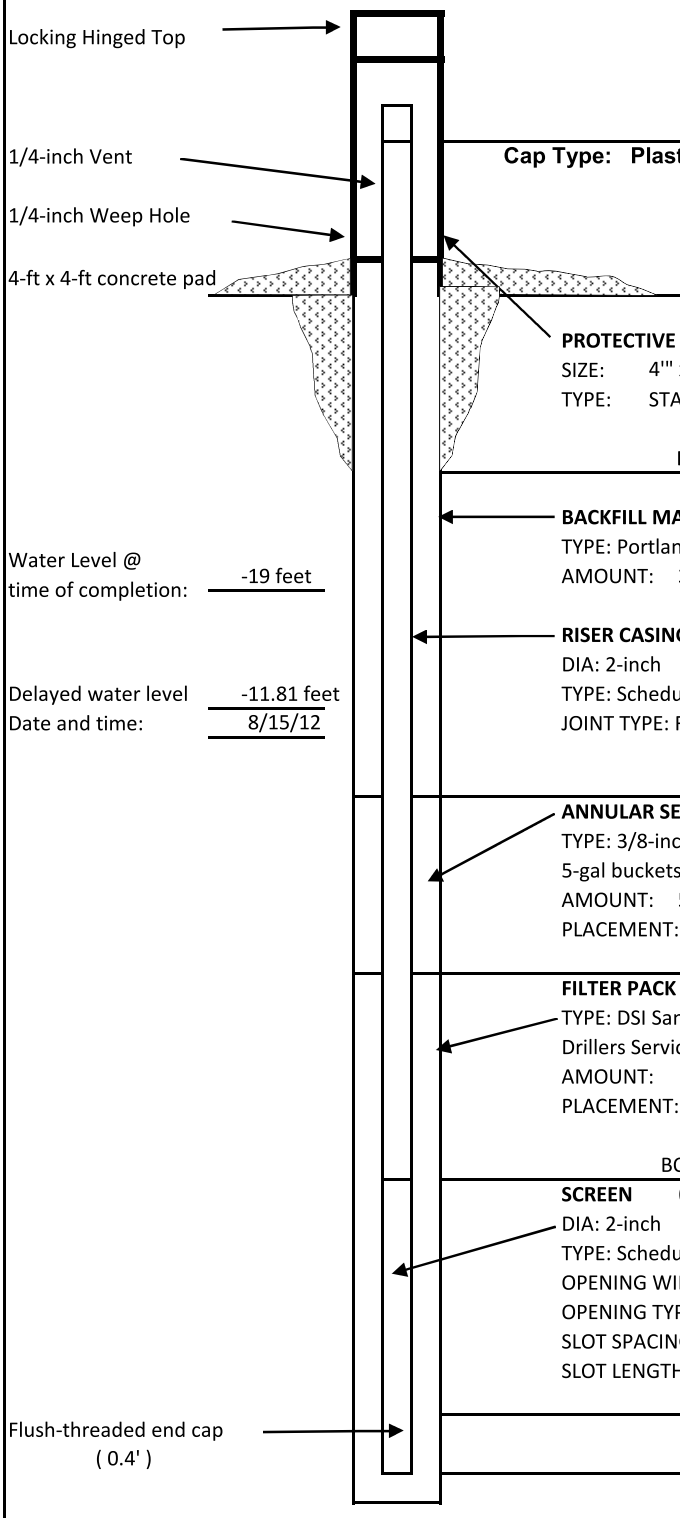
*Logged by: P. Gribben, PG*

**Log updated with revised survey certified 5/11/2020.**

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | **GWC-8** |
| RIG TYPE: CME-55 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 9, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 3.22 | 579.99 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.36 | 577.13 |
| GROUND SURFACE | 0.0 | 576.77 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.5 | 575.28 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 32 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -20.0 | 556.77 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 2 feet | | |
| TOP OF FILTER PACK | -22.0 | 554.77 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 5.5 bags<br>PLACEMENT: 15.7 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -27.3 | 549.47 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -37.3 | 539.47 |
| BOTTOM OF CASING | -37.7 | 539.07 |

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: GWA-14**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 589.70 feet | BORING STARTED: 10/2/2012 | RIG TYPE:CME-550 | AUGER DIA. (IN): 6¼ |
| DRILLING METHOD: Hollow Stem Augers | BORING COMPLETED: 10/2/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 17 feet ATD
- 8.05 feet on 10/3/12

Remarks: Monitoring well set at 38.5 feet below ground surface
Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|---|
| | 589.7 | 0 | SILTY CLAY (CH), red-brown, wet (previously vacuum excavated and backfilled for underground utility clearance) | FILL | | | | | | |
| | 579.7 | 10' | SILTY CLAY (CL-CH) with red-gray sandstone fragments and trace sand, orange and yellow-brown, damp to moist, very soft to very stiff | ALLUVIUM | | | | | | 0 - 0 - 1 **(1)** |
| | 563.7 | 26' | SILTY CLAY-CLAYEY SILT (CL-ML) with abundant small sandstone fragments, yellow-brown and red, moist to wet, stiff | | | | | | | 17 - 15 - 12 **(27)** |
| | 559.7 | 30' | CLAYEY SILT (ML) with weathered shale fragments, light orange and gray, moist to damp, stiff | RESIDUUM | | | | | | 11 - 11 - 14 **(25)** |
| | 553.6 | 36.1' | SANDY SILTY CLAY (CL) with shale fragments, yellow-brown and red, damp, very stiff | | | | | | | 6 - 7 - 8 **(15)** |
| | 551.2 | 38.5 | *Boring terminated at 38.5 feet* | | | | | | | 2 - 5 - 9 **(14)** |
| | | | | | | | | | | 7 - 10 - 12 **(22)** |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

Borehole ID: 14

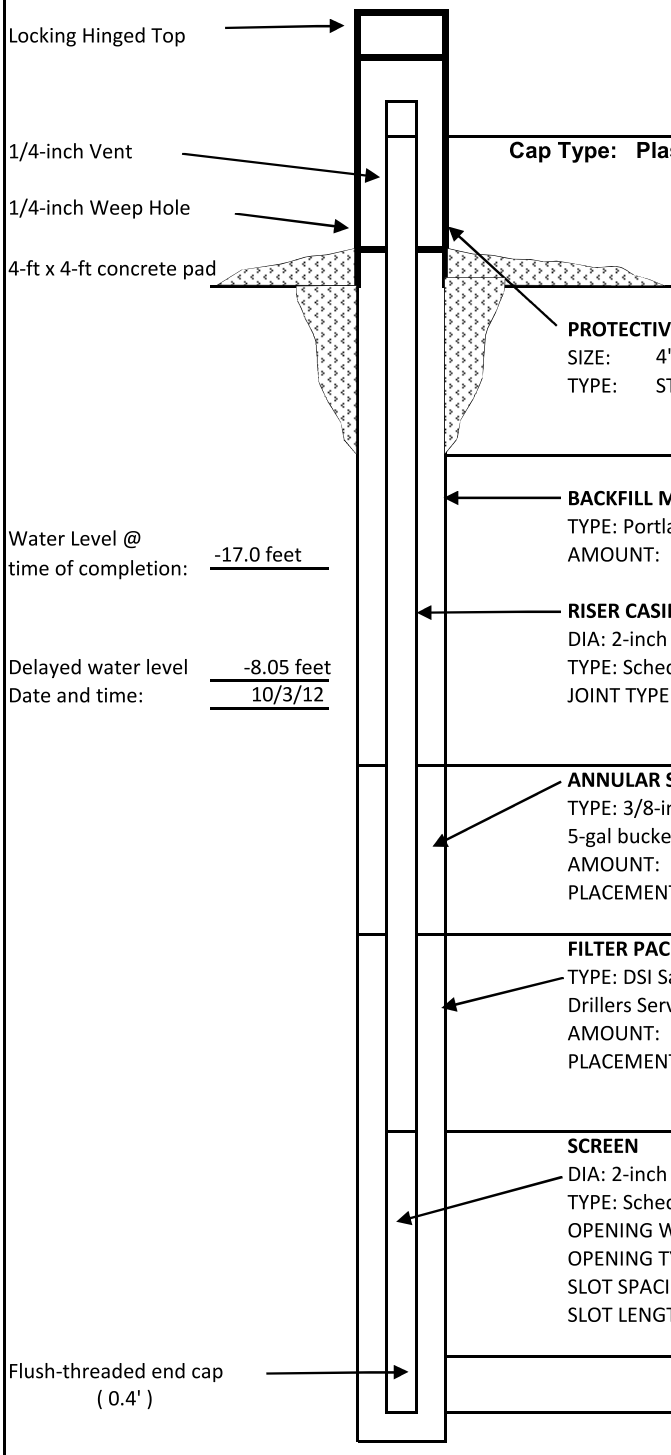
*Project Manager: J. Heywood, PE*

*Logged by: P. Gribben, PG*

**Log updated with revised survey certified 5/11/2020.**

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA
## WELL CONSTRUCTION LOG

| | |
|---|---|
| CLIENT: SOUTHERN COMPANY | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) LOGGED BY: PAT GRIBBEN (S&ME) | **GWA-14** |
| RIG TYPE: CME-550 DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: October 2, 2012 | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 2.74 | 592.14 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.3 | 589.70 |
| GROUND SURFACE | 0.0 | 589.40 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.8 | 587.60 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 37.5 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -18.4 | 571.00 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 5.7 feet | | |
| TOP OF FILTER PACK | -24.1 | 565.30 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 5.5 bags<br>PLACEMENT: 14.3 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -28.0 | 561.40 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -38.0 | 551.40 |
| BOTTOM OF CASING | -38.4 | 551.00 |

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: GWA-15**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 588.37 feet | BORING STARTED: 8/22/2012 | RIG TYPE:CME-550 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/22/2012 | HAMMER: Automatic | |

GROUNDWATER:
▽ 6 feet ATD

Remarks: Monitoring well set at 27.0 feet below ground surface
Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|
| | 588.3 | 0 | 0.2' TOPSOIL (brown), roots, grass | FILL | | | | | |
| | | | SILTY CLAY (CL) with large limestone cobbles | | | | | | |
| | 584.8 | 5 | 3.5' SILTY CLAY (CL) with scattered rounded pebbles, brown, damp to moist, stiff | ALLUVIUM | | | | | 9 — 2 - 3 - 6 **(9)** |
| ▽ | 582.3 | | 6' SILTY CLAY (CH) with hard weathered dark gray dolomite and yellow-brown siltstone fragments, wet, very stiff | | | | | | |
| | | 10 | | | | | | | 29 — 12 - 14 - 15 **(29)** |
| | 573.8 | | 14.5' SANDY CLAY (CH) with scattered sandstone fragments, brown, wet, hard | | | | | | |
| | 572.7 | 15 | 15.6' Lenses of weathered shale and weathered chert, gray, hard | | | | | | 70 — 17 - 33 - 37 **(70)** |
| | 572.3 | | 16' SANDY CLAY (CH) with scattered dolomite fragments, brown, wet, very stiff | | | | | | |
| | 568.0 | 20 | 20.3' CLAYEY SILT (ML) with trace mica and scattered chert fragments, yellow-brown, wet, very stiff | | | | | | 17 — 8 - 8 - 9 **(17)** |
| | 564.3 | 25 | 24' CLAYEY FINE SAND (SC) with trace mica, yellow-brown, wet, stiff | | | | | | 9 — 3 - 4 - 5 **(9)** |
| | 561.3 | | *Boring terminated at 27 feet* | | | | | | |
| | | 30 | | | | | | | |
| | | 35 | | | | | | | |
| | | 40 | | | | | | | |
| | | 45 | | | | | | | |
| | | 50 | | | | | | | |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

*Borehole ID: 15*

*Project Manager: J. Heywood, PE*

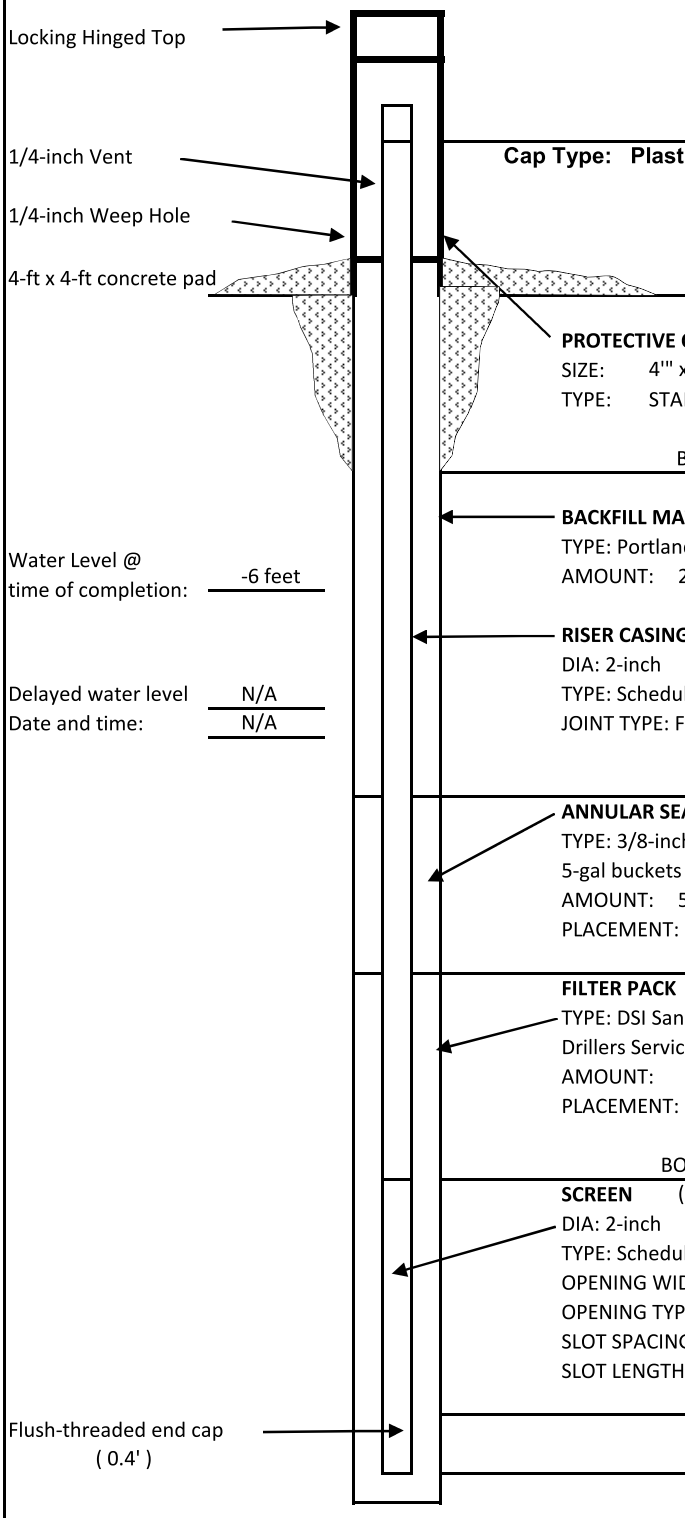
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | GWA-15 |
| RIG TYPE: CME-550 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 22, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 3.52 | 591.56 |
| **Cap Type: Plastic Locking** Elevation in NAVD 88. | | |
| TOP OF NAIL | 0.33 | 588.37 |
| GROUND SURFACE | 0.0 | 588.04 |
| **PROTECTIVE CASING** SIZE: 4'" x 4" x 5' TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.15 | 586.89 |
| **BACKFILL MATERIAL** TYPE: Portland Cement Grout AMOUNT: 25 gallons | | |
| **RISER CASING** DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -5.0 | 583.04 |
| **ANNULAR SEAL** TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 11.6 feet | | |
| TOP OF FILTER PACK | -14.6 | 573.44 |
| **FILTER PACK** TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5 PLACEMENT: 12.4 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -16.6 | 571.44 |
| **SCREEN** ( 10.0' ) DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -26.6 | 561.44 |
| BOTTOM OF CASING | -27.0 | 561.04 |

Elevation in NAVD 88.

Log updated with revised survey certified 5/11/2020.

**BORING NO.: GWA-16**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 579.58 feet | BORING STARTED: 8/21/2012 | RIG TYPE:CME-550 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/21/2012 | HAMMER: Automatic | |

GROUNDWATER:
▽ 3.5 feet ATD

Remarks: Monitoring well set at 19.7 feet below ground surface

Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|
| | 579.5 | 0 | 0.3' TOPSOIL (dark brown), roots, grass | | | | | | |
| | | | SILTY CLAY (CH), orange-brown to brown, damp | FILL | | | | | |
| ▽ | 576.0 | | 3.5' SAND (SP), well graded, wet | | | | | | |
| | 575.0 | 5 | 4.5' SILTY CLAY (CH), yellow-brown, wet, very soft | ALLUVIUM | | | | | 1 - 1 - 1 **(2)** |
| | 569.3 | 10 | 10.2' SANDY CLAYEY SILT (ML) with trace mica, yellow-brown and light blue-gray, damp, very stiff to stiff | | | | | | 7 - 10 - 13 **(23)** |
| | 564.2 | 15 | 15.3' CLAYEY FINE SAND (SC) with trace mica and scattered rounded pebbles, yellow-brown and brown, wet, loose | | | | | | 5 - 6 - 5 **(11)** |
| | 559.5 | 20 | 20' SAND (SP) with rounded pebbles, well graded, coarse, gray, wet, very dense | | | | | | 7 - 21 - 34 **(55)** |
| | 558.9 | | 20.6' COAL, black, shiny, thinly laminated fissile, trace pyrite, hard | BED-ROCK | | | | | |
| | 557.0 | 25 | *Boring terminated at 22.5 feet* | | | | | | |
| | | 30 | | | | | | | |
| | | 35 | | | | | | | |
| | | 40 | | | | | | | |
| | | 45 | | | | | | | |
| | | 50 | | | | | | | |

BORING RECORD S&ME 12-153.GPJ S&ME 1-18-2012.GDT 10/22/12

*Borehole ID: 16*

*Project Manager: J. Heywood, PE*

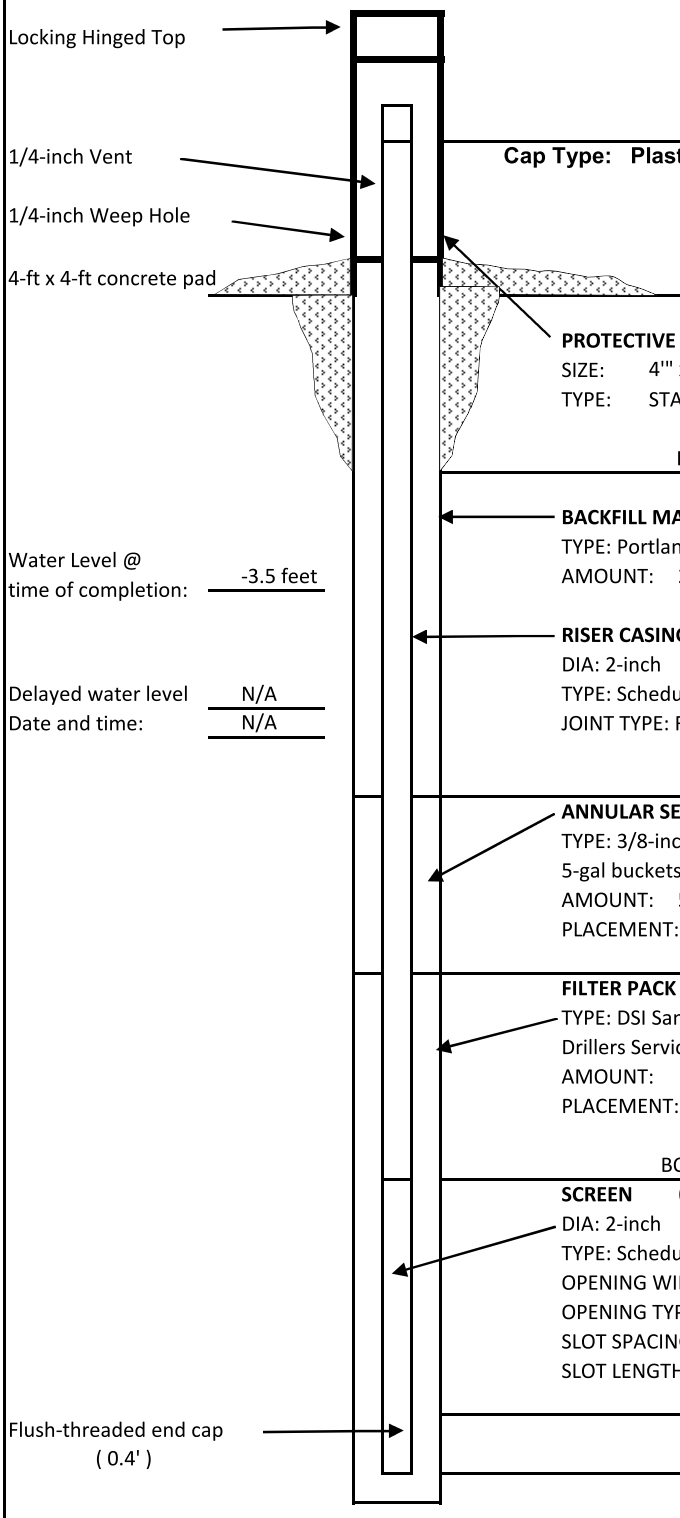
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | GWA-16 |
| RIG TYPE: CME-550 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 21, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 3.31 | 582.55 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 0.34 | 579.58 |
| GROUND SURFACE | 0.0 | 579.24 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | NA | Not available |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 25 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -4.7 | 574.54 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 2.5 feet | | |
| TOP OF FILTER PACK | -7.2 | 572.04 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 5.5 bags<br>PLACEMENT: 12.5 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -9.3 | 569.94 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -19.3 | 559.94 |
| BOTTOM OF CASING | -19.7 | 559.54 |

Elevation in NAVD 88.

**Log updated with revised survey certified 5/11/2020.**

**BORING NO.: GWC-19**

# TEST BORING RECORD

| | | | |
|---|---|---|---|
| PROJECT: Plant Hammond Ash Pond #4 Well Installation | | JOB NO: 1811-12-153 | SHEET 1 OF 1 |
| PROJECT LOCATION: Rome, Georgia | | | |
| ELEVATION: 576.90 feet | BORING STARTED: 8/14/2012 | RIG TYPE:CME-55 | AUGER DIA. (IN): 6.75 |
| DRILLING METHOD: Hollow-Stem Augers | BORING COMPLETED: 8/14/2012 | HAMMER: Automatic | |

GROUNDWATER:
- 7 feet ATD
- 9.85 feet on 8/16/12

Remarks: Monitoring well set at 31.9 feet below ground surface
Elevation in NAVD 88.

| G | ELEV. (FT.) | DEPTH (FT.) | MATERIAL DESCRIPTION | L | S | R | M | PI | STANDARD PENETRATION RESISTANCE (N) BLOWS/6" |
|---|---|---|---|---|---|---|---|---|---|
| | 576.9 | 0 | 0.8' TOPSOIL, roots, grass<br>CLAYEY SILT (MH) with trace mica and rock fragments, brown, damp | ALLUVIUM | | | | | |
| | 572.4 | 5 | 4.5' SILTY FINE SAND (SM) with trace mica, yellow-brown to brown, damp, firm | | | | | | 3 - 3 - 3 **(6)** |
| | 569.9 | | 7' CLAYEY FINE SAND (SC) with trace mica, yellow-brown, wet, very loose | | | | | | |
| | | 10 | | | | | | | 2 - 1 - 1 **(2)** |
| | | 15 | | | | | | | 1 - 1 - 2 **(3)** |
| | 560.86 | | 16' SAND (SP) with silt (SM) and trace mica, yellow-brown, wet, very loose to firm | | | | | | |
| | 556.3 | 20 | 20.5' SAND AND GRAVEL (SP-GP) with some clayey inclusions, medium to coarse, poorly sorted angular to rounded, yellow-brown, wet, firm | | | | | | 3 - 5 - 6 **(11)** |
| | | 25 | | | | | | | 12 - 10 - 9 **(19)** |
| | | 30 | | | | | | | 14 - 8 - 8 **(16)** |
| | 542.3 | 35 | *Boring terminated at 34.5 feet* | | | | | | |
| | | 40 | | | | | | | |
| | | 45 | | | | | | | |
| | | 50 | | | | | | | |

STANDARD PENETRATION RESISTANCE (N) scale: 0 10 20 30 40 50 60 70 80 90 100

BORING SOUTHERN 12-153.GPJ S&ME 1-18-2012.GDT 9/18/12

Borehole ID: 19

*Project Manager: J. Heywood, PE*

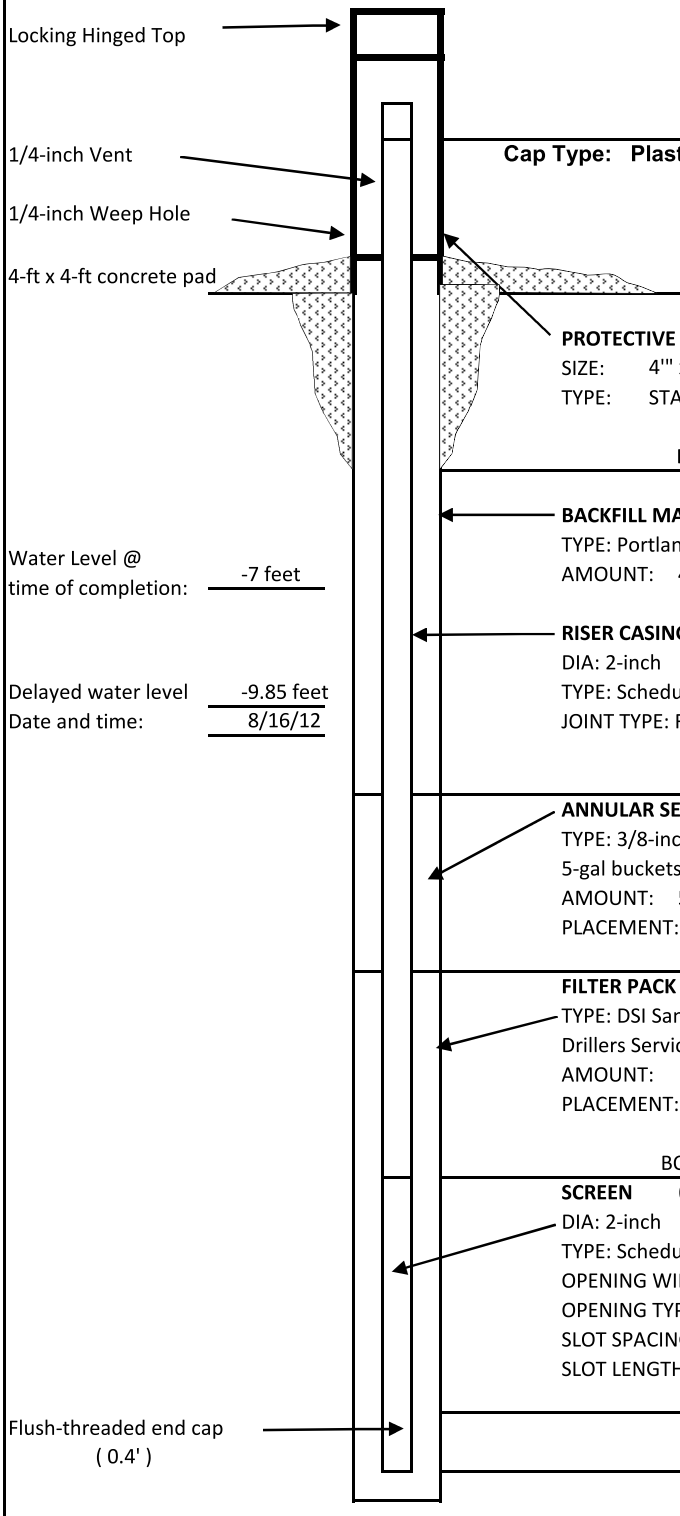
*Logged by: P. Gribben, PG*

Log updated with revised survey certified 5/11/2020.

# GEORGIA POWER PLANT HAMMOND ASH POND #4
# ROME, GEORGIA

## WELL CONSTRUCTION LOG

| | | |
|---|---|---|
| CLIENT: SOUTHERN COMPANY | | WELL ID: |
| DRILLED BY: Chad Odom (S&ME) | LOGGED BY: PAT GRIBBEN (S&ME) | GWC-19 |
| RIG TYPE: CME-55 | DRILLING METHOD: 4.25" HOLLOW STEM AUGERS | |
| DATE CONSTRUCTED: August 14, 2012 | | |




| | DEPTH FEET | ELEVATION FEET |
|---|---|---|
| TOP OF RISER | 4.29 | 579.83 |
| **Cap Type: Plastic Locking** | | |
| TOP OF NAIL | 1.36 | 576.90 |
| GROUND SURFACE | 0.0 | 575.54 |
| **PROTECTIVE CASING**<br>SIZE: 4'" x 4" x 5'<br>TYPE: STAINLESS STEEL LOCKING | | |
| BOTTOM OF PROTECTIVE CASING | -1.25 | 574.29 |
| **BACKFILL MATERIAL**<br>TYPE: Portland Cement Grout<br>AMOUNT: 45 gallons | | |
| **RISER CASING**<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC<br>JOINT TYPE: Flush Threaded | | |
| TOP OF SEAL | -15.0 | 560.54 |
| **ANNULAR SEAL**<br>TYPE: 3/8-inch coated bentonite pellets<br>5-gal buckets<br>AMOUNT: 50 lbs<br>PLACEMENT: 3.5 feet | | |
| TOP OF FILTER PACK | -18.5 | 557.04 |
| **FILTER PACK**<br>TYPE: DSI Sand - 1A (20/30)<br>Drillers Services, Inc.<br>AMOUNT: 3.5 bags<br>PLACEMENT: 13.4 feet | | |
| BOTTOM OF RISER/TOP OF SCREEN | -21.5 | 554.04 |
| **SCREEN** ( 10.0' )<br>DIA: 2-inch<br>TYPE: Schedule 40 PVC Prepack<br>OPENING WIDTH: 0.01-inch<br>OPENING TYPE: Slotted<br>SLOT SPACING: 0.25-inch<br>SLOT LENGTH: 1.5-inch | | |
| BOTTOM OF SCREEN | -31.5 | 544.04 |
| BOTTOM OF CASING | -31.9 | 543.64 |

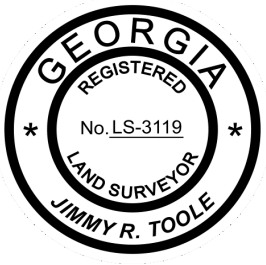
Elevation in NAVD 88.

# CERTIFIED WELL NETWORK SURVEY DATA

| Well ID | Casing Northing | Casing Easting | Top of Casing Elevation | Nail on Pad Northing | Nail on Pad Easting | Nail on Pad Elevation |
|---|---|---|---|---|---|---|
| GWA-14 | 1548982.5890 | 1936642.5820 | 592.14 | 1548981.4550 | 1936642.2230 | 589.70 |
| GWA-15 | 1548766.1700 | 1936808.4740 | 591.56 | 1548765.2100 | 1936807.8670 | 588.37 |
| GWA-16 | 1548592.7400 | 1937210.9880 | 582.55 | 1548592.0540 | 1937209.9470 | 579.58 |
| GWC-19 | 1547892.8940 | 1936572.9730 | 579.83 | 1547893.7790 | 1936572.0390 | 576.90 |
| GWC-4 | 1547898.3050 | 1935398.6960 | 580.65 | 1547899.6900 | 1935398.5510 | 577.73 |
| GWC-6 | 1547843.9320 | 1934800.4510 | 581.63 | 1547845.1020 | 1934800.3890 | 578.55 |
| GWC-8 | 1548167.1270 | 1934342.9370 | 579.99 | 1548167.2960 | 1934344.1910 | 577.13 |
| HGWA-111 | 1548834.2570 | 1935222.8050 | 591.75 | 1548833.1050 | 1935222.9840 | 588.79 |
| HGWA-112 | 1548885.6280 | 1935646.9960 | 596.27 | 1548884.5350 | 1935647.2640 | 593.46 |
| HGWA-113 | 1548944.6240 | 1935990.0870 | 594.58 | 1548943.4750 | 1935990.3010 | 592.07 |
| HGWC-101 | 1547725.4970 | 1936369.5810 | 578.85 | 1547726.4760 | 1936369.0200 | 575.91 |
| HGWC-102 | 1547713.5040 | 1936033.3300 | 577.54 | 1547714.8560 | 1936033.7180 | 574.54 |
| HGWC-103 | 1547848.8830 | 1935732.9610 | 580.79 | 1547850.1990 | 1935733.3030 | 577.76 |
| HGWC-105 | 1547855.5570 | 1935110.3560 | 582.09 | 1547856.9860 | 1935110.3600 | 579.08 |
| HGWC-107 | 1547909.9900 | 1934442.2410 | 579.31 | 1547911.2040 | 1934442.9490 | 576.43 |
| HGWC-109 | 1548627.4120 | 1934362.7670 | 576.77 | 1548627.0470 | 1934361.5230 | 573.66 |
| HGWC-117 | 1548100.7710 | 1937180.4260 | 581.98 | 1548099.5300 | 1937180.3100 | 579.31 |
| HGWC-118 | 1547980.5610 | 1936946.3660 | 579.02 | 1547981.8380 | 1936946.8290 | 576.52 |
| MW-12 | 1547853.7790 | 1937525.4620 | 583.27 | 1547855.2080 | 1937525.2430 | 580.59 |

| Benchmark | Northing | Easting | Elevation |
|---|---|---|---|
| BM H-1 | 1547964.9650 | 1937219.0690 | 579.02 |

SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING, AND VERTICAL ELEVATION OF THE NAIL IN THE CONCRETE PAD & THE PVC WELL CASING.
DATE OF FIELD SURVEY & INSPECTION: 05/04/2020-05/06/2020.
FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD'88
EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R10 RTK GPS & TRIMBLE S5 ROBOTIC TOTAL STATION. THE VERTICAL LOCATION OF EACH SURVEYED POINT WAS ESTABLISHED BASED UPON LEVEL RUNS WITH A DIGITAL LEVEL LOOP FROM VERTICAL CONTROL ESTABLISHED BY ON-SITE BENCHMARK BM H-1 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL.

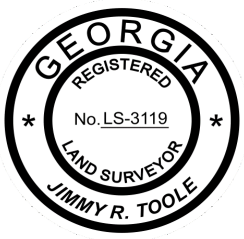



5/11/2020

| Well ID | Casing Northing | Casing Easting | Top of Casing Elevation | Nail on Pad Northing | Nail on Pad Easting | Nail on Pad Elevation |
|---|---|---|---|---|---|---|
| HGWA-42D | 1549363.7180 | 1938443.8590 | 586.17 | 1549362.3140 | 1938444.3210 | 583.39 |
| HGWA-43D | 1550422.8480 | 1940753.8050 | 595.08 | 1550422.8120 | 1940754.9980 | 592.08 |
| HGWA-44D | 1550409.1260 | 1940756.1850 | 594.79 | 1550409.2230 | 1940757.6150 | 592.01 |
| HGWA-45D | 1551157.6780 | 1941907.5370 | 586.95 | 1551159.2250 | 1941907.4670 | 584.08 |
| MW-46D | 1551056.4780 | 1942929.1010 | 605.72 | 1551055.9530 | 1942927.8210 | 603.17 |
| HGWA-47 | 1548990.9600 | 1934171.8440 | 580.33 | 1548989.2780 | 1934171.6440 | 577.39 |
| HGWA-48D | 1548989.3900 | 1934178.1460 | 580.26 | 1548988.1150 | 1934177.8070 | 577.29 |

| Benchmark | Northing | Easting | Elevation |
|---|---|---|---|
| BM H-1 | 1547964.9650 | 1937219.0690 | 579.02 |
| BM H-2 | 1548149.4490 | 1938960.2220 | 590.68 |
| BM H-4 | 1549952.4470 | 1941611.3640 | 585.71 |

SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING, AND VERTICAL ELEVATION OF THE NAIL IN THE CONCRETE PAD & THE PVC WELL CASING. DATE OF FIELD SURVEY & INSPECTION: 09/01/2020-09/02/2020. FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD'88. EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R10 RTK GPS & TRIMBLE S5 ROBOTIC TOTAL STATION. THE VERTICAL LOCATION OF EACH SURVEYED POINT WAS ESTABLISHED BASED UPON LEVEL RUNS WITH A DIGITAL LEVEL LOOP FROM VERTICAL CONTROL ESTABLISHED BY ON-SITE BENCHMARKS BM H-1, BM-H2 & BM-H4 SET BY GEL SOLUTIONS DURING PREVIOUS SURVEYS USING A TRIMBLE DINI LEVEL




9/10/2020

| Well ID | Casing Northing | Casing Easting | Top of Casing Elevation | Nail or Pad Northing | Nail or Pad Easting | Nail or Pad Elevation | Description |
|---|---|---|---|---|---|---|---|
| HGWC-117A | 1548082.038 | 1937157.249 | 581.759 | 1548080.943 | 1937157.918 | 578.849 | NAIL ON PAD |
| MW-51 | 1547872.352 | 1938421.463 | 574.541 | 1547873.517 | 1938421.451 | 571.573 | NAIL ON PAD |
| | | | | | | | |
| Benchmark | Northing | Easting | Elevation | | | | |
| BM-H2 | 1548149.4490 | 1938960.2220 | 590.68 | | | | |
| BM-H1 | 1547964.965 | 1937219.069 | 579.02 | | | | |

SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING, AND VERTICAL ELEVATION OF THE NAIL IN THE CONCRETE PAD & THE PVC WELL CASING. DATE OF FIELD SURVEY & INSPECTION: 09/07/2021. FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD '88. EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R10 RTK GPS & TRIMBLE S5 ROBOTIC TOTAL STATION. THE VERTICAL LOCATION OF EACH SURVEYED POINT WAS ESTABLISHED BASED UPON LEVEL RUNS WITH A DIGITAL LEVEL LOOP FROM VERTICAL CONTROL ESTABLISHED BY ON-SITE BENCHMARKS BM-H1 AND BM-H2 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL

9/8/2021


COA - LS003119
Exp. 06/30/2022

# PERFORMANCE BOND FOR DRILLERS

C *74*06/11/12*CA 3419896-11 ORIGINAL COPY

0116879 GREAT AMERICAN INSURANCE CO

GREAT AMERICAN. INSURANCE GROUP
Administrative Offices
301 E 4th Street
Cincinnati, Ohio 45202-4201
Tel: 1-513-369-5000

# GREAT AMERICAN INSURANCE COMPANY

An Ohio Corporation with Administrative Office
at 301 E 4th Street, Cincinnati, Ohio 45202-4201

Certificate Continuing In Force Bond No. CA 341 98 96 - 11

Name of Principal: S&ME, INC.
SPARTANBURG, SC

Name of Obligee: DIRECTOR THE ENVIRONMENTAL PROTECTION DIVISION
DEPT. OF NATURAL RESOURCES, STATE OF GEORGIA

Amount of Bond: $ 10,000.00 Premium: $ 125.00

The **GREAT AMERICAN INSURANCE COMPANY** in consideration of the premium, does hereby continue in force the above described bond from the 30TH day of JUNE, 2012 , to the 30TH day of JUNE, 2013 , standard time at the obligee's address; but this certificate shall not be binding upon the said Company until countersigned by a duly authorized representative of the said Company.

This certificate is issued upon the condition that the liability of the **GREAT AMERICAN INSURANCE COMPANY** shall under no circumstances be cumulative in amounts from year to year, regardless of the number of years said bond be continued in force and the number of premiums that may be paid or payable.

**GREAT AMERICAN INSURANCE COMPANY**

By: _____
Attorney-in-fact
Robert G. Salmon, Jr

# GREAT AMERICAN INSURANCE COMPANY®

Administrative Office: 301 E 4TH STREET • CINCINNATI, OHIO 45202 • 513-369-5000 • FAX 513-723-2740

The number of persons authorized by
this power of attorney is not more than THREE

No. 0 20267

## POWER OF ATTORNEY

**KNOW ALL MEN BY THESE PRESENTS:** That the GREAT AMERICAN INSURANCE COMPANY, a corporation organized and existing under and by virtue of the laws of the State of Ohio, does hereby nominate, constitute and appoint the person or persons named below, each individually if more than one is named, its true and lawful attorney-in-fact, for it and in its name, place and stead to execute on behalf of the said Company, as surety, any and all bonds, undertakings and contracts of suretyship, or other written obligations in the nature thereof; provided that the liability of the said Company on any such bond, undertaking or contract of suretyship executed under this authority shall not exceed the limit stated below.

| Name | Address | Limit of Power |
|---|---|---|
| JAMES W. POOLE | ALL OF | ALL |
| ROBERT G. SALMON, JR. | RALEIGH, NORTH CAROLINA | $75,000,000. |
| DAVID J. BRASWELL | | |

This Power of Attorney revokes all previous powers issued on behalf of the attorney(s)-in-fact named above.

IN WITNESS WHEREOF the GREAT AMERICAN INSURANCE COMPANY has caused these presents to be signed and attested by its appropriate officers and its corporate seal hereunto affixed this 26TH day of MARCH , 2012 .

Attest GREAT AMERICAN INSURANCE COMPANY

*Assistant Secretary*

*Divisional Senior Vice President*

DAVID C. KITCHIN (877-377-2405)

STATE OF OHIO, COUNTY OF HAMILTON - ss:

On this 26TH day of MARCH , 2012 , before me personally appeared DAVID C. KITCHIN, to me known, being duly sworn, deposes and says that he resides in Cincinnati, Ohio, that he is a Divisional Senior Vice President of the Bond Division of Great American Insurance Company, the Company described in and which executed the above instrument; that he knows the seal of the said Company; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by authority of his office under the By-Laws of said Company, and that he signed his name thereto by like authority.

KAREN L. GROSHEIM
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES 02-20-16

This Power of Attorney is granted by authority of the following resolutions adopted by the Board of Directors of Great American Insurance Company by unanimous written consent dated June 9, 2008.

*RESOLVED: That the Divisional President, the several Divisional Senior Vice Presidents, Divisional Vice Presidents and Divisonal Assistant Vice Presidents, or any one of them, be and hereby is authorized, from time to time, to appoint one or more Attorneys-in-Fact to execute on behalf of the Company, as surety, any and all bonds, undertakings and contracts of suretyship, or other written obligations in the nature thereof; to prescribe their respective duties and the respective limits of their authority; and to revoke any such appointment at any time.*

*RESOLVED FURTHER: That the Company seal and the signature of any of the aforesaid officers and any Secretary or Assistant Secretary of the Company may be affixed by facsimile to any power of attorney or certificate of either given for the execution of any bond, undertaking, contract of suretyship, or other written obligation in the nature thereof, such signature and seal when so used being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.*

## CERTIFICATION

I, STEPHEN C. BERAHA, Assistant Secretary of Great American Insurance Company, do hereby certify that the foregoing Power of Attorney and the Resolutions of the Board of Directors of June 9, 2008 have not been revoked and are now in full force and effect.

Signed and sealed this 23rd day of August , 2013 .

*Assistant Secretary*

S1029AC (4/11)

# CONTINUATION CERTIFICATE

**SAFECO Insurance Company of America** , Surety upon

a certain Bond No. **4993104**

dated effective **June 30, 1987**
(MONTH-DAY-YEAR)

on behalf of **Southern Company Services, Inc.**
(PRINCIPAL)

and in favor of **Georgia - Dept. of Natural Resources**

(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on **June 30, 2014**
(MONTH-DAY-YEAR)

and ending on **June 30, 2015**
(MONTH-DAY-YEAR)

Amount of bond **$10,000.00**

Description of bond **Water Well Contractors & Drillers**

Premium: **$100.00**

**PROVIDED:** That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on **April 09, 2014**
(MONTH-DAY-YEAR)

**SAFECO Insurance Company of America**

By _____
**D-Ann Kleidosty, Attorney-In-Fact**

**THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.**
**This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.**

Certificate No. 6125754

First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

# POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Chaun M. Wilson; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle; Tracey D. Watson; William G. Moody

all of the city of Atlanta, state of GA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 15th day of May, 2013.

First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

By: _____
Gregory W. Davenport, Assistant Secretary

STATE OF WASHINGTON ss
COUNTY OF KING

On this 15th day of May, 2013, before me personally appeared Gregory W. Davenport, who acknowledged himself to be the Assistant Secretary of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Seattle, Washington, on the day and year first above written.

K.D RILEY COMM. EXP. NOTARY PUBLIC 12-09-2013 STATE OF WASHINGTON

By: _____
KD Riley, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-law and Authorizations of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

**ARTICLE IV – OFFICERS** – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

**Certificate of Designation** – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Gregory W. Davenport, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

**Authorization** – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and biding upon the Company with the same force and effect as though manually affixed.

I, David M. Carey, the undersigned, Assistant Secretary, of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

**IN TESTIMONY WHEREOF**, I have hereunto set my hand and affixed the seals of said Companies this 9th day of April, 20 14.

By: _____
David M. Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. 800033976

Issued on 9/27/2017
Expires on 6/30/2019
Renewed on 3/4/2019
Expires on 6/30/2021

dated effective 09/27/2017
(MONTH-DAY-YEAR)

on behalf of Ricky Davis / Cascade Drilling, L.P.
(PRINCIPAL)

and in favor of Department of Natural Resources, State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on 06/30/2019
(MONTH-DAY-YEAR)

and ending on 06/30/2021
(MONTH-DAY-YEAR)

Amount of bond Thirty Thousand and 00/100 Dollars ($30,000.00)

Description of bond Performance Bond for Water Well Contractors

Premium: $1200.00

**PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.**

Signed and dated on March 4th, 2019
(MONTH-DAY-YEAR)

Atlantic Specialty Insurance Company

By _____
Attorney-in-Fact Andrew P. Larsen

Parker, Smith & Feek, Inc.
Agent

2233 112th Ave NE Bellevue, WA 98004
Address of Agent

425-709-3600
Telephone Number of Agent

S-0157/GE 8/08

XDP

# CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

dated effective June 30, 1987
(MONTH-DAY-YEAR)

on behalf of Southern Company Services, Inc.
(PRINCIPAL)

and in favor of Georgia Department of Natural Resources, Environmental Protection Division
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2021
(MONTH-DAY-YEAR)

and ending on June 30, 2022
(MONTH-DAY-YEAR)

Amount of bond Fifteen Thousand Dollars and 00/100 ($15,000.00)

Description of bond Water Well Contractors & Drillers

Premium: $100.00

**PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.**

Signed and dated on 05/06/2021
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

175 Berkeley Street, Boston, MA 02116

By _____
Attorney-in-Fact Jeffrey M. Wilson, Attorney-in-Fact

McGriff Insurance Services, Inc.
Agent

2211 7th Avenue South, Birmingham, AL 35233
Address of Agent

(205) 252-9871
Telephone Number of Agent

S-0157/GE 8/08

XDP

Liberty Mutual SURETY

**This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.**

American States Insurance Company
First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

Certificate No: **8205019-016032**

# POWER OF ATTORNEY

**KNOWN ALL PERSONS BY THESE PRESENTS:** That American States Insurance Company is a corporation duly organized under the laws of the State of Indiana, that First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Alisa B. Ferris; Anna Childress; Jeffrey M. Wilson; Mark W. Edwards II; Richard H. Mitchell; Robert R. Freel; Sam Audia; William M. Smith

all of the city of Birmingham state of AL each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

**IN WITNESS WHEREOF,** this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 11th day of March, 2021.

American States Insurance Company
First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

By: _____
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 11th day of March, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

**IN WITNESS WHEREOF,** I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-law and Authorizations of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

**ARTICLE IV – OFFICERS:** Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorney-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

**Certificate of Designation** – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

**Authorization** – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

**IN TESTIMONY WHEREOF,** I have hereunto set my hand and affixed the seals of said Companies this 6th day of May, 2021.

By: _____
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

# CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

dated effective June 30, 1987
(MONTH-DAY-YEAR)

on behalf of Southern Company Services, Inc.
(PRINCIPAL)

and in favor of Georgia Department of Natural Resources, Environmental Protection Division
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2022
(MONTH-DAY-YEAR)

and ending on June 30, 2023
(MONTH-DAY-YEAR)

Amount of bond Fifteen Thousand Dollars and 00/100 ($15,000.00)

Description of bond Water Well Contractors & Drillers

Premium: $100.00

**PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.**

Signed and dated on 05/06/2021
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

175 Berkeley Street, Boston, MA 02116

By _____
Attorney-in-Fact Jeffrey M. Wilson, Attorney-in-Fact

McGriff Insurance Services, Inc.
Agent

2211 7th Avenue South, Birmingham, AL 35233
Address of Agent

(205) 252-9871
Telephone Number of Agent

S-0157/GE 8/08

XDP

Liberty Mutual SURETY

**This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.**

American States Insurance Company
First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

Certificate No: **8205019-016032**

# POWER OF ATTORNEY

**KNOWN ALL PERSONS BY THESE PRESENTS:** That American States Insurance Company is a corporation duly organized under the laws of the State of Indiana, that First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Alisa B. Ferris; Anna Childress; Jeffrey M. Wilson; Mark W. Edwards II; Richard H. Mitchell; Robert R. Freel; Sam Audia; William M. Smith

all of the city of Birmingham state of AL each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

**IN WITNESS WHEREOF,** this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 11th day of March, 2021.

American States Insurance Company
First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

By: _____
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 11th day of March, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

**IN WITNESS WHEREOF,** I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-law and Authorizations of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

**ARTICLE IV – OFFICERS:** Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorney-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

**Certificate of Designation** – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

**Authorization** – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

**IN TESTIMONY WHEREOF,** I have hereunto set my hand and affixed the seals of said Companies this 6th day of May, 2021.

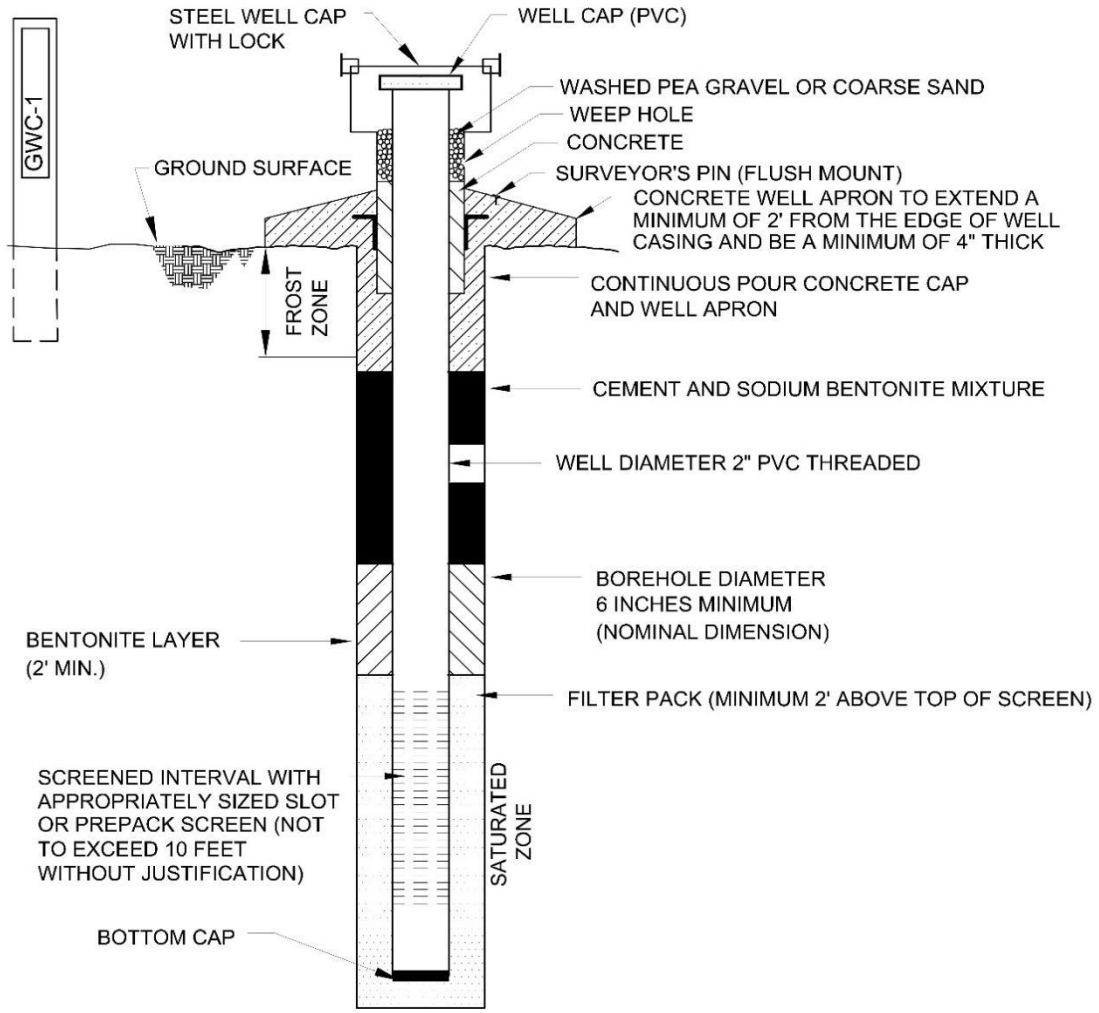
By: _____
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

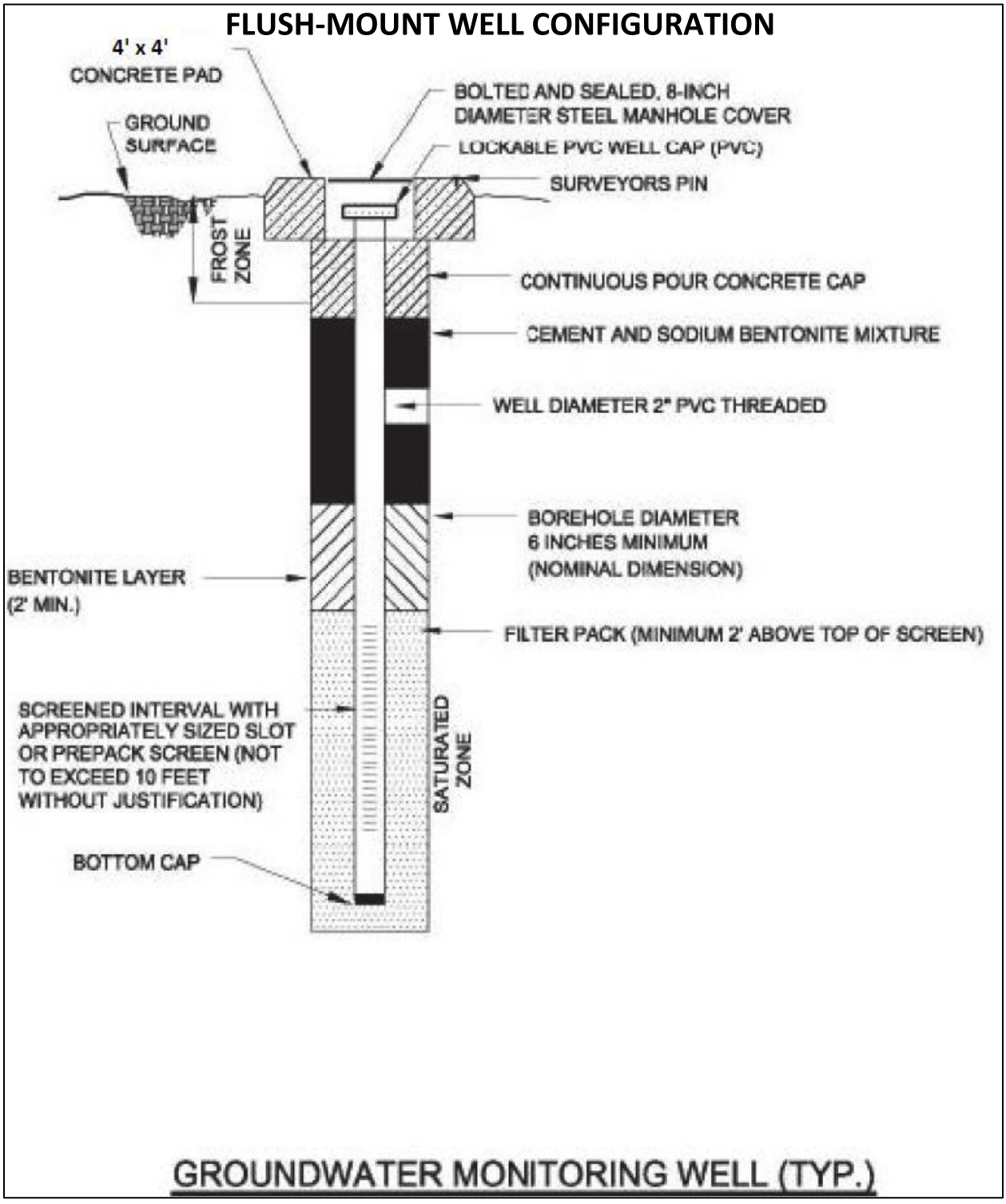
For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

# B. GROUNDWATER MONITORING WELL DETAIL

## ABOVE-GROUND WELL CONFIGURATION




GROUNDWATER MONITORING WELL (TYP.)


FLUSH-MOUNT WELL CONFIGURATION
4' x 4'
CONCRETE PAD
GROUND
SURFACE
BOLTED AND SEALED, 8-INCH
DIAMETER STEEL MANHOLE COVER
LOCKABLE PVC WELL CAP (PVC)
SURVEYORS PIN
FROST
ZONE
CONTINUOUS POUR CONCRETE CAP
CEMENT AND SODIUM BENTONITE MIXTURE
WELL DIAMETER 2" PVC THREADED
BOREHOLE DIAMETER
6 INCHES MINIMUM
(NOMINAL DIMENSION)
BENTONITE LAYER
(2' MIN.)
FILTER PACK (MINIMUM 2' ABOVE TOP OF SCREEN)
SCREENED INTERVAL WITH
APPROPRIATELY SIZED SLOT
OR PREPACK SCREEN (NOT
TO EXCEED 10 FEET
WITHOUT JUSTIFICATION)
SATURATED
ZONE
BOTTOM CAP
GROUNDWATER MONITORING WELL (TYP.)

# C. GROUNDWATER SAMPLING PROCEDURE

Groundwater sampling will be conducted using the most current applicable USEPA Region 4 SESD Field Branches Quality System and Technical Procedures as a guide (https://www.epa.gov/quality/quality-system-and-technical-procedures-sesd-field-branches). The following procedures describe the general methods associated with groundwater sampling at the Site. Prior to sampling, the well must be evacuated (purged) to ensure that representative groundwater is obtained. Any item coming in contact with the inside of the well casing or the well water will be kept in a clean container and handled only with gloved hands.

Georgia Power will follow the procedures below at each well to ensure that a representative sample is collected:

1. Check the well, the lock, and the locking cap for damage or evidence of tampering. Record observations and notify Georgia Power if it appears that the well has been compromised.

2. Measure and record the depth to water in all wells to be sampled prior to purging using a water measuring device consisting of probe and measuring tape capable of measuring water levels with accuracy to 0.01 foot. Static water levels will be measured from each well, within a 24-hour period. The water level measuring device will be decontaminated prior to lowering in each well.

3. Install Pump: If a dedicated pump is not present, slowly lower the pump into the well to the midpoint of the well screen or a depth otherwise approved by the hydrogeologist or project scientist. The pump intake must be kept at least two feet above the bottom of the well to prevent disturbance and suspension of any sediment present in the bottom of the well. Record the depth to which the pump is lowered. All non-dedicated pumps and wiring will be decontaminated before use and between well locations in general accordance with USEPA Region 4 SESD guidance document, *Operating Procedure - Field Equipment Cleaning and Decontamination* (EPA, SESDGUID-205-R3), or the latest version of the document.

4. Measure Water Level: Immediately prior to purging, measure the water level again with the pump in the well. Leave the water level measuring device in the well.

5. Purge Well: Begin pumping the well at approximately 100 to 500 milliliters per minute (mL/min). Monitor the water level continually. Maintain a steady flow rate that results in a stabilized water level with 0.3 feet or less of variability. Avoid entraining air in the tubing. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment.

6. Monitor Indicator Parameters: Monitor and record the field indicator parameters [turbidity, temperature, specific conductance, pH, oxidation-reduction potential (ORP), and dissolved oxygen (DO)] approximately every three to five minutes. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings at a minimum:

   ±0.1 for pH

±5% for specific conductance (conductivity)

±10% or ±0.2 mg/L (whichever is greater) for DO where DO>0.5mg/L. If DO<0.5mg/L no stabilization criteria apply

<5 NTU for turbidity

Temperature – Record only, not used for stabilization criteria

ORP – Record only, not used for stabilization criteria.

7. Collect samples at a low-flow rate according to the most current version of USEPA Region 4 SESD guidance document, *Operating Procedure – Groundwater Sampling* (EPA, SESDPROC-301-R#), and such that drawdown of the water level within the well is stable. Flow rate must be reduced if excessive drawdown is observed during sampling. All sample containers should be filled with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container.

8. Compliance samples will be unfiltered; however, to determine if turbidity is affecting sample results (i.e., >10 NTU), duplicate samples may be filtered in the field prior to being placed in a sample container, clearly marked as filtered and preserved. Filtering will be accomplished by the use of 0.45-micron filters on the sampling line. At least two filter volumes of sample will pass through before filling sample containers. A new filter must be used for each well and each sampling event. Filtered samples are not considered compliance samples and are only used to evaluate the effects of turbidity. Additional details related to managing for elevated turbidity is discussed below.

9. All sample bottles will be filled, capped, and placed in an ice containing cooler immediately after sampling where temperature control is required. Samples that do not require temperature control will be placed in a clean and secure container.

10. Sample containers and preservative will be appropriate for the analytical method being used.

11. Information contained on sample container labels will include:

    a. Name of facility

    b. Date and time of sampling

    c. Sample description (well number)

    d. Sampler's initials

    e. Preservatives

    f. Analytical method(s)

12. After samples are collected, samplers will remove all non-dedicated equipment. Upon completion of all activity the well will be closed and locked.

13. Samples will be delivered to the laboratory following appropriate COC and temperature control requirements. The goal for sample delivery will be within 48 hours of collection.

Throughout the sampling process new latex or nitrile gloves will be worn by the sampling personnel. A clean pair of new, disposable gloves will be worn each time a different location is sampled, and new gloves donned prior to filling sample bottles. Gloves will be discarded after sampling each well and before sampling the next well.

The goal when sampling is to attain a turbidity of less than 5 NTU; however, samples may be collected where turbidity is less than 10 NTU and the stabilization criteria described above are met.

If sample turbidity is greater than 5 NTU and all other stabilization criteria have been met, samplers will continue purging for 3 additional hours in order to reduce the turbidity to 5 NTU or less.

- If turbidity remains above 5 NTU but is less than 10 NTU, and all other parameters are stabilized, the well can be sampled.
- Where turbidity remains above 10 NTU, an unfiltered sample will be collected followed by a filtered sample that has passed through an in-line 0.45-micron filter attached to the discharge (sample collection) tube. Data from filtered samples will only be used to quantify the effects of turbidity on sample results.

Samplers will identify the sample bottle as containing a filtered sample on the sample bottle label and on the COC form.