# GROUNDWATER MONITORING PLAN

## PLANT WANSLEY – ASH POND 1 (AP-1)
## HEARD AND CARROLL COUNTIES, GEORGIA

**FOR**

Georgia Power

**REVISION 0**
**FEBRUARY 2025**

GEORGIA REGISTERED No. PE043417 PROFESSIONAL ENGINEER JEREMY GASSER
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GEORGIA DEPARTMENT OF NATURAL RESOURCES
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**Approved**
**Solid Waste Management Program**
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# I. CERTIFICATION

This *Groundwater Monitoring Plan for Georgia Power Company - Plant Wansley Ash Pond 1 (AP-1)* 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 (GA EPD) 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 GA EPD Rules of Solid Waste Management, Chapter 391-3-4.10(6).

Signature: _____

Date: 2/6/2025

GEORGIA REGISTERED No. PE043417 PROFESSIONAL ENGINEER JEREMY GASSER

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# 1. INTRODUCTION

Groundwater monitoring is required by the Georgia Environmental Protection Division (GA EPD) to detect and quantify potential changes in groundwater chemistry. This *Groundwater Monitoring Plan* (Plan) describes the groundwater monitoring program for Ash Pond 1 (AP-1) at Georgia Power Company's (GPC's) Plant Wansley. This plan meets the requirements of GA EPD regulations referenced on the certification page and uses GA EPD's *Manual for Ground Water Monitoring* dated September 1991 as a guide. Groundwater at the Site is monitored using a comprehensive well network that meets federal and state monitoring requirements. Groundwater monitoring well and piezometer locations are presented on **Figure A-1** and monitoring well and piezometer construction details in **Tables A-1** and **A-2,** respectively. Routine sampling and reporting began after the background groundwater conditions were established between May 2016 to September 2017. Based on groundwater conditions at the Site, an assessment monitoring program and assessment of corrective measures (ACM) program were established in January 2018 and October 2022, respectively. During the most recent annual reporting period, the Site remained in assessment monitoring.

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

In accordance with the United States Environmental Protection Agency (USEPA) Coal Combustion Residual (CCR) Rule (§257.90), which is incorporated by Georgia State CCR Rule by reference, a detection monitoring well network for AP-1 has been installed and certified by a qualified professional engineer. This certification was placed in the facility's operating record. 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 GA 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 a summary of the geologic and hydrogeologic conditions for the Site currently and post closure as described in the *Hydrogeologic Assessment Report* (Revision 05) (HAR Rev. 05). The summary below presents only relevant information related to the groundwater monitoring network. The HAR Rev. 05 contains more detailed information regarding lithology, hydraulic conductivity, and the conceptual site model for groundwater flow.

## 2.1 SITE GEOLOGY

AP-1 is located in the Piedmont Physiographic Province of western Georgia, which is characterized by gently rolling hills and narrow valleys with locally pronounced linear ridges. Geologic mapping performed by Golder (2015) and revised by Geosyntec (2018) indicates that the Site is underlain by schist, amphibolite, gneiss, and quartzite. AP-1 is underlain primarily by four lithologic units; (i) alluvial deposits (ii) residual soils and saprolite, (iii) partially weathered rock (PWR), and (iv) metamorphic crystalline bedrock (generally comprised of an upper fractured portion of bedrock and a deeper, competent bedrock). Historically, AP-1 received sluiced CCR until April 2019, and CCR material is present across the bottom of AP-1 at variable thickness.

Based on subsurface investigations, the CCR material consists of fly ash, generally described as dark to medium gray, soft, and loose to very loose fine sand and silts with some clay. Discontinuous lenses of coarser bottom ash are present throughout the unit, generally described as dark gray, well-graded, fine to coarse sand and fine gravel. Alluvial deposits related to stream and drainage processes are present but not laterally continuous across the Site and likely correspond with former stream channels buried during the construction of the surface impoundment. Alluvium consists of organic silt and fine sand over-bank deposits and fine to coarse sand channel deposits. Residual and saprolitic soils (residual soil/saprolite) resulting from the in-situ weathering of the parent bedrock material make up a large portion of the Site subsurface and is generally encountered across the Site. Residual soils and saprolite are described primarily as sandy silt, silty sand, sandy clay, and silty clay. As the saprolite transitions to more rock-like material approaching the bedrock surface, a zone referred to as PWR is encountered. The PWR unit is the hard, semi-consolidated, weathered to intensely fractured rock interface. PWR may include hard, but friable, decomposed rock, as well as gravel to cobble-size rock fragments bound by clay and silt saprolite matrix. The bedrock at the Site is composed primarily of graphitic schist, muscovite schist, biotite schist, schist with interlayered mafic units, amphibolite/hornblende gneiss, granitic gneiss (Long Island Creek Gneiss), and feldspathic quartzite. The ridges to the northwest and southeast of the surface impoundment are underlain by muscovite schist and Long Island Creek Gneiss, respectively, both of which are relatively resistant to weathering. AP-1 and the Storage Water Pond, however, are underlain by schist with interlayered mafic units and feldspathic quartzite, which are more susceptible to weathering, and, thus, the layer of saprolite and PWR is thicker.

## 2.2 SITE HYDROGEOLOGY

While the aquifer characteristics of each lithologic unit may vary, the groundwater is interconnected between these units, and they effectively act as one, unconfined aquifer. According to previous site investigations, the potentiometric surface is a subdued reflection of the topography. The top of rock surface also generally follows topography and likely controls groundwater flow direction in the uppermost aquifer, which occurs within the saprolite and PWR (also termed the regolith) and is hydraulically

connected to the bedrock via fractures and deeply weathered areas of the rock. Recharge is by precipitation infiltrating through the saprolite to the bedrock. Groundwater flow in the bedrock is restricted entirely to flow through fractures. As described in the text of the SAR (SCS, 2007) and demonstrated by associated geotechnical data and boring logs, the top of rock is slightly to strongly weathered but generally becomes less weathered with depth. In general, core recovery increases significantly with depth as the rock becomes less weathered. Rock Quality Designation (RQD) increases significantly with depth. These site-specific data support and additional published data on bedrock hydrogeology describe a general decrease in size and occurrence of fractures with depth. Therefore, it is inferred that groundwater within the bedrock is primarily present in fractures that generally decrease in size and density with depth.

Aquifer testing was conducted by Southern Company Services (SCS) and contracted consulting firms in 2016, 2017, 2020, and 2022 to evaluate hydraulic conditions in the vicinity of AP-1. Results of these field events are discussed in detail in the HAR Rev. 05. Estimated horizontal hydraulic conductivity ($K_h$) values based on the aquifer testing activities at wells and piezometers (**Tables A-1** and **A-2**; obtained from the HAR Rev. 05) indicate that the bedrock has a lower geometric mean $K_h$ ($6.24 \times 10^{-5}$ centimeters per sec; cm/sec) than the residual soil/saprolite and the PWR ($1.21 \times 10^{-4}$ cm/sec and $1.13 \times 10^{-4}$ cm/sec, respectively), however, it should be noted that localized variation in thickness of the residual soil/saprolite and PWR, variable bedrock fracture density, and fractured bedrock zones may result in areas in which the fractured bedrock exhibits higher $K_h$ values than in the overlying units. The primary zone of groundwater flow was found to be in the regolith (residual soil/saprolite and PWR) and upper fractured portion of the bedrock where the $K_h$ is expected to be greater than the underlying competent bedrock.

Vertical hydraulic conductivity ($K_v$) values were measured in laboratory permeability tests on sonic drilling cores and Shelby Tubes collected from borings in CCR, alluvium, saprolite, and PWR in March 2017. The $K_v$ obtained from the alluvium (fine-grained, over-bank deposits) was $4.6 \times 10^{-7}$ cm/sec. The saprolite samples ranged an order of magnitude from $5.1 \times 10^{-6}$ cm/sec to $5.5 \times 10^{-5}$ cm/sec, and the PWR core yielded a $K_v$ of $7.6 \times 10^{-6}$ cm/sec.

A potentiometric surface map depicting groundwater flow in the vicinity of AP-1 is provided on **Figure A-2** in **Appendix A**. The potentiometric surface map represents data recorded in February 2024. Groundwater in the area generally flows to the south and east toward the Chattahoochee River, however, given the current pool elevation of approximately 784 ft NAVD88 in AP-1, groundwater in the near vicinity of AP-1 flows from the topographic ridges around the pond inward into the impoundment, with the exception of a component of flow away from AP-1 in a generally southeastern direction near the southeastern corner of the impoundment. In general, steeper potentiometric contours in areas of higher topographic relief give way to lower gradients as the land surface flattens toward the river.

In February 2024, the full pool elevation of AP-1 was approximately 784 ft NAVD88. During the proposed closure by removal, the free water in AP-1 will be removed and CCR excavated. During the post closure period, AP-1 will refill naturally and remain as a service water/industrial water pond. The full pool elevation of this proposed industrial pond post closure will fluctuate in the range of the free pool elevation during historical AP-1 operations, which was 781.5 to 797 ft NAVD88. Should the post closure full pool elevation be on the low end of this range, hydraulic gradients and groundwater flow velocities would be expected to be similar to what is currently (February 2024) observed in AP-1 and presented in the HAR Rev. 05. Should the post closure full pool elevation be on the high end of this range, hydraulic gradients and groundwater flow velocities would be expected to be similar to what was observed in October 2017 when the full pool elevation of AP-1 was approximately 795 ft NAVD88. A potentiometric surface map

from October 2017 is provided on **Figure A-3** to illustrate the groundwater flow expected in the vicinity of AP-1 with a high full pool elevation. These potentiometric surfaces provide endmembers and a representative range for groundwater flow. In addition, they indicate that the compliance groundwater monitoring network is sufficient to capture any potential flow from AP-1 regardless of hydraulic conditions and will remain downgradient of AP-1 in the post closure period given the proposed range for the full pool elevation of AP-1. Groundwater monitoring will continue, and the status of downgradient wells will be evaluated and refined, as needed, during the post closure care period.

Groundwater hydraulic gradients were calculated for flow path lines at AP-1 in February 2024 and October 2017. The 2017 gradients were obtained from the 2017 Annual Groundwater Monitoring and Corrective Action Report (ERM, 2018). In February 2024, hydraulic gradients along groundwater flow path lines from WGWC-20 to WGWC-27 and from PZ-01 to WGWC-17, are estimated to be 0.052 feet per foot (ft/ft) and 0.084 ft/ft, respectively. Groundwater flow velocity in the vicinity of AP-1 is estimated to be approximately 0.12 ft/day or 42.2 ft/year in 2024. The average hydraulic gradients along groundwater flow path lines associated with AP-1 in 2017 were 0.006 ft/ft (WGWC-16 to PZ-16), and 0.088 ft/ft (WGWC-40 (PZ-10) to WGWC-19). Groundwater flow velocity in the vicinity of AP-1 was estimated to be approximately 0.13 ft/day or 46.0 ft/year in 2017. The supporting hydraulic gradient calculations and groundwater flow velocity calculations are presented in **Table A-3**.

Additional details regarding the hydrogeologic conditions in the vicinity of AP-1 are provided in the HAR Rev. 05.

# 3. SELECTION OF WELL LOCATIONS

Groundwater monitoring wells were installed to monitor the uppermost occurrence of groundwater beneath the Site (i.e., the saprolite/PWR/upper fractured portion of the bedrock aquifer). Locations were selected based on the AP-1 footprint and geologic and hydrogeologic considerations. Georgia Power follows the recommendation as stated in Chapter 2 of the *Manual for Groundwater Monitoring* (GA EPD, 1991) to establish well spacing based on site-specific conditions. In October 2024, GA EPD requested installation of additional groundwater monitoring wells to enhance the groundwater monitoring network in the Separator Dike between AP-1 and the Storage Water Pond and along the south side of AP-1. Detection groundwater monitoring network enhancements will be accomplished by installation of thirteen new detection monitoring wells and conversion of six existing piezometers to detection monitoring wells. A map depicting the current and proposed detection monitoring well network screened within the uppermost aquifer for AP-1 is included as **Figure A-1** in **Appendix A**. A more detailed discussion of the hydrogeological investigations conducted in support of monitoring well placement is provided in the HAR Rev. 05.

Locations are chosen to serve as upgradient/background (WGWA), or downgradient (WGWC) typically based on groundwater flow direction determined by potentiometric evaluation. In addition, select background locations were chosen to monitor additional lithologies not represented in the upgradient locations. Though these locations may not be hydraulically upgradient, they accurately represent the quality of background groundwater and are outside the influence of CCR. The well naming nomenclature is based on Georgia EPD's Industrial Waste Disposal Site Design and Operations Plan – Supplemental Data for Solid Waste Handling Permit (undated). Wells are positioned to provide adequate coverage to detect potential impacts from the CCR impoundment. Both background and downgradient wells are screened in the uppermost aquifer. Groundwater levels are currently monitored in all monitoring well and piezometer locations to establish potentiometric conditions at the Site.

Monitoring wells are generally located outside of areas with frequent auto traffic; however, wells may be installed in heavily trafficked areas when necessary to meet the groundwater monitoring objectives of the GA EPD rules. In addition to the potentiometric surface map, **Appendix A** also includes a tabulated list (**Tables A-1** and **A-2**) of location coordinates for the individual detection monitoring wells, assessment wells, and piezometers used for water level monitoring. Proposed locations of the new detection monitoring wells are included in **Table A-1**. Additional well construction details (i.e., top-of-casing elevation, well depths, and screened intervals) are also provided on these tables. Any change to the groundwater monitoring network must be made by a minor modification to the permit pursuant to 391-3-4-.10(6)(g).

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

The AP-1 monitoring well network described in this plan is already in place. Existing monitoring wells were installed following USEPA Region 4 Science and Ecosystem Support Division (SESD*)* guidance document, *Design and Installation of Monitoring Wells* (USEPA, SESDGUID-101-R1; USEPA, SESDGUID-101-R2) as a general guide for best practices. Boring and well construction logs for detection monitoring wells are included in **Appendix A**. 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 wells. Drilling methodology may include, but not be limited to, hollow stem augers, direct push, air rotary, mud rotary, or rotasonic techniques. The drilling method shall minimize the disturbance of subsurface materials and shall not cause impact to the groundwater. Borings will be advanced using an appropriate drilling technology capable of drilling and installing a well in site-specific geology. Monitoring wells will be installed using the most current version of the USEPA Region 4 SESD SESDGUID-101-R# as a general guide for best practices. Drilling equipment shall be decontaminated before use and between borehole locations using the procedures described in the most current version of the USEPA Region 4 SESD *Operating Procedure for Field Equipment Cleaning and Decontamination* (USEPA, SESDGUID-205-R#) as a guide. Drilling and well installation activities will be directed by a qualified groundwater scientist.

Sampling and/or coring may be used to help determine the stratigraphy and geology. Samples will be logged by a qualified groundwater scientist. Screen depths will be chosen based on the depth of the uppermost aquifer.

All drilling for any subsurface hydrologic investigation, 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. Proof of bonding for wells installed at the unit is included as **Attachment A-2** in **Appendix A**. For future installations, proof of bonding will be included in the well installation reports.

As required by 391-3-4.10(6)(g), a minor modification will be submitted to GA EPD prior to the installation or decommissioning of monitoring wells. Well installation must be directed by a qualified groundwater scientist.

## 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.

WELL CASINGS AND SCREENS

American Society for Testing and Materials (ASTM), National Science Foundation (NSF) rated, Schedule 40, 2-inch 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

The design and construction of the intake of the groundwater wells shall: (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 shall not exceed 10 feet without justification as to why a longer screen is necessary (e.g., significant variation in groundwater level). If the above 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. Pre-packed well screens will be installed following general industry standards and using the latest version of the Region 4 U.S. Environmental Protection Agency Science and Ecosystem Support Division Operating Procedure for Design and Installation of Monitoring Wells 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 hole 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 of filter pack depth will be measured, and additional sand added if necessary. The filter pack will extend a minimum of two feet above the top of the well screen.

The materials used to seal the annular space 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 zone. 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 cement/bentonite 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 2 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 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 details attached in **Appendix B1**, Groundwater Monitoring Well Detail and **Appendix B2**, Groundwater Monitoring Well Detail Flush-Mount Surface Completion, illustrate the general design and construction details for a monitoring well.

WELL DEVELOPMENT

Well development will be conducted under supervision of a certified groundwater professional. 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 turbidity of less than 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. Well development data will be included in installation documentation reports.

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 the wells' filter packs over time. Therefore, the turbidity of the groundwater from the monitoring wells may gradually increase over time after initial well development. As a result, the monitoring wells may have to be redeveloped periodically to remove the silt and clay that has worked its way into the filter pack of the monitoring 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 provided as part of the well installation report.

The certified surveyor's reports are included as **Attachment A-3** in **Appendix A**. Monitoring well logs for the existing monitoring well network are also included in **Appendix A**, as **Attachment A-1**.

### 4.3 ABANDONMENT

Per Georgia Rule 391-3-4.10(6)(g), monitoring wells require replacement after two consecutive dry sampling events, unless an alternate schedule has been approved by GA EPD Monitoring wells will be abandoned using industry-accepted practices and using the Manual for Groundwater Monitoring (1991) and (O.C.G.A) 12-5-120, 1985 as guides. The wells will be abandoned under the supervision of a qualified groundwater scientist registered to practice in the State of Georgia. A well abandonment report will be submitted to EPD within 60 days of completion of well abandonment. The wells will be abandoned under the direction of a professional geologist (P.G.) or engineer (P.E.) registered in Georgia. Neat Portland cement or bentonite will be used as appropriate to complete abandonment and seal the well borehole.

### 4.4 DOCUMENTATION

Within 60 days of the construction, survey, and 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 GA EPD. The following information will be documented in this report.

1. Well identification
2. Well drilling date
3. Well development date
4. Name of drilling contractor and type of drill rig
5. Documentation that the driller, at the time the monitoring wells were installed, had a bond on file with the Water Well Standards Advisory Council
6. 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
7. Details of filter pack material/size, emplacement method (narrative), and volume
8. Seal emplacement method and type/volume of sealant
9. Borehole diameter and well casing diameter
10. Well Depth (±0.1 ft.)
11. Type of protective well cap

12. Surface seal and volumes/mix of annular seal material

13. Screen length and interval reported in feet below ground surface and elevation

14. 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

15. 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

16. Lithologic logs

17. Documentation that water quality field parameters meet well development criteria (Section 4.2)

18. Documentation of ground surface elevation (±0.01 feet)

19. Documentation of top of casing elevation (±0.01 feet)

20. 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 professional engineer or professional geologist, 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, as part of the post closure plan, the cost estimate based upon current year cost for the well inspections must be provided for as part of the cost calculations for the groundwater monitoring period.

# 5. GROUNDWATER MONITORING PARAMETERS AND FREQUENCY

The following describes AP-1 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 were collected from each groundwater detection well of the AP-1 network between May 2016 and September 2017 and analyzed for 40 CFR 257, Subpart D, Appendix III and Appendix IV test parameters to establish a background statistical dataset, with the exception of WGWC-20, WGWC-21 ,WGWC-22, WGWC-23, WGWC-24, and WGWC-25, which were installed in 2020 and were sampled four times to establish a background statistical dataset. The nineteen additional monitoring wells to be included in the expanded detection monitoring network will be sampled eight independent times on a quarterly basis until 2027 to establish the background statistical dataset.

In accordance with 391-3-4-.10(6), the monitoring frequency for the Appendix III parameters will be at least semi-annual during the active life of the facility and the post-closure care period. Pursuant to 391-3-4-.10(6), an assessment monitoring program was established for AP-1 based on statistically significant increases documented in the *2017 Annual Groundwater Monitoring and Corrective Action Report* (Environmental Resources Management, 2018). Georgia Power initiated an assessment of corrective measures (ACM) program on October 27, 2022. An ACM Report for AP-1 was submitted to GA EPD in March 2023. Georgia Power will continue to complete assessment monitoring activities as required in 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 GA 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 |
| | Oxidation Reduction Potential (ORP) | X | X |
| | Turbidity | X | X |
| | Specific Conductance | X | X |
| | Dissolved Oxygen (DO) | X | X |
| **Appendix III (Detection test parameters from 40 CFR 257, Subpart D)** | 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 test parameters from 40 CFR 257, Subpart D)** | 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 7040/7041/6010D/6020B |
| Arsenic | EPA 7060A/7061A/6010D/6020B |
| Barium | EPA 7080A/7081/6010D/6020B |
| Beryllium | EPA 7090/7091/6010D/6020B |
| Cadmium | EPA 7130/7131A/6020B |
| Chromium | EPA 7190/7191/6010D/6020B |
| Cobalt | EPA 7200/7201/6010D/6020B |
| Fluoride | 300.0/300.1/9214/9056A |
| Lead | EPA 7420/7421/6010D/6020B |
| Lithium | 6010D/6020B |
| Mercury | 7470 |
| Molybdenum | 6010D/6020B |
| Selenium | EPA 7740/7741A/6010D/6020B |
| Thallium | EPA 7840/7841/6010D/6020B |
| Radium 226 and 228 combined | EPA 903/9320/9315 |

# 6. GROUNDWATER SAMPLE COLLECTION

During each sampling event, groundwater samples will be collected and handled in accordance with the procedures specified in **Appendix C**, Groundwater Sampling Procedures. 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. EPA approved alternative industry accepted sampling methodology may be used when appropriate. The applied groundwater purging and sampling methodologies will be discussed in the groundwater semi-annual monitoring reports submitted to GA EPD.

For groundwater sampling, positive gas displacement PVC, 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 in general accordance with USEPA LSASDPROC-205-R#.

Per Georgia Rule 391-3-4-.10(6)(g) monitoring wells require replacement after two consecutive dry sampling events. Well installation must be directed by a qualified groundwater scientist. A minor modification shall be submitted to GA EPD in accordance with Rule 391-3-4-.02 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
- Dates and times of possession by each individual
- 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. The transfer times and dates during transfer of samples between individuals will be documented on the COC included with the laboratory reports.

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. 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 GA EPD. Semi-annual groundwater monitoring reports will be submitted to GA EPD within 90 days of receipt of the groundwater analytical data from the laboratory, and signed and sealed by a Georgia-registered P.G. or P.E. 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 previous monitoring period, if applicable.

12. Laboratory Reports.

13. COC documentation.

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

15. Field logs and forms for each sampling event to include, but not 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.

19. Certification by a qualified groundwater scientist.

20. Plume delineation (if applicable based on exceedances of groundwater protection standards).

21. Trend analyses (if applicable based on exceedances of groundwater protection standards).

22. Annual updated potable water well survey (if applicable based on exceedances 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* (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 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 compliance well is compared to the upper tolerance or prediction limit. [§ 257.93(f)(3)];

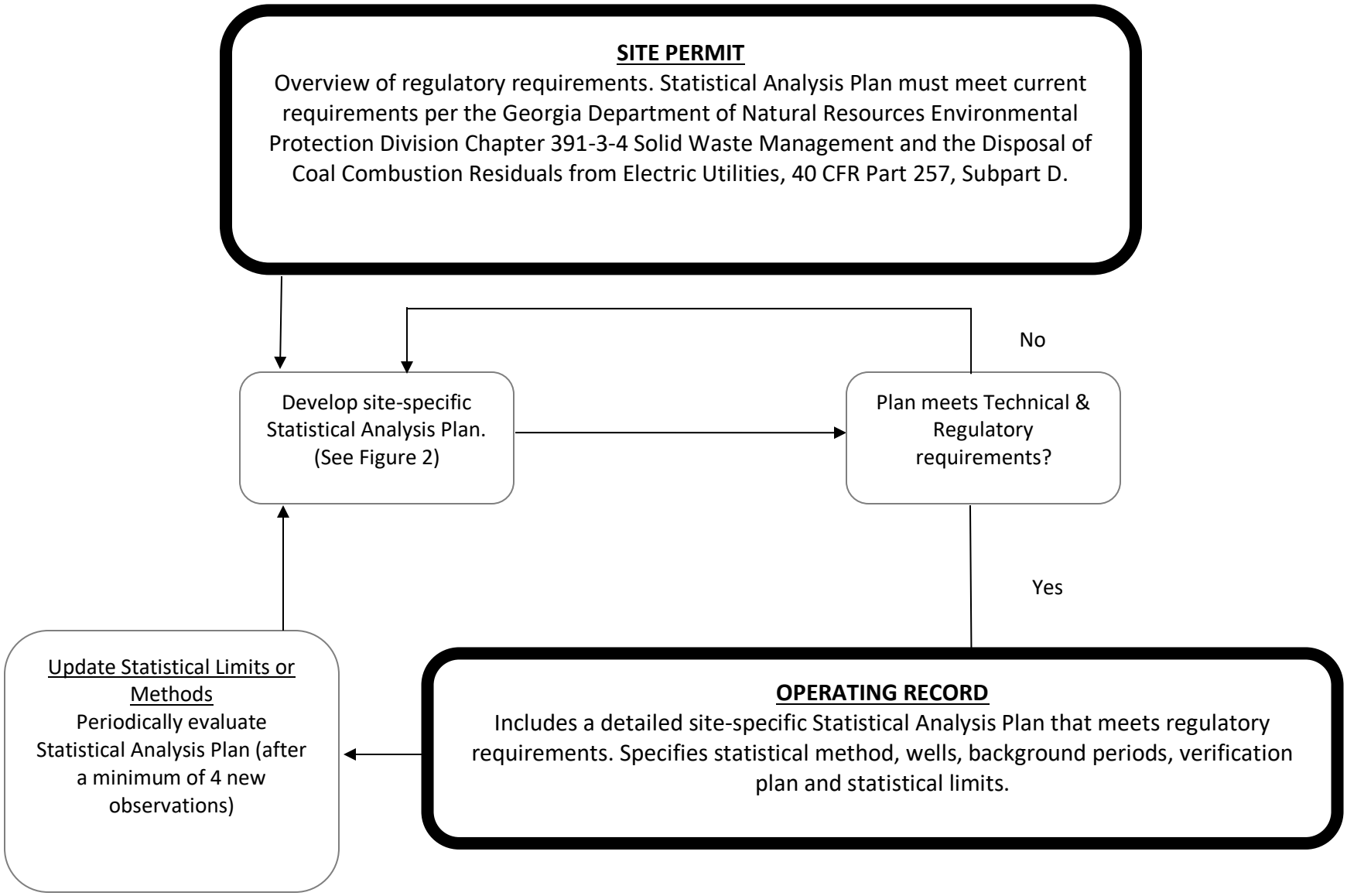
2. A control chart approach that gives control limits for each constituent. [§ 257.93(f)(4)];

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).

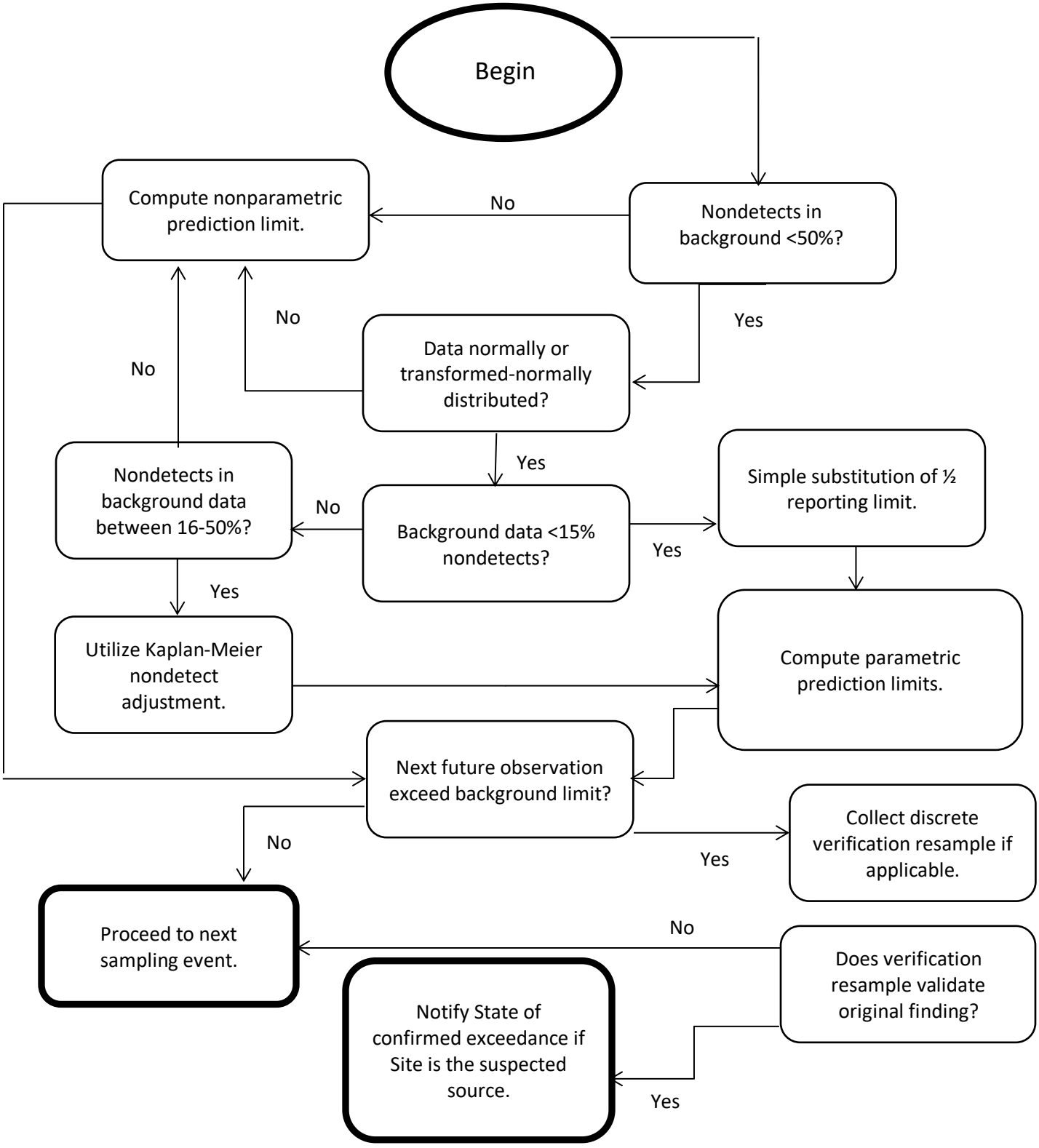
An interwell statistical method will be used to compare Appendix III groundwater monitoring data to background conditions. Confidence intervals will be constructed for each downgradient well and used to compare Appendix IV groundwater monitoring data to groundwater protection standards.

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

# FIGURE 1. STATISTICAL ANALYSIS PLAN OVERVIEW



## FIGURE 2. DECISION LOGIC FOR COMPUTING PREDICTION LIMITS



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# APPENDICES

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

# A. MONITORING SYSTEM DETAILS

**Table A-1**
AP-1 Monitoring Network Well Details
Plant Wansley, Heard and Carroll Counties, Georgia

| Well ID | Previous Well / Piezometer ID | Installation Date | Purpose | Northing [1,3] | Easting [1,3] | Ground Surface Elevation [2,3] (ft NAVD88) | Top of Casing Elevation [2,3] (ft NAVD88) | Well Depth [4] (ft BTOC) | Top of Screen Elevation [2,3] (ft NAVD88) | Bottom of Screen Elevation [2,3] (ft NAVD88) | Screened Media | $K_h$ [5] (cm/sec) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Upgradient Detection Monitoring Wells** | | | | | | | | | | | | |
| WGWA-1 | APA-1 | 10/21/2015 | Detection | 1250656.10 | 2035580.71 | 780.37 | 782.93 | 129.56 | 663.37 | 653.37 | PWR | 2.0E-03 |
| WGWA-2 | APA-2D | 10/16/2015 | Detection | 1251556.40 | 2035590.11 | 755.77 | 758.23 | 102.46 | 665.77 | 655.77 | PWR/Bedrock | 2.7E-04 |
| WGWA-3 | PZ-02 | 12/15/2014 | Detection | 1240848.21 | 2022350.10 | 826.63 | 828.91 | 18.68 | 820.23 | 810.23 | Saprolite/Bedrock | --- |
| WGWA-4 | PZ-02D | 01/13/2015 | Detection | 1240879.58 | 2022339.66 | 831.33 | 834.34 | 74.31 | 780.43 | 760.43 | Bedrock | 4.1E-04 |
| WGWA-6 | PZ-03D | 01/13/2015 | Detection | 1241932.02 | 2022360.58 | 894.62 | 897.13 | 104.91 | 822.62 | 792.62 | Bedrock | 1.1E-03 |
| WGWA-7 | PZ-05 | 12/22/2014 | Detection | 1243338.63 | 2023843.81 | 894.49 | 897.33 | 40.04 | 867.69 | 857.69 | Bedrock | 3.7E-03 |
| WGWA-18 | PZ-07 | 12/16/2014 | Detection | 1244592.56 | 2025580.71 | 875.47 | 878.02 | 39.95 | 848.47 | 838.47 | Saprolite/Bedrock | 1.4E-04 |
| **Downgradient Detection Monitoring Wells** | | | | | | | | | | | | |
| WGWC-8 | APC-1 | 10/29/2015 | Detection | 1242929.40 | 2029644.58 | 777.70 | 780.08 | 59.38 | 730.70 | 720.70 | Bedrock | 2.2E-05 |
| WGWC-9 | PZ-09 | 12/4/2014 | Detection | 1242801.12 | 2029115.75 | 809.33 | 812.03 | 61.50 | 760.93 | 750.93 | PWR | 6.0E-05 |
| WGWC-10 | APC-3D | 10/27/2015 | Detection | 1240971.96 | 2026725.61 | 809.61 | 812.38 | 148.77 | 673.61 | 663.61 | Saprolite/PWR | 1.7E-05 |
| WGWC-11 | PZ-14 | 12/8/2014 | Detection | 1240860.18 | 2025773.39 | 821.44 | 823.96 | 51.22 | 783.14 | 773.14 | Saprolite | 1.5E-04 |
| WGWC-12 | APC-4D | 10/22/2015 | Detection | 1240827.68 | 2025755.99 | 820.57 | 823.04 | 76.47 | 756.57 | 746.57 | Bedrock | 6.9E-04 |
| WGWC-13 | APC-5D | 11/4/2015 | Detection | 1240610.93 | 2024585.91 | 807.32 | 809.78 | 95.46 | 734.32 | 714.32 | Bedrock | 9.5E-06 |
| WGWC-14A | -- | 01/31/2017 | Detection | 1240604.54 | 2024599.63 | 808.20 | 810.94 | 42.74 | 778.20 | 768.20 | Saprolite/PWR | 1.2E-04 |
| WGWC-15 | APC-6D | 11/11/2015 | Detection | 1240483.16 | 2023912.92 | 802.03 | 804.69 | 56.16 | 758.53 | 748.53 | Bedrock | 1.6E-06 |
| WGWC-16 | APC-6S | 11/11/2015 | Detection | 1240480.46 | 2023903.77 | 801.72 | 804.21 | 34.50 | 779.72 | 769.72 | Saprolite/PWR | 7.1E-05 |
| WGWC-17 | APC-7 | 11/06/2015 | Detection | 1240052.06 | 2022623.82 | 813.36 | 816.00 | 95.94 | 730.36 | 720.36 | Bedrock | 1.1E-04 |
| WGWC-19 | APC-2 | 10/28/2015 | Detection | 1241851.51 | 2028949.19 | 780.60 | 783.42 | 94.82 | 698.60 | 688.60 | Bedrock | 1.3E-04 |
| WGWC-20 | PZ-22 | 09/29/2020 | Detection | 1243350.76 | 2029769.43 | 804.88 | 807.95 | 43.17 | 775.18 | 765.18 | Bedrock | 1.5E-04 |
| WGWC-21 | PZ-23S | 10/02/2020 | Detection | 1242139.33 | 2028512.65 | 831.79 | 834.41 | 71.70 | 773.11 | 763.11 | Bedrock | 8.4E-08 |
| WGWC-22 | PZ-24 | 10/18/2020 | Detection | 1241695.25 | 2028116.05 | 807.00 | 810.37 | 43.85 | 776.92 | 766.92 | PWR/Bedrock | 1.3E-05 |
| WGWC-23 | PZ-25S | 10/04/2020 | Detection | 1240769.79 | 2027414.58 | 820.50 | 823.80 | 53.80 | 780.40 | 770.40 | PWR | 1.2E-04 |
| WGWC-24 | PZ-26S | 10/17/2020 | Detection | 1239916.68 | 2024139.82 | 802.22 | 804.80 | 40.77 | 774.43 | 764.43 | PWR | 2.2E-04 |
| WGWC-25 | PZ-27S | 10/28/2020 | Detection | 1240184.18 | 2023616.69 | 805.98 | 808.98 | 39.87 | 779.51 | 769.51 | Saprolite/PWR | 2.9E-04 |
| WGWC-30 [6] | -- | -- | Detection | 1240037.93 | 2022632.36 | -- | -- | 30 | 780 | 770 | Residuum | -- |
| WGWC-31S [6] | -- | -- | Detection | 1240822.00 | 2027168.63 | -- | -- | 39 | 782 | 772 | PWR | -- |
| WGWC-31D [6] | -- | -- | Detection | 1240830.49 | 2027170.46 | -- | -- | 80 | 740 | 730 | Bedrock | -- |
| WGWC-32 [6] | -- | -- | Detection | 1241724.07 | 2028125.24 | -- | -- | 20 | 795 | 785 | Residuum | -- |
| WGWC-33 [6] | -- | -- | Detection | 1242764.54 | 2029104.51 | -- | -- | 35 | 785 | 775 | Quartzite | -- |
| WGWC-34S [6] | -- | -- | Detection | 1245294.32 | 2027794.74 | -- | -- | 50 | 770 | 760 | Dike Material | -- |
| WGWC-34D [6] | -- | -- | Detection | 1245294.32 | 2027794.74 | -- | -- | 130 | 690 | 680 | Bedrock | -- |
| WGWC-35S [6] | -- | -- | Detection | 1244963.82 | 2028137.48 | -- | -- | 50 | 785 | 775 | Dike material | -- |
| WGWC-35D [6] | -- | -- | Detection | 1244963.82 | 2028137.48 | -- | -- | 130 | 690 | 680 | Bedrock | -- |
| WGWC-36S [6] | -- | -- | Detection | 1244514.98 | 2028598.55 | -- | -- | 50 | 770 | 760 | Dike Material | -- |
| WGWC-36D [6] | -- | -- | Detection | 1244514.98 | 2028598.55 | -- | -- | 130 | 690 | 680 | Bedrock | -- |
| WGWC-37S | PZ-29S [7] | 10/31/2020 | Detection | 1244317.13 | 2028839.68 | 805.80 | 805.30 | 45.42 | 770.28 | 760.28 | Dike Material | -- |

**Table A-1**
AP-1 Monitoring Network Well Details
Plant Wansley, Heard and Carroll Counties, Georgia

| Well ID | Previous Well / Piezometer ID | Installation Date | Purpose | Northing [1,3] | Easting [1,3] | Ground Surface Elevation [2,3] (ft NAVD88) | Top of Casing Elevation [2,3] (ft NAVD88) | Well Depth [4] (ft BTOC) | Top of Screen Elevation [2,3] (ft NAVD88) | Bottom of Screen Elevation [2,3] (ft NAVD88) | Screened Media | $K_h$ [5] (cm/sec) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WGWC-37D | PZ-29D [7] | 11/1/2020 | Detection | 1244304.90 | 2028853.29 | 805.77 | 805.24 | 126.95 | 688.69 | 678.69 | Saprolite/PWR Bedrock | 8.3E-06 |
| WGWC-38S [6] | -- | -- | Detection | 1243849.90 | 2029292.20 | -- | -- | 50 | 770 | 760 | Dike Material | -- |
| WGWC-38D [6] | -- | -- | Detection | 1243849.90 | 2029292.20 | -- | -- | 130 | 690 | 680 | Bedrock | -- |
| WGWC-39 | PZ-15 [7] | 12/10/2014 | Detection | 1240457.61 | 2025105.38 | 824.59 | 826.86 | 41.46 | 795.79 | 785.79 | Saprolite | 3.9E-05 |
| WGWC-40 | PZ-12 [7] | 12/08/2014 | Detection | 1240837.96 | 2026731.01 | 816.17 | 818.74 | 49.78 | 779.37 | 769.37 | Saprolite | 5.4E-05 |
| WGWC-41 | PZ-10 [7] | 12/05/2014 | Detection | 1242058.41 | 2028554.29 | 829.26 | 832.02 | 31.96 | 810.46 | 800.46 | Bedrock | 1.1E-06 |
| WGWC-42 | PZ-20 [7] | 01/31/2017 | Detection | 1243496.86 | 2030132.73 | 784.45 | 787.30 | 37.85 | 759.45 | 749.45 | Saprolite | -- |
| **Assessment Monitoring Wells** | | | | | | | | | | | | |
| WGWC-27 | -- | 9/27/2022 | Assessment | 1243215.51 | 2029878.92 | 778.05 | 780.54 | 41.69 | 749.15 | 739.15 | Bedrock | 9.2E-06 |
| WGWC-28D | -- | 8/18/2023 | Assessment | 1243337.13 | 2029751.04 | 805.36 | 808.24 | 206.70 | 609.06 | 599.06 | Bedrock | 5.1E-06 |
| PZ-26D | -- | 10/12/2020 | Assessment | 1239919.45 | 2024146.35 | 802.31 | 804.93 | 80.10 | 735.23 | 725.23 | Bedrock | 1.9E-05 |
| WAMW-1 [8] | -- | 09/16/2018 | Assessment | 1241843.66 | 2028944.63 | 780.05 | 782.66 | 124.60 | 668.40 | 658.40 | Bedrock | -- |

Notes:
ft = feet
BTOC = below top of casing
PWR = Partially Weathered Rock
$K_h$ = horizontal hydraulic conductivity
cm/sec = centimeter per second
--- = Location not tested
(1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet.
(2) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88). Ground surface elevation defined at the survey nail installed within the well pad.
(3) Survey of WGWA-1 through WGWA-18 and WGWC-8 through WGWC-19 was completed by GEL Solutions and certified June 16, 2020. Survey of WGWC-20 through WGWC-25, PZ-26D, PZ-29S, and PZ-29D was completed by GEL Solutions and certified on November 17, 2020. Survey of WGWC-27 was completed by GEL Solutions and certified on October 13, 2022. Survey of WGWC-28D was completed by GEL Solutions and certified on September 5, 2023.
(4) Total well depth accounts for sump if data provided on well construction logs.
(5) $K_h$ as determined by slug testing (in piezometers and wells) or iso-flow packer testing (in open bedrock boreholes). Horizontal hydraulic conductivity in bedrock is from targeted tests of fracture zones and not likely representative of bulk permeability of the rock units.
(6): Proposed detection wells to be installed in 2025. Construction information subject to change.
(7): Piezometers will be reclassified as detection wells in 2025.
(8): Piezometers to be reclassified as assessment monitoring wells in 2025.

**Table A-2**
AP-1 Water Level Monitoring Network Piezometer Details
Plant Wansley, Heard and Carroll Counties, Georgia

| Piezometer ID [1] | Purpose | Northing [2,4] | Easting [2,4] | Ground Surface Elevation [3,4] (ft NAVD88) | Top of Casing Elevation [3,4] (ft NAVD88) | Well Depth [5] (ft BTOC) | Top of Screen Elevation [3,4] (ft NAVD88) | Bottom of Screen Elevation [3,4] (ft NAVD88) | Screened Media | $K_h$ [6] (cm/sec) |
|---|---|---|---|---|---|---|---|---|---|---|
| PZ-01 | Water level | 1240249.86 | 2022319.93 | 853.91 | 856.72 | 49.31 | 817.81 | 807.81 | Bedrock | 3.2E-04 |
| PZ-04 | Water level | 1242592.03 | 2023595.91 | 886.13 | 889.01 | 20.48 | 878.93 | 868.93 | Saprolite/Bedrock | --- |
| PZ-06 | Water level | 1244382.89 | 2024661.39 | 912.30 | 915.15 | 26.95 | 898.60 | 888.60 | Bedrock | 3.9E-03 |
| PZ-08 | Water level | 1245514.59 | 2026807.30 | 864.65 | 867.29 | 40.84 | 836.85 | 826.85 | Saprolite/Bedrock | 2.4E-03 |
| PZ-16 | Water level | 1239419.77 | 2023662.22 | 798.05 | 800.70 | 26.15 | 785.05 | 775.05 | Saprolite | 3.6E-04 |
| PZ-17 | Water level | 1239270.02 | 2023086.50 | 828.54 | 831.01 | 51.57 | 789.84 | 779.84 | Saprolite | 6.6E-04 |
| PZ-18 | Water level | 1239569.52 | 2022299.20 | 812.10 | 814.51 | 36.71 | 788.20 | 778.20 | Saprolite | 2.8E-04 |
| PZ-22 | Water level | 1243350.76 | 2029769.43 | 804.88 | 807.95 | 43.17 | 775.18 | 765.18 | Bedrock | Bedrock |
| PZ-23D | Water level | 1242139.53 | 2028520.87 | 831.89 | 834.32 | 94.80 | 749.92 | 739.92 | Bedrock | 4.5E-04 |
| PZ-23S | Water level | 1242139.33 | 2028512.65 | 831.79 | 834.41 | 71.70 | 773.11 | 763.11 | Bedrock | Bedrock |
| PZ-24 | Water level | 1241695.25 | 2028116.05 | 807.00 | 810.37 | 43.85 | 776.92 | 766.92 | PWR/Bedrock | PWR/Bedrock |
| PZ-25S | Water level | 1240769.79 | 2027414.58 | 820.50 | 823.80 | 53.80 | 780.40 | 770.40 | PWR | PWR |
| PZ-26S | Water level | 1239916.68 | 2024139.82 | 802.22 | 804.80 | 40.77 | 774.43 | 764.43 | PWR | PWR |
| PZ-27D | Water level | 1240190.93 | 2023620.36 | 806.22 | 809.28 | 81.72 | 737.96 | 727.96 | Bedrock | 7.8E-04 |
| PZ-27S | Water level | 1240184.18 | 2023616.69 | 805.98 | 808.98 | 39.87 | 779.51 | 769.51 | PWR | PWR |
| PZ-28 | Water level | 1240066.02 | 2022624.73 | 813.57 | 816.18 | 72.90 | 753.68 | 743.68 | Saprolite/PWR | 1.2E-04 |
| PZ-30 | Water level | 1240592.30 | 2027321.68 | 812.43 | 814.80 | 37.47 | 787.83 | 777.83 | Saprolite/PWR | --- |
| PZ-31 | Water level | 1239941.77 | 2024324.33 | 807.86 | 810.90 | 42.44 | 778.96 | 768.96 | Saprolite | --- |
| PZ-32D | Water level | 1243211.88 | 2029886.45 | 777.14 | 776.74 | 325.30 | 462.14 | 452.14 | Bedrock | --- |
| PZ-33D | Water level | 1243211.76 | 2029886.78 | 777.14 | 776.74 | 405.30 | 462.14 | 452.14 | Bedrock | --- |
| WAMW-2 | Water level | 1241547.56 | 2028806.27 | 768.39 | 770.82 | 86.92 | 694.19 | 684.19 | Bedrock | --- |
| WGWA-5[8] | Water level | 1241997.94 | 2022368.85 | 899.28 | 902.15 | 23.66 | 888.88 | 878.88 | Saprolite/PWR/Bedrock | 1.2E-03 |
| WGWC-14[7] | Water level | 1240621.86 | 2024584.92 | 806.87 | 809.50 | 52.00 | 764.87 | 754.87 | PWR/Bedrock | --- |
| WGWC-26D | Water level | 1243343.66 | 2029758.85 | 805.06 | 808.23 | 69.27 | 749.31 | 739.31 | Bedrock | 7.1E-05 |

Notes:
ft = feet
BTOC = below top of casing
PWR = Partially Weathered Rock
$K_h$ = horizontal hydraulic conductivity
cm/sec = centimeter per second
--- = Location not tested
(1) Piezometers used only to gauge water levels in vicinity of AP-1 and refine the AP-1 potentiometric map.
(2) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet.
(3) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88). Ground surface elevation defined at the survey nail installed within the well pad.
(4) Survey of PZ-01 through PZ-20, and WAMW-1 and WAMW-2 was completed by GEL Solutions and certified June 16, 2020. Survey of PZ-23D through PZ-28 was completed by GEL Solutions and certified on November 17, 2020. Survey of WGWC-26D was completed by GEL Solutions and certified on October 13, 2022.
(5) Total well depth accounts for sump if data provided on piezometer construction logs.
(6) $K_h$ as determined by slug testing (in piezometers and wells) or iso-flow packer testing (in open bedrock boreholes). Horizontal hydraulic conductivity in bedrock is from targeted tests of fracture zones and not likely representative of bulk permeability of the rock units.
(7) Well WGWC-14 was replaced as a compliance well by WGWC-14A in 2017.
(8) Well WGWA-5 converted to piezometer 2024.

**Table A-3**

Horizontal Groundwater Gradient and Flow Velocity Calculations

Plant Wansley AP-1, Heard and Carroll Counties, Georgia

| | | | October 2, 2017 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Flow Path Direction[1]** | **$K_h$ (ft/day)** | **$n_e$** | **$h_1$ (ft)** | **$h_2$ (ft)** | **Δl (ft)** | **Δh/Δl (ft/ft)** | **V (ft/day)[3]** | **Avergae V (ft/day)[3]** | **V (ft/yr)[3]** | **V (ft/yr)[3]** |
| WGWC-16 to PZ-16 | 0.67 | 0.25 | 795.46 | 788.51 | 1080 | 0.006 | 0.017 | 0.126 | 6.3 | 46.0 |
| WGWC-41[4] to WGWC-19 | 0.67 | 0.25 | 804.33 | 762.32 | 480 | 0.088 | 0.235 | | 85.6 | |

| | | | February 12, 2024 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Flow Path Direction** | **$K_h$ (ft/day)** | **$n_e$ [2]** | **$h_1$ (ft)** | **$h_2$ (ft)** | **Δl (ft)** | **Δh/Δl (ft/ft)** | **V (ft/day)[3]** | **Average V (ft/day)[3]** | **V (ft/yr)[3]** | **V (ft/yr)[3]** |
| WGWC-20 to WGWC-27 | 0.17 | 0.10 | 778.05 | 769.74 | 160 | 0.052 | 0.088 | 0.116 | 32.2 | 42.2 |
| PZ-01 to WGWC-17 | 0.17 | 0.10 | 817.92 | 786.60 | 373 | 0.084 | 0.143 | | 52.1 | |

Notes:

ft = feet

ft/day = feet per day

ft/ft = feet per foot

ft/yr = feet per year

$K_h$ = horizontal hydraulic conductivity

$n_e$ = effective porosity

$h_1$, $h_2$ = groundwater elevation at identified wells

Δh/Δl = hydraulic gradient

Δh = change in groundwater elevation between identified wells

Δl = distance between identified wells

V = groundwater flow velocity

(1) Groundwater velocity calculations obtained from the 2017 Annual Groundwater Monitoring and Corrective Action Report (ERM, 2018)

(2) Conservative effective porosity values interpereted from values in *Groundwater* (Freeze and Cherry, 1979)

(2) Groundwater flow velocity equation: $V = [K * (\Delta h/\Delta l)] / n_e$

(3) Well WGWC-41 (PZ-10) will be reclassified as a detection well in 2025.


**Legend**

- Detection Monitoring Well
- Horizontal Assessment Monitoring Well
- Vertical Assessment Monitoring Well
- Piezometer
- Proposed Detection Monitoring Well
- Approximate AP-1 Boundary

Notes:
1. Proposed detection monitoring wells will be installed in 2025. Locations are approximate.
2. Well names for PZ-10, PZ-12, PZ-15, PZ-20, PZ-29S, and PZ-29D have been converted to WGWC-41, WGWC-40, WGWC-39, WGWC-42, WGWC-37S, and WGWC-37D, respectively.
3. ESRI_Topo_Map: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

N

0 500 1,000 Feet

**Groundwater Monitoring Network**
**Plant Wansley**

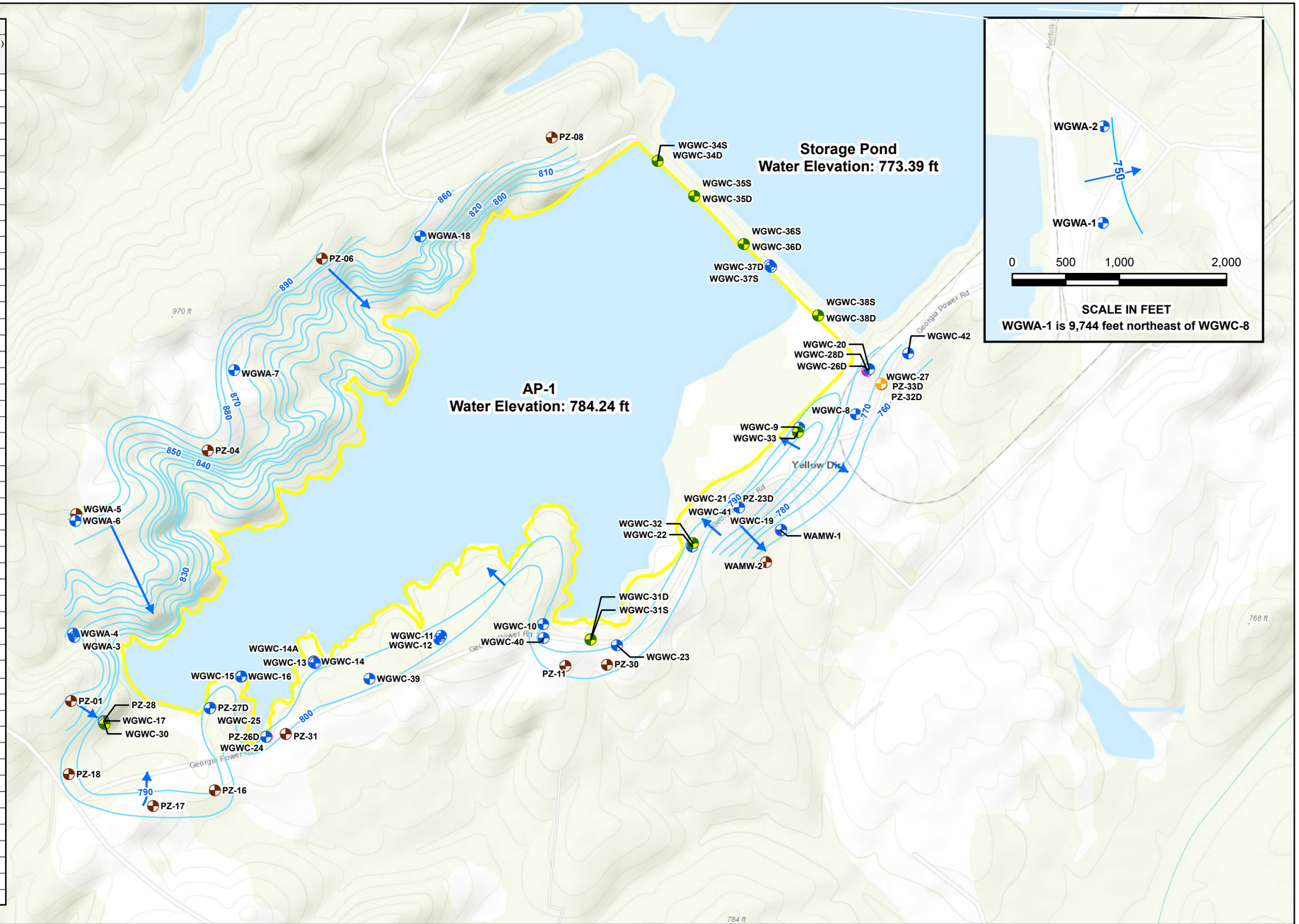
Georgia Power Company
Plant Wansley AP-1
Heard and Carroll Counties, Georgia

Geosyntec consultants

Kennesaw, GA | FEBRUARY 2025

**Figure A-1**

| Well ID | Top of Casing Elevation [1] (ft) | February 12, 2024 | |
|---|---|---|---|
| | | Depth to Water (ft BTOC) | Groundwater Elevation [1] (ft) |
| WGWA-1 | 782.93 | 28.80 | 754.13 |
| WGWA-2 | 758.23 | 6.48 | 751.75 |
| WGWA-3 | 828.91 | 1.63 | 827.28 |
| WGWA-4 | 834.34 | 4.63 | 829.71 |
| WGWA-5 | 902.15 | 6.18 | 895.97 |
| WGWA-6 | 897.13 | 19.78 | 877.35 |
| WGWA-7 | 897.33 | 31.18 | 866.15 |
| WGWA-18 | 878.02 | 21.67 | 856.35 |
| WGWC-8 | 780.08 | 3.74 | 776.34 |
| WGWC-9 | 812.03 | 20.85 | 791.18 |
| WGWC-10 | 812.38 | 22.35 | 790.03 |
| WGWC-11 | 823.96 | 28.57 | 795.39 |
| WGWC-12 | 823.04 | 27.93 | 795.11 |
| WGWC-13 | 809.78 | 20.32 | 789.46 |
| WGWC-14 | 809.50 | 21.21 | 788.29 |
| WGWC-14A | 810.94 | 22.01 | 788.93 |
| WGWC-15 | 804.69 | 18.60 | 786.09 |
| WGWC-16 | 804.21 | 17.37 | 786.84 |
| WGWC-17 | 816.00 | 29.40 | 786.60 |
| WGWC-19 | 783.42 | 21.45 | 761.97 |
| WGWC-20 | 807.95 | 29.90 | 778.05 |
| WGWC-21 | 834.41 | 50.65 | 783.76 |
| WGWC-22 | 810.37 | 18.28 | 792.09 |
| WGWC-23 | 823.80 | 33.15 | 790.65 |
| WGWC-24 | 804.80 | 12.93 | 791.87 |
| WGWC-25 | 808.98 | 15.05 | 793.93 |
| WGWC-26D | 808.23 | 30.96 | 777.27 |
| WGWC-27 | 780.54 | 10.80 | 769.74 |
| WGWC-28D | 808.24 | 32.46 | 775.78 |
| WGWC-37S | 805.24 | 25.37 | 779.87 |
| WGWC-37D | 805.30 | 22.35 | 782.95 |
| WGWC-39 | 826.86 | 33.08 | 793.78 |
| WGWC-40 | 818.74 | 31.96 | 786.78 |
| WGWC-41 | 832.02 | 26.3 | 805.72 |
| WGWC-42 | 787.30 | 19.58 | 767.72 |
| PZ-01 | 856.72 | 38.8 | 817.92 |
| PZ-04 | 889.01 | 6.03 | 882.98 |
| PZ-06 | 915.15 | 26.7 | 888.45 |
| PZ-08 | 867.29 | 30.92 | 836.37 |
| PZ-11 | 823.09 | 28.44 | 794.65 |
| PZ-16 | 800.70 | 11.35 | 789.35 |
| PZ-17 | 831.01 | 38.8 | 792.21 |
| PZ-18 | 814.51 | 17.95 | 796.56 |
| PZ-23D | 834.32 | 50.55 | 783.77 |
| PZ-26D | 804.93 | 12.85 | 792.08 |
| PZ-27D | 809.28 | 16.46 | 792.82 |
| PZ-28 | 816.18 | 28.75 | 787.43 |
| PZ-30 | 814.80 | NM | NM |
| PZ-31 | 810.90 | NM | NM |
| WAMW-1 | 782.66 | 22.19 | 760.47 |
| WAMW-2 | 770.82 | 14.18 | 756.64 |




**Legend**

- Detection Monitoring Well
- Horizontal Assessment Monitoring Well
- Vertical Assessment Monitoring Well
- Piezometer
- Proposed Detection Monitoring Well
- Approximate Groundwater Flow Direction
- Groundwater Elevation Iso-Contour
- Approximate AP-1 Boundary

Notes:
1. Water level elevation recorded on February 12, 2024. Elevation provided in feet (ft) referenced to the North American Vertical Datum (NAVD) 88.
2. Water levels in wells and piezometers measured from feet below top of casing (ft BTOC).
3. WGWC-37S installed within the dike materials and may not be representative of actual groundwater conditions.
4. PZ-11 was abandoned in March 2024, following the February 12, 2024 monitoring event.
5. PZ-30 and PZ-31 were installed March 2024 and PZ-32D and PZ-33D were installed October 2024, following the February 12, 2024 monitoring event.
6. Proposed detection monitoring wells will be installed in 2025. Locations are approximate.
7. Well names for PZ-10, PZ-12, PZ-15, PZ-20, PZ-29S, and PZ-29D have been converted to WGWC-41, WGWC-40, WGWC-39, WGWC-42, WGWC-37S, and WGWC-37D, respectively.
8. ESRI_Topo_Map: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

N

0 500 1,000 Feet

**Potentiometric Surface Contour Map**
**February 2024**

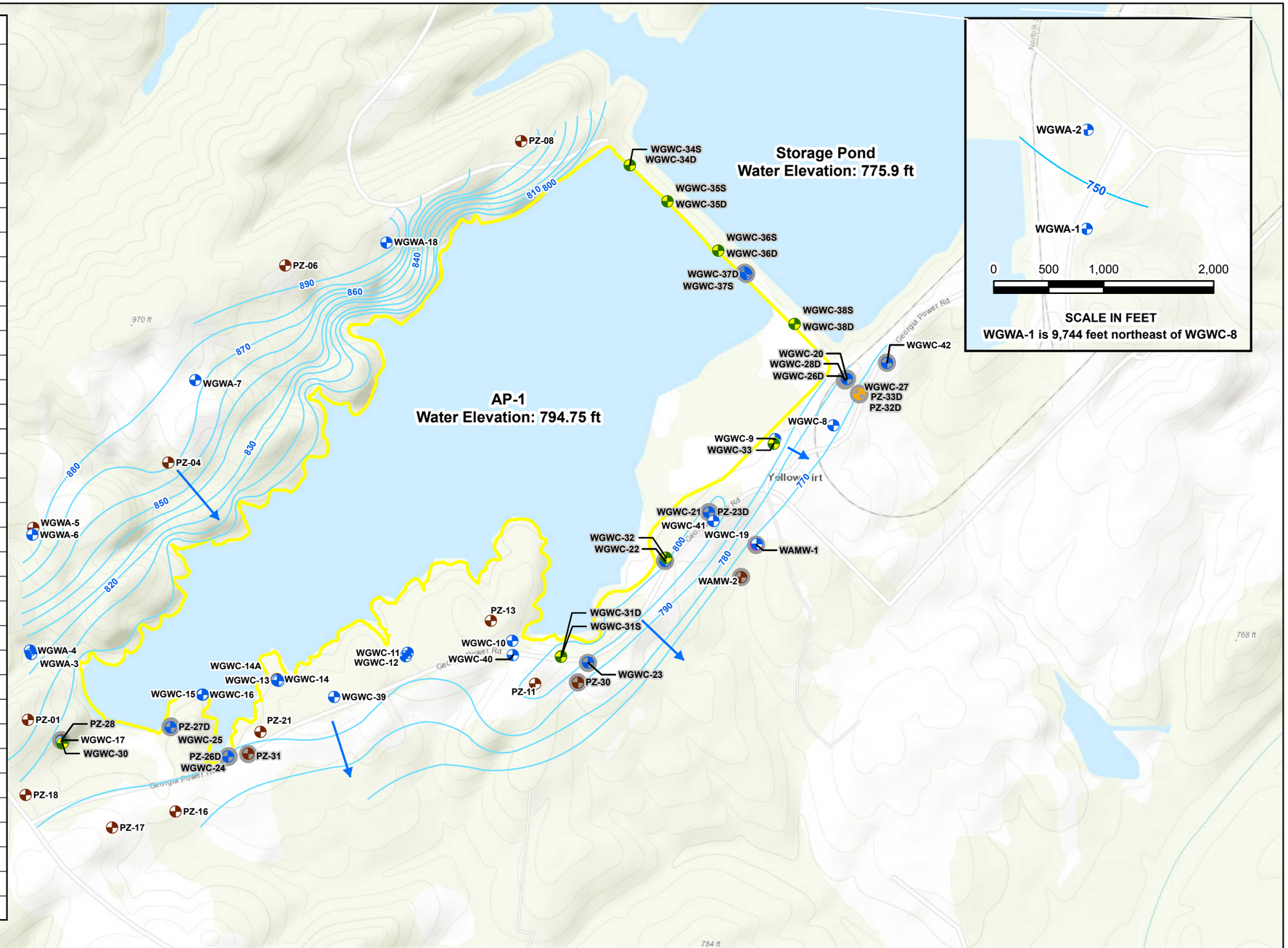
Georgia Power Company
Plant Wansley AP-1
Heard and Carroll Counties, Georgia

Geosyntec consultants

Kennesaw, GA | FEBRUARY 2025

**Figure A-2**

| Well ID | Top of Casing Elevation[1] (ft) | October 2, 2017 | |
|---|---|---|---|
| | | Depth to Water (ft BTOC) | Groundwater Elevation[1] |
| WGWA-1 | 782.90 | 27.28 | 755.62 |
| WGWA-2 | 758.30 | 10.83 | 747.47 |
| WGWA-3 | 829.00 | 3.39 | 825.61 |
| WGWA-4 | 834.30 | 5.59 | 828.71 |
| WGWA-5 | 902.10 | 14.97 | 887.13 |
| WGWA-6 | 897.10 | 15.45 | 881.65 |
| WGWA-7 | 897.40 | 26.43 | 870.97 |
| WGWC-8 | 780.00 | 4.99 | 775.01 |
| WGWC-9 | 812.08 | 15.65 | 796.43 |
| WGWC-10 | 812.60 | 20.04 | 792.56 |
| WGWC-11 | 824.00 | 27.81 | 796.19 |
| WGWC-12 | 823.10 | 27.14 | 795.96 |
| WGWC-13 | 810.00 | 15.95 | 794.05 |
| WGWC-14A | 811.09 | 17.95 | 793.14 |
| WGWC-15 | 804.50 | 9.99 | 794.51 |
| WGWC-16 | 805.00 | 9.54 | 795.46 |
| WGWC-17 | 816.00 | 20.78 | 795.22 |
| WGWA-18 | 915.30 | 20.12 | 895.18 |
| WGWC-19 | 783.40 | 21.08 | 762.32 |
| WGWC-14 | 809.50 | 15.59 | 793.91 |
| WGWC-39 | 826.96 | 31.00 | 795.96 |
| WGWC-40 | 818.88 | 27.15 | 791.73 |
| WGWC-41 | 832.16 | 27.83 | 804.33 |
| WGWC-42 | 787.27 | 17.59 | 769.68 |
| PZ-1 | 856.78 | 38.20 | 818.58 |
| PZ-4 | 889.09 | 18.71 | 870.38 |
| PZ-6 | 915.33 | 21.11 | 894.22 |
| PZ-8 | 882.84 | 29.35 | 853.49 |
| PZ-11 | 822.99 | 22.19 | 800.80 |
| PZ-13 | 850.04 | 53.33 | 796.71 |
| PZ-16 | 800.55 | 12.04 | 788.51 |
| PZ-17 | 831.21 | 50.12 | 781.09 |
| PZ-18 | 814.12 | 17.15 | 796.97 |
| PZ-21 | 814.71 | 21.05 | 793.66 |




**Legend**

- Detection Monitoring Well
- Piezometer
- Approximate Groundwater Flow Direction
- Groundwater Elevation Iso-Contour
- Approximate AP-1 Boundary

Current Monitoring Network (Installed After 2017)

- Detection Monitoring Well
- Horizontal Assessment Monitoring Well
- Vertical Assessment Monitoring Well
- Piezometer
- Proposed Detection Monitoring Well

Notes:
1. Water level elevation recorded on October 2, 2017. Elevation provided in feet (ft) referenced to the North American Vertical Datum (NAVD) 88.
2. Water levels in wells and piezometers measured from feet below top of casing (ft BTOC).
3. AP-1 wells and piezometers were resurveyed and certified June 16, 2020. TOC and water level elevations on table represent pre resurvey elevations.
4. PZ-13 and PZ-21 were abandoned in 2019. Additionally, PZ-11 was abandoned in March 2024.
5. Proposed detection monitoring wells will be installed in 2025. Locations are approximate.
6. Well names for PZ-10, PZ-12, PZ-15, PZ-20, PZ-29S, and PZ-29D have been converted to WGWC-41, WGWC-40, WGWC-39, WGWC-42, WGWC-37S, and WGWC-37D, respectively.
7. ESRI_Topo_Map: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

N

0 500 1,000 Feet

**Potentiometric Surface Contour Map**
**October 2017**

Georgia Power Company
Plant Wansley AP-1
Heard and Carroll Counties, Georgia

Geosyntec consultants

Kennesaw, GA | FEBRUARY 2025

**Figure A-3**

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

# RECORD OF BOREHOLE WGWA1/APA-1

SHEET 1 of 3

PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 127.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/19/15
DATE COMPLETED: 10/21/15

NORTHING: 1250656.10
EASTING: 2035580.71
GS ELEVATION: 780.37
TOC ELEVATION: 782.93

DEPTH W.L.: 27.6' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/21/15
TIME W.L.: 07:50

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | SAMPLES: TYPE | SAMPLES: REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 780 | 0.00 - 4.00<br>SILT; orange, dry (fill) | ML | | 776.37 | | | | |
| | | 4.00 - 26.00<br>CLAYEY SILT; sample mostly broken down into SILT-sized fragments; light brown to light orange brown, dry. Clasts in sample are very fine grained muscovite-plagioclase schist. (ML) (overburden) | | | 4.00 | | | | |
| 5 | 775 | | | | | | | | |
| 10 | 770 | | | | | | | | |
| 15 | 765 | | ML | | | | | | |
| 20 | 760 | | | | | | | | |
| 25 | 755 | | | | 754.37 | | | | |
| | | 26.00 - 37.00<br>grayish-red to grey and red. top 1' is dry, 27' and deeper is moist. Greater abundance of rock fragments in sample 1-2" in diameter. Muscovite-plagioclase schist with <5% quartz. Visible, very fine foliated texture, weathered (saprolite) | | | 26.00 | | | | |
| 30 | 750 | | ML | | | | | | |
| 35 | 745 | | | | 743.37 | | | | |
| | | 37.00 - 42.00<br>SAPROLITE ROCK; moist, grey and brown quartzose schist with about 5% muscovite, <5% garnet <1mm-3mm. Broken into fragments up to 3" in diameter | PWR | | 37.00 | | | | |
| 40 | 740 | | | | 738.37 | | | | |
| | | 42.00 - 47.00<br>moist, grey and light red, weathered muscovite schist interlayered with quartz-rich lenses up to 2" thick (scarce) | | | 42.00 | | | | |
| 45 | 735 | Log continued on next page | | | | | | | |

**WELL CONSTRUCTION DETAILS**

**WELL CASING**
Interval: -2.5'-118'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 117'-127'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 116-127'
Type: #1 Sand/ Pre-packed Filter

**FILTER PACK SEAL**
Interval: 114'-116'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-114'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

# RECORD OF BOREHOLE WGWA1/APA-1



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 127.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/19/15
DATE COMPLETED: 10/21/15

NORTHING: 1250656.41
EASTING: 2035580.13
GS ELEVATION: 780.37
TOC ELEVATION: 782.93

DEPTH W.L.: 27.6' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/21/15
TIME W.L.: 07:50

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 735 | 42.00 - 47.00<br>moist, grey and light red, weathered muscovite schist interlayered with quartz-rich lenses up to 2" thick (scarce) *(Continued)* | | | 733.37 | | | | | |
| | | 47.00 - 57.00<br>CLAYEY SILT; moist, white, 90% plagioclase, 5% muscovite, <5% quartz, with a 2" lense of muscovite schist and weathered pegmatite | ML | | 47.00<br>723.37 | | | | | |
| 50 | 730 | | | | | | | | | |
| 55 | 725 | | | | | | | | | |
| 60 | 720 | 57.00 - 64.00<br>SAPROLITE ROCK; moist, orange-brown muscovite plagioclase schist. <5% quartz. metamorphic texture present. Quartzite/quartz rich lenses at 64-66',80-80.1', and 87-88' | | | 57.00<br>716.37 | | | | Portland Type 1 | |
| 65 | 715 | 64.00 - 77.00<br>POOR RECOVERY; broken quartzose schist, white to grey, wet | | | 64.00 | | | | | |
| 70 | 710 | | TWR | | | | | | | |
| 75 | 705 | | | | 703.37 | | | | | |
| | | 77.00 - 87.00<br>SAPROLITE ROCK; weathered muscovite schist, metamorphic foliation, lenses of quartz-rich weather resistant material, moist | | | 77.00 | | | | | |
| 80 | 700 | | | | | | | | | |
| 85 | 695 | | | | 693.37 | | | | | |
| | | 87.00 - 88.00<br>brown, wet, foliated quartzite | TWR | | 87.00<br>692.37 | | | | | |
| | | 88.00 - 91.00<br>moist, orange/brown, garnet muscovite schist, oxidized feldspar, weathered quartz | | | 88.00 | | | | | |
| 90 | 690 | Log continued on next page | | | | | | | | |

**WELL CASING**
Interval: -2.5'-118'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 117'-127'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 116-127'
Type: #1 Sand/ Pre-packed Filter

**FILTER PACK SEAL**
Interval: 114'-116'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-114'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

# RECORD OF BOREHOLE WGWA1/APA-1

SHEET 3 of 3

PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 127.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/19/15
DATE COMPLETED: 10/21/15

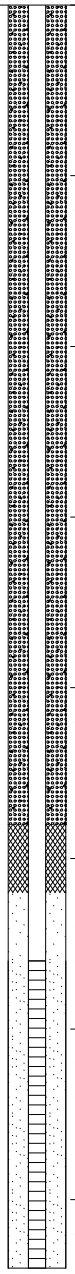
NORTHING: 1250656.41
EASTING: 2035580.13
GS ELEVATION: 780.37
TOC ELEVATION: 782.93

DEPTH W.L.: 27.6' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/21/15
TIME W.L.: 07:50

| DEPTH (ft) | ELEVATION (ft) | DESCRIPTION | USCS | ELEV. / DEPTH (ft) |
|---|---|---|---|---|
| 90 | 690 | | | 689.37 / 91.00 |
| | | 91.00 - 107.00<br>SAPROLITE; moist, white/orange/brown, weathered garnet mica schist | | |
| 95 | 685 | | | |
| | | | TWR | |
| 100 | 680 | | | |
| 105 | 675 | | | 673.37 / 107.00 |
| | | 107.00 - 113.00<br>wet, broken rock fragments | | |
| 110 | 670 | | | 667.37 / 113.00 |
| | | 113.00 - 117.00<br>moist, weathered orange soil with faint fabric | | |
| 115 | 665 | | TWR | 663.37 / 117.00 |
| | | 117.00 - 126.50<br>TRANSITIONALLY WEATHERED ROCK; wet, brown rock fragments up to 3" in diameter | | |
| 120 | 660 | | | |
| 125 | 655 | | | 653.37 / 127.00 |
| | | 126.50 - 127.00<br>SAPROLITE; light brown wix of clay, silt, fine to coarse sand and angular gravel | TWR | |
| | | Boring completed at 127.00 ft | | |
| 130 | 650 | | | |
| 135 | 645 | | | |

SAMPLES: SAMPLE NO., TYPE, REC

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES




WELL CONSTRUCTION DETAILS

**WELL CASING**
Interval: -2.5'-118'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 117'-127'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 116-127'
Type: #1 Sand/ Pre-packed Filter

**FILTER PACK SEAL**
Interval: 114'-116'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-114'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

# RECORD OF BOREHOLE WGWA2/APA-2D



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 107.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/15/15
DATE COMPLETED: 10/16/15

NORTHING: 1251556.40
EASTING: 2035590.11
GS ELEVATION: 755.77
TOC ELEVATION: 758.23

DEPTH W.L.: 11.55' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/20/15
TIME W.L.: 10:30

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES SAMPLE NO. | SAMPLES TYPE | SAMPLES REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 755 | 0.00 - 5.00<br>SILTY CLAY; reddish-brown, firm, moist. No fabric. <5% mica flakes. Fill/overburden soil | CL | | 750.77 | | | | | **WELL CASING**<br>Interval: -2.5'-90'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded<br><br>**WELL SCREEN**<br>Interval: 90'-100'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC<br><br>**FILTER PACK**<br>Interval: 87'-100'<br>Type: #1 Sand/Pre-packed Filter<br><br>**FILTER PACK SEAL**<br>Interval: 84'-87'<br>Type: 3/8" Bentonite Pellets<br><br>**ANNULUS SEAL**<br>Interval: 0'-84'<br>Type: Portland Type 1<br><br>**WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum<br><br>**DRILLING METHODS**<br>Soil Drill: 4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 5 | 750 | 5.00 - 7.00<br>SILTY CLAY; orange-red to orange-brown, moist. Oxidized and mottled black stringers (Mn Oxide) and white veins of plagioclase, weathered (saprolite) | CL | | 5.00<br>748.77 | | | | | |
| 10 | 745 | 7.00 - 25.00<br>SILTY CLAY; saprolite | CL | | 7.00<br>730.77 | | | | | |
| 25 | 730 | 25.00 - 30.00<br>CLAYEY SILT; moist, pale brown, some red clay, plagioclase stringers | ML | | 25.00<br>725.77 | | | | | |
| 30 | 725 | 30.00 - 60.00<br>SANDY SILT; dry to moist, pale yellow to brown. Fabric not evident | ML | | 30.00 | | | | Portland Type 1 | |
| 35 | 720 | | | | | | | | | |
| 40 | 715 | | | | | | | | | |
| 45 | | | | | | | | | | |

Log continued on next page

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Timothy Richards
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

# RECORD OF BOREHOLE WGWA2/APA-2D



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 107.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/15/15
DATE COMPLETED: 10/16/15

NORTHING: 1251556.40
EASTING: 2035590.11
GS ELEVATION: 755.77
TOC ELEVATION: 758.23

DEPTH W.L.: 11.55' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/20/15
TIME W.L.: 10:30

| DEPTH (ft) | ELEVATION (ft) | DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 45 | 710 | 30.00 - 60.00<br>SANDY SILT; dry to moist, pale yellow to brown. Fabric not evident<br>*(Continued)* | ML | | 695.77 | | | | |
| 60 | 695 | 60.00 - 70.00<br>SANDY SILT; Quartzite rock hard cobble rock fragments | ML | | 60.00<br>685.77 | | | | |
| 70 | 685 | 70.00 - 77.00<br>dry, pale yellow to brown, gravelly<br><br>73.00 - 77.00<br>NO RECOVERY | ML | | 70.00<br>678.77 | | | | |
| 75 | 680 | 77.00 - 81.00<br>SILTY CLAY; sandy; green, moist, weathered rock with chlorite | CL | | 77.00<br>674.77 | | | | |
| 80 | 675 | 81.00 - 83.00<br>GRAVELLY SILT; transitionally weathered rock, dry, pale brown | ML | | 81.00<br>672.77 | | | | |
| 85 | 670 | 83.00 - 90.00<br>TRANSITIONALLY WEATHERED ROCK; brown, >3" rock fragments, moist | TWR | | 83.00<br>665.77 | | | | 3/8" Bentonite – Pellets |
| 90 | | Log continued on next page | | | | | | | |

**WELL CASING**
Interval: -2.5'-90'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 90'-100'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 87'-100'
Type: #1 Sand/Pre-packed Filter

**FILTER PACK SEAL**
Interval: 84'-87'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-84'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Timothy Richards
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

# RECORD OF BOREHOLE WGWA2/APA-2D

SHEET 3 of 3

PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 107.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/15/15
DATE COMPLETED: 10/16/15

NORTHING: 1251556.40
EASTING: 2035590.11
GS ELEVATION: 755.77
TOC ELEVATION: 758.23

DEPTH W.L.: 11.55' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/20/15
TIME W.L.: 10:30

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | SAMPLES: TYPE | SAMPLES: REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 90 | 665 | 90.00 - 107.00<br>BEDROCK; SCHIST to SCHISTOSE GNEISS; grey; trace garnets (1-3mm), trace muscovite | | | 90.00 | | | | #1 Sand | **WELL CASING**<br>Interval: -2.5'-90'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded |
| 95 | 660 | | | | | | | | 0.010" Screen Slot | **WELL SCREEN**<br>Interval: 90'-100'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC |
| | | 97.00 - 107.00<br>quartzite with muscovite, pyrite, garnet | BR | | | | | | | **FILTER PACK**<br>Interval: 87'-100'<br>Type: #1 Sand/Pre-packed Filter |
| 100 | 655 | | | | | | | | #1 Sand | **FILTER PACK SEAL**<br>Interval: 84'-87'<br>Type: 3/8" Bentonite Pellets |
| | | | | | | | | | | **ANNULUS SEAL**<br>Interval: 0'-84'<br>Type: Portland Type 1 |
| 105 | 650 | | | | 648.77 | | | | 3/8" Bentonite Pellets | **WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum |
| | | Boring completed at 107.00 ft | | | | | | | | **DRILLING METHODS**<br>Soil Drill: 4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 110 | 645 | | | | | | | | | |
| 115 | 640 | | | | | | | | | |
| 120 | 635 | | | | | | | | | |
| 125 | 630 | | | | | | | | | |
| 130 | 625 | | | | | | | | | |
| 135 | | | | | | | | | | |

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Timothy Richards
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

Log updated with revised survey data certified 6/16/2020. Original boring ID in parentheses.
Easting and Northing in NAD 83. Elevation in NAVD 88.

**WGWA-3 (PZ-02)**

**PAGE 1 OF 1**

**ECS38198**

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/15/2014 **COMPLETED** 12/15/2014 **SURF. ELEV.** 826.63 **COORDINATES:** N:1240848.21 E:2022350.10
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 18 ft. **GROUND WATER DEPTH: DURING** **COMP.** 3.5 ft. **DELAYED** 9.6 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 828.91 | |
| | | **Silty Gravel (GM)**<br>- brown, moist, fine to medium grain, angular, mottled yellow | | Surface Seal: concrete | 824.63 (2.0) |
| 5 | | - brown, moist, fine to medium grain, angular, mottled orange | | Annular Fill: Cement-Bentonite Grout - 1 bag, 46 lbs, Portland Type I/II, 5.5 gal | 823.03 (3.6) |
| | | | | Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips | 821.03 (5.6) |
| | | | | Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media | 820.23 (6.4) |
| | | | 819.63 | | |
| | | **Gneiss**<br>- brown, fine grain, hard to medium hard, moderately weathered, non-foliated | | **Well: 2" OD PVC (SCH 40)** | |
| 10 | | | | **Well: 2" OD PVC (SCH 40)**<br>**Screen: 10 ft. pre-pack** | |
| 15 | | | | | 810.23 |
| | | | | Sump:0.40 ft. | (16.4) |
| | | | 808.63 | | |

Bottom of borehole at 18.0 feet.

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 2/26/15 15:57 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\WANSLEY ASH POND PIEZ\GINT\PLANT_WANSLEY_ASH_POND_1 (2).GPJ

Log updated with revised survey data certified 6/16/2020. Original boring ID in parentheses.
Easting and Northing in NAD 83. Elevation in NAVD 88.

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING WGWA-4 (PZ-02D)** PAGE 1 OF 2
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 1/6/2015 **COMPLETED** 1/13/2015 **SURF. ELEV.** 831.33 **COORDINATES:** N:1240879.58 E:2022339.66
**CONTRACTOR** SCS Field Services **EQUIPMENT** CME550 **METHOD** Hollow Stem Auger; HQ Rock Core
**DRILLED BY** T. Milam **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 70 ft. **GROUND WATER DEPTH: DURING** **COMP.** **DELAYED** 4.88 ft. after 1000 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>2-foot square concrete pad<br>Top of casing Elev. = 834.34 | |
| | | | | ← Surface Seal: concrete | 829.33 (2.0) |
| 5 | | | | | |
| | | | 822.93 | | |
| 10 | | **Gneiss with interlayered schist**<br>- light blue-gray, red staining, fine to medium grain, medium hard to hard, moderately to highly weathered, inclined, banded, quartz, biotite, muscovite<br>- brown with red stained fractures, fine to medium grain, medium hard to hard, moderately to highly weathered, inclined, banded, low to moderate angle fractures, fracture healing by quartz+feldspar | | | |
| 15 | | - brown with red stained fractures, fine to medium grain, medium hard to hard, moderately to highly weathered, inclined, banded, low to moderate angle fractures, fracture healing by quartz+feldspar | | | |
| 20 | | | | ← Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal | |
| 25 | | - light blue-gray with red to dark brown stining, very fine to medium grain, medium hard to hard, moderately weathered, inclined, banded, low to high angle fractures, quartz, biotite, muscovite | | | |
| 30 | | - blue-gray with red staining, very fine to medium grain, hard, not to moderately weathered, inclined, banded, low angle fractures with partial to complete healing, open fractures along foliation planes, quartz, feldspar, biotite, pyrite | | | |
| 35 | | - light blue-gray, very fine to medium grain, hard, not to slightly weathered, inclined, banded, low angle fractures, open to completely healed, felspar, muscovite, biotite, trace chorite | | | |
| 40 | | - light blue-gray, very fine to medium grain, hard, not to slightly weathered, inclined, banded, low angle fractures, open to completely healed, felspar, muscovite, biotite, trace chorite | | | |

*(Continued Next Page)*

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING WGWA-4 (PZ-02D)** 

**ECS38198**

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers

**LOCATION** Plant Wansley

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA |
|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>2-foot square concrete pad<br>Top of casing Elev. = 834.34 |
| | | **Gneiss with interlayered schist***(Con't)* | (CONTINUED) | ELEV. (DEPTH) |
| | | | | 789.23 (42.1) |
| 45 | | - gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, low- and high-angle fractures, biotite, quartz, feldspar, trace pyrite | | Annular Seal: bentonite pellets - 1/2 bucket, 3/8" pellets, 5 gal bucket |
| | | | | 785.83 (45.5) |
| 50 | | - gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, low- and high-angle fractures, biotite, quartz, feldspar, trace pyrite | | Filter: silica filter sand - 3 bags, 50 lbs, #1A filter media |
| | | | | 780.43 (50.9) |
| 55 | | - gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, low- and high-angle fractures, biotite, quartz, feldspar, trace pyrite | | **Well: 2" OD PVC (SCH 40)** |
| 60 | | - gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, low- and high-angle fractures, biotite, quartz, feldspar, trace pyrite | | **Well: 2" OD PVC (SCH 40)**<br>**Screen: 20 ft. pre-pack** |
| 65 | | - gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, numerous low- and high-angle fractures, biotite, quartz, feldspar, trace pyrite | | |
| 70 | | - gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, numerous low- and high-angle fractures, biotite, quartz, feldspar, trace pyrite | 761.33 | |
| | | Bottom of borehole at 70.0 feet. | | 760.43<br>Sump:0.40 ft. |

Log updated with revised survey data certified 6/16/2020. Original boring ID in parentheses.
Easting and Northing in NAD 83. Elevation in NAVD 88.

**WGWA-5 (PZ-03S)**
**PAGE 1 OF 1**
**ECS38198**

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/23/2014 **COMPLETED** 12/23/2014 **SURF. ELEV.** 899.28 **COORDINATES:** N:1241997.94 E:2022368.85
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 21 ft. **GROUND WATER DEPTH: DURING** **COMP.** 10.1 ft. **DELAYED** 9.6 ft. after 24 hrs.
**NOTES**

DEPTH (ft) | GRAPHIC LOG

## STRATA DESCRIPTION

ELEV.

**Silt (ML)**
- brown, moist, sandy, mottled orange, micaceous, trace weathered rock

887.28

**Silty Sand (SM)**
- gray, moist, fine to coarse grain, trace partially weathered rock

884.28

**Schist**
- gray, fine grain, hard to medium hard, moderately to slightly weathered, thickly foliated, more competent with depth

878.28

Bottom of borehole at 21.0 feet.

## WELL DATA

Protective aluminum cover with bollards
4-foot square concrete pad
Top of casing Elev. = 902.15

ELEV. (DEPTH)

Surface Seal: concrete
897.28 (2.0)

Annular Fill: Cement-Bentonite Grout - 4 bags, 46 lbs, Portland Type I/II, 22 gal
892.68 (6.6)

Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips
890.68 (8.6)

Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media
888.88 (10.4)

**Well: 2" OD PVC (SCH 40)**

**Well: 2" OD PVC (SCH 40)**
**Screen: 10 ft. pre-pack**

Sump:0.40 ft.
878.88 (20.4)

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 2/26/15 15:57 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\WANSLEY ASH POND PIEZ\GINT\PLANT_WANSLEY_ASH_POND_1 (2).GPJ

Log updated with revised survey data certified 6/16/2020. Original boring ID in parentheses.
Easting and Northing in NAD 83. Elevation in NAVD 88.

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING WGWA-6 (PZ-03D)**



ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/16/2014 **COMPLETED** 1/13/2015 **SURF. ELEV.** 894.62 **COORDINATES:** N:1241932.02 E:2022360.58
**CONTRACTOR** SCS Field Services **EQUIPMENT** CME550 **METHOD** Hollow Stem Auger; HQ Rock Core
**DRILLED BY** T. Milam **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 100.5 ft. **GROUND WATER DEPTH: DURING** **COMP.** 13.2 ft. **DELAYED** 15 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>2-foot square concrete pad<br>Top of casing Elev. = 897.13 | |
| | | **Silt (ML)** | | ← Surface Seal: concrete | 892.62 (2.0) |
| 5 | | | | | |
| | | | 886.62 | | |
| 10 | | **Partially Weathered Rock (PWR)** | | | |
| | | | 881.62 | | |
| 15 | | | | | |
| | | | 877.62 | | |
| 20 | | **Gneiss with interlayered schist**<br>- gray and light gray, gray-brown, fine to medium grain, medium hard, moderately to slightly weathered, inclined, low angle fractures on foliation planes, biotite, quartz, feldspar | | | |
| 25 | | - gray and dark gray-brown, fine to coarse grain, soft to hard, moderately to not weathered, inclined, banded, inclined fractures on foliation planes, biotite, quartz, feldspar | | | |
| 30 | | - gray and light gray, fine to medium grain, soft to hard, slightly to not weathered, inclined, banded, very light gray quartz banding, coarse grained schist, foliation plane fractures, biotite, quartz, feldspar | | ← Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal | |
| 35 | | - gray and light gray, fine to medium grain, soft to hard, slightly to not weathered, inclined, banded, very light gray quartz banding, coarse grained schist, foliation plane fractures, biotite, quartz, feldspar | | | |
| 40 | | - gray and light gray, fine to medium grain, hard, not weathered, inclined, banded, few low angle fractures, biotite, quartz, feldspar | | | |

*(Continued Next Page)*

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA |
|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>2-foot square concrete pad<br>Top of casing Elev. = 897.13 |
| | | | | (CONTINUED) |
| | | **Gneiss with interlayered schist** *(Con't)* | | |
| 45 | | - gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding | | |
| 50 | | - gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, trace pyrite on foliation planes | | |
| 55 | | - gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes | | |
| 60 | | - gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes | | 834.12 (60.5) |
| 65 | | - gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes | | ← Annular Seal: bentonite pellets - 1/2 bucket, 3/8" pellets, 5 gal bucket<br>829.02 (65.6) |
| 70 | | - gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, garnet up to 4mm | | ← Filter: silica filter sand - 3 bags, 50 lbs, #1A filter media<br>822.62 (72.0) |
| 75 | | - gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, garnet up to 4mm | | |
| 80 | | - gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds | | **Well: 2" OD PVC (SCH 40)** |
| 85 | | - gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, finer grained downward | | ← **Well: 2" OD PVC (SCH 40)**<br>**Screen: 30 ft. pre-pack** |

*(Continued Next Page)*

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA |
|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>2-foot square concrete pad<br>Top of casing Elev. = 897.13 |
| | | | | (CONTINUED) |
| 90 | | **Gneiss with interlayered schist** *(Con't)*<br>- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, massive quartz vein | | |
| 95 | | - gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, massive quartz vein | | |
| 100 | | - gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, massive quartz vein | 794.12 | |
| | | Bottom of borehole at 100.5 feet. | | 792.62<br>Sump:0.40 ft. |

ELEV. (DEPTH)

Log updated with revised survey data certified 6/16/2020. Original boring ID in parentheses.
Easting and Northing in NAD 83. Elevation in NAVD 88.



SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**WGWA-7 (PZ-05)**
PAGE 1 OF 1
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/22/2014 **COMPLETED** 12/22/2014 **SURF. ELEV.** 894.49 **COORDINATES:** N:1243338.63 E:2023843.81
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 38.1 ft. **GROUND WATER DEPTH: DURING** **COMP.** 9.7 ft. **DELAYED** 10.1 ft. after 24 hrs.
**NOTES**

DEPTH (ft) | GRAPHIC LOG

## STRATA DESCRIPTION

**Silt (ML)**
- red, wet, sandy, mottled brown and orange, trace clay, mica, weathered rock

- gray, moist, sandy, mottled orange and brown, trace mica and weathered rock

872.49

**Schist**
- gray, fine grain, hard, not to slightly weathered, massive to thickly banded

856.49

Bottom of borehole at 38.1 feet.

## WELL DATA

Protective aluminum cover with bollards
4-foot square concrete pad
Top of casing Elev. = 897.33

ELEV. | ELEV. (DEPTH)

Surface Seal: concrete — 892.49 (2.0)

Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal

870.79 (23.7)

Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips — 868.79 (25.7)

Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media — 867.69 (26.8)

**Well: 2" OD PVC (SCH 40)**

**Well: 2" OD PVC (SCH 40)**
**Screen: 10 ft. pre-pack**

857.69

Sump:0.40 ft. (36.8)

Log updated with revised survey data certified 6/16/2020. Original boring ID in parentheses.
Easting and Northing in NAD 83. Elevation in NAVD 88.

**WGWA-18 (PZ-07)**
**PAGE 1 OF 1**
**ECS38198**

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/16/2014 **COMPLETED** 12/16/2014 **SURF. ELEV.** 875.47 **COORDINATES:** N: 1244592.56 E:2025580.71
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 37.1 ft. **GROUND WATER DEPTH: DURING** **COMP.** 16.5 ft. **DELAYED** 21.7 ft. after 24 hrs.
**NOTES**

DEPTH (ft) | GRAPHIC LOG

## STRATA DESCRIPTION

**Silt (ML)**
- brown, moist, sandy, mottled orange and red, trace mica and angular fine gravel

- brown, moist, mottled brown and red, trace fine gravel

848.47

**Schist**
- gray, fine grain, medium hard, moderately to highly weathered, massive to thickly foliated

838.47

Bottom of borehole at 37.1 feet.

## WELL DATA

Protective aluminum cover with bollards
4-foot square concrete pad
Top of casing Elev. = 878.02

ELEV. | ELEV. (DEPTH)

Surface Seal: concrete — 873.47 (2.0)

Annular Fill: Cement-Bentonite Grout - 4 bags, 46 lbs, Portland Type I/II, 22 gal

852.97 (22.5)

Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips — 850.97 (24.5)

Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media — 848.47 (27.0)

**Well: 2" OD PVC (SCH 40)**

**Well: 2" OD PVC (SCH 40)**
**Screen: 10 ft. pre-pack**

838.47

Sump:0.40 ft.

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 2/26/15 15:57 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\WANSLEY ASH POND PIEZ\GINT\PLANT_WANSLEY_ASH_POND_1 (2).GPJ

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

# RECORD OF BOREHOLE WGWC8/APC-1



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 57.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/29/15
DATE COMPLETED: 10/29/15

NORTHING: 1242929.40
EASTING: 2029644.58
GS ELEVATION: 777.70
TOC ELEVATION: 780.08

DEPTH W.L.: 36' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/02/2015
TIME W.L.: 12:00

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 0.00 - 2.00<br>SAPROLITE; overburden, dry to moist, brown to reddish orange | ML | | 775.70 | | | | | |
| | 775 | 2.00 - 4.00<br>CLAYEY SILT; dry to moist, brown overburden (saprolite) | | | 2.00<br>773.70 | | | | | |
| 5 | | 4.00 - 8.00<br>red orange overburden (saprolite) | ML | | 4.00 | | | | | |
| | 770 | | | | 769.70 | | | | | |
| | | 8.00 - 24.00<br>dry to moist, brown to reddish orange | | | 8.00 | | | | | |
| 10 | | | | | | | | | | |
| | 765 | | | | | | | | | |
| 15 | | | | | | | | | | |
| | 760 | | | | | | | | | |
| 20 | | | | | | | | | Portland Type 1 | |
| | 755 | | | | 753.70 | | | | | |
| 25 | | 24.00 - 28.00<br>GRAVELLY CLAY; wet, yellow-orange, trace black and white stringers, manganese oxide and weathered feldspar, lean clay | GC | | 24.00 | | | | | |
| | 750 | | | | 749.70 | | | | | |
| | | 28.00 - 29.00<br>CLAYEY SAND/TRANSITIONALLY WEATHERED ROCK; wet, brown, clayey silt, some fine to coarse sand, some fine gravel size rock fragments | TWR | | 28.00<br>748.70 | | | | | |
| 30 | | 29.00 - 57.00<br>Mylonitic QUARTZITE ROCK; white to light brown, rock is less coherent and likely fractured around 54-56' interval | BR | | 29.00 | | | | | |
| | 745 | | | | | | | | | |
| 35 | | | | | | | | | | |
| | 740 | | | | | | | | | |
| 40 | | | | | | | | | | |
| | 735 | | | | | | | | 3/8" Bentonite Pellets | |
| 45 | | Log continued on next page | | | | | | | | |

**WELL CASING**
Interval: -2.5'-47'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 47'-57'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 45'-57'
Type: #1 Sand/Prepacked FIlter

**FILTER PACK SEAL**
Interval: 41.5'-45'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-41.5'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: Hydrovac/4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

# RECORD OF BOREHOLE WGWC8/APC-1



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 57.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/29/15
DATE COMPLETED: 10/29/15

NORTHING: 1242929.40
EASTING: 2029644.58
GS ELEVATION: 777.70
TOC ELEVATION: 780.08

DEPTH W.L.: 36' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/02/2015
TIME W.L.: 12:00

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | SAMPLES: TYPE | SAMPLES: REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | | 29.00 - 57.00<br>Mylonitic QUARTZITE ROCK; white to light brown, rock is less coherent and likely fractured around 54-56' interval *(Continued)* | BR | | | | | | #1 Sand<br>0.010" Slot Screen | **WELL CASING**<br>Interval: -2.5'-47'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded<br><br>**WELL SCREEN**<br>Interval: 47'-57'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC<br><br>**FILTER PACK**<br>Interval: 45'-57'<br>Type: #1 Sand/Prepacked Filter<br><br>**FILTER PACK SEAL**<br>Interval: 41.5'-45'<br>Type: 3/8" Bentonite Pellets<br><br>**ANNULUS SEAL**<br>Interval: 0'-41.5'<br>Type: Portland Type 1<br><br>**WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum<br><br>**DRILLING METHODS**<br>Soil Drill: Hydrovac/4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 50 | 730 | | | | | | | | | |
| 55 | 725 | | | | | | | | | |
| 60 | 720 | Boring completed at 57.00 ft | | | 720.70 | | | | | |
| 65 | 715 | | | | | | | | | |
| 70 | 710 | | | | | | | | | |
| 75 | 705 | | | | | | | | | |
| 80 | 700 | | | | | | | | | |
| 85 | 695 | | | | | | | | | |
| 90 | 690 | | | | | | | | | |

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

Log updated with revised survey data certified 6/16/2020. Original boring ID in parentheses.
Easting and Northing in NAD 83. Elevation in NAVD 88.



SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/4/2014 **COMPLETED** 12/4/2014 **SURF. ELEV.** 809.33 **COORDINATES:** N:1242801.12 E:209115.75
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 58 ft. **GROUND WATER DEPTH: DURING** **COMP.** 17 ft. **DELAYED** 12.78 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 812.03 | |
| | | **Utility Clearance (HYDROEXCAVATION)** | | ← Surface Seal: concrete | 807.33 (2.0) |
| 10 | | | 799.33 | | |
| 15 | | **Well-graded Sandy Gravel (GM)**<br>- tan, dry, fine to coarse grain, mottled brown and orange | | | |
| 20 | | | 789.33 | | |
| | | **Silt (ML)**<br>- orange, wet, clayey, mottled yellow, with coarse gravel | | ← Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal | |
| 25 | | | 786.33 | | |
| | | **Silty Gravel (GM)**<br>- white, dry, fine to coarse grain, light brown mottling, some oxidation | | | |
| 35 | | - mottled orange | 771.33 | | |
| 40 | | **Partially Weathered Rock**<br>- gray, fine to medium grain, medium hard to hard, moderately to | | | |

*(Continued Next Page)*

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 812.03 | |
| 45 | | highly weathered, with oxidation<br>**Partially Weathered Rock***(Con't)* | | (CONTINUED) | 767.83<br>(41.5) |
| | | | | Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips | 765.23<br>(44.1) |
| 50 | | | | Filter: silica filter sand - 4.5 bags, 50 lbs, #1A filter media | 760.93<br>(48.4) |
| | | | | **Well: 2" OD PVC (SCH 40)** | |
| 55 | | | | **Well: 2" OD PVC (SCH 40)**<br>**Screen: 10 ft. pre-pack** | |
| | | | 751.33 | | 750.93 |
| | | Bottom of borehole at 58.0 feet. | | Sump:0.40 ft. | |

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

# RECORD OF BOREHOLE WGWC10/APC-3D



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 146.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/27/15
DATE COMPLETED: 10/27/15

NORTHING: 1240971.96
EASTING: 2026725.61
GS ELEVATION: 809.61
TOC ELEVATION: 812.38

DEPTH W.L.: 7.73' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/27/15
TIME W.L.: 14:41

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 0.00 - 11.00<br>SILT; dry to moist, yellow to orange-red, some clay, some very fine sand, trace muscovite | | | | | | | | **WELL CASING**<br>Interval: -2.5'-136'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded |
| 5 | 805 | | ML | | | | | | | **WELL SCREEN**<br>Interval: 136'-146'<br>Material: Schedule 40 PVC<br>Diameter: 2'<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC |
| | | 6.00: Shelby Tube Collected: 6'-8' | | | | | | | | |
| 10 | 800 | | | | 798.61 | | | | | **FILTER PACK**<br>Interval: 134'-136<br>Type: #1 Sand Prepacked Filter |
| | | 11.00 - 23.00<br>CLAYEY SILT; dry to moist, orange to red, 5-10% muscovite, trace black MnO, trace garnet, trace quartz, saprolite | | | 11.00 | | | | | **FILTER PACK SEAL**<br>Interval: 131.5'-134'<br>Type: 3/8" Bentonite Pellets |
| 15 | 795 | | ML | | | | | | | **ANNULUS SEAL**<br>Interval: 0'-131.5'<br>Type: Portland Type 1 |
| 20 | 790 | | | | 786.61 | | | | | **WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum |
| | | 23.00 - 37.00<br>SILT; moist, yellow brown, some clay, come very fine sand, layers of white CLAYEY SILT, 3" thick lense of weathered pegmatite material at 25', 39', and 42' | | | 23.00 | | | | | **DRILLING METHODS**<br>Soil Drill: 4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 25 | 785 | | | | | | | | | |
| 30 | 780 | | ML | | | | | | | |
| 35 | 775 | 36.00: Shelby Tube Collected: 36'-38' | | | 772.61 | | | | | |
| | | 37.00 - 40.00<br>CLAYEY SILT; some weathered pegmatite material, white/pink weathered potassium feldspar and plagioclase | ML | | 37.00 | | | | | |
| 40 | 770 | | | | 769.61 | | | | | |
| | | 40.00 - 47.00<br>SILT; moist, yellow brown, some clay, come very fine sand, layers of white CLAYEY SILT, 3" thick lense of weathered pegmatitic material at 42' | ML | | 40.00 | | | | | |
| 45 | 765 | Log continued on next page | | | | | | | | |

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

# RECORD OF BOREHOLE WGWC10/APC-3D



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 146.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/27/15
DATE COMPLETED: 10/27/15

NORTHING: 1240971.96
EASTING: 2026725.61
GS ELEVATION: 809.61
TOC ELEVATION: 812.38

DEPTH W.L.: 7.73' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/27/15
TIME W.L.: 14:41

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | SAMPLES: TYPE | SAMPLES: REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | | | ML | | 762.61 | | | | | **WELL CASING**<br>Interval: -2.5'-136'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded |
| | | 47.00 - 58.00<br>SAPROLITE; moist, grayish brown with some orange mineral oxidation, weathered muscovite schist, predominately weathered feldspars, 10-15%muscovite, <10% quartz | | | 47.00 | | | | | |
| 50 | 760 | | ML | | | | | | | **WELL SCREEN**<br>Interval: 136'-146'<br>Material: Schedule 40 PVC<br>Diameter: 2'<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC |
| 55 | 755 | | | | | | | | | **FILTER PACK**<br>Interval: 134'-136<br>Type: #1 Sand Prepacked Filter<br>**FILTER PACK SEAL**<br>Interval: 131.5'-134'<br>Type: 3/8" Bentonite Pellets<br>**ANNULUS SEAL**<br>Interval: 0'-131.5'<br>Type: Portland Type 1 |
| | | | | | 751.61 | | | | | |
| | | 58.00 - 58.10<br>1" black layer with gravel size quarts grains, silt sized black particles | | | 58.10 | | | | | |
| 60 | 750 | 58.10 - 88.00<br>moist, grayish brown with some orange mineral oxidation, weathered muscovite schist, predominately weathered feldspars | | | | | | | | **WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum<br>**DRILLING METHODS**<br>Soil Drill: 4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 65 | 745 | | | | | | | | Portland Type 1 | |
| 70 | 740 | | | | | | | | | |
| 75 | 735 | | | | | | | | | |
| 80 | 730 | | | | | | | | | |
| 85 | 725 | | | | | | | | | |
| | | | | | 721.61 | | | | | |
| | | 88.00 - 92.00<br>SANDY SILT; moist to wet, orange brown, sandy silt, very fine to fine sand, trace fine gravel, micaceous | ML | | 88.00 | | | | | |
| 90 | 720 | Log continued on next page | | | | | | | | |

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

# RECORD OF BOREHOLE WGWC10/APC-3D



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 146.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/27/15
DATE COMPLETED: 10/27/15

NORTHING: 1240971.96
EASTING: 2026725.61
GS ELEVATION: 809.61
TOC ELEVATION: 812.38

DEPTH W.L.: 7.73' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/27/15
TIME W.L.: 14:41

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES SAMPLE NO. | SAMPLES TYPE | SAMPLES REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 90 | | 88.00 - 92.00<br>SANDY SILT; moist to wet, orange brown, sandy silt, very fine to fine sand, trace fine gravel, micaceous *(Continued)* | ML | | 717.61 | | | | | |
| | | 92.00 - 96.00<br>SAPROLITE; moist, grayish brown with some orange mineral oxidation, weathered muscovite schist, predominantly feldspar, trace quartz, trace biotite, trace garnet | ML | | 92.00<br>713.61 | | | | | |
| 95 | 715 | 96.00 - 97.00<br>SANDY SILT; moist to wet, orange brown, sandy silt, very fine to fine sand, trace fine gravel, micaceous | ML | | 96.00<br>712.61 | | | | | |
| | | 97.00 - 106.00<br>SAPROLITE; moist, grayish brown with some orange mineral oxidation, weathered muscovite schist, predominantly feldspar, trace quartz, trace biotite, trace garnet | ML | | 97.00 | | | | | |
| 100 | 710 | | | | | | | | | |
| 105 | 705 | | | | 703.61 | | | | | |
| | | 106.00 - 116.00<br>NO RECOVERY | | | 106.00 | | | | | |
| 110 | 700 | | | | | | | | | |
| 115 | 695 | | | | 693.61 | | | | | |
| | | 116.00 - 119.00<br>SAPROLITE ROCK; garnetiferous, muscovite meta quartzite rock fragments up to 2.5" interbedded with weathered muscovite schist | TWR | | 116.00<br>690.61 | | | | | |
| 120 | 690 | 119.00 - 139.00<br>moist to wet, silty clay and silt, weathered garnet, muscovite, plagioclase, schist, trace quartz | | | 119.00 | | | | | |
| 125 | 685 | | | | | | | | | |
| 130 | 680 | | | | | | | | 3/8" Bentonite Pellets | |
| 135 | 675 | | | | | | | | | |

Log continued on next page

**WELL CASING**
Interval: -2.5'-136'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 136'-146'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 134'-136
Type: #1 Sand Prepacked Filter

**FILTER PACK SEAL**
Interval: 131.5'-134'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-131.5'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

# RECORD OF BOREHOLE WGWC10/APC-3D

SHEET 4 of 4

PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 146.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/27/15
DATE COMPLETED: 10/27/15

NORTHING: 1240971.96
EASTING: 2026725.61
GS ELEVATION: 809.61
TOC ELEVATION: 812.38

DEPTH W.L.: 7.73' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/27/15
TIME W.L.: 14:41

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 135 | | 119.00 - 139.00<br>moist to wet, silty clay and silt, weathered garnet, muscovite, plagioclase, schist, trace quartz *(Continued)* | | | 670.61 | | | | #1 Sand | **WELL CASING**<br>Interval: -2.5'-136'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded |
| 140 | 670 | 139.00 - 142.00<br>SILTY SAND; wet, very fine to fine sand, mottled texture | SM | | 139.00<br>667.61 | | | | 0.010" Slot Screen | **WELL SCREEN**<br>Interval: 136'-146'<br>Material: Schedule 40 PVC<br>Diameter: 2'<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC |
| 145 | 665 | 142.00 - 145.00<br>SAPROLITE-ROCK/TRANSITIONALLY WEATHERED ROCK; wet, transitionally weathered garnet quartz muscovite plagioclase schist | TWR | | 142.00<br>664.61 | | | | | **FILTER PACK**<br>Interval: 134'-136<br>Type: #1 Sand Prepacked Filter |
| | | 145.00 - 146.00<br>wet, wilty sand, some mineral oxidation, 15-20% quartz | | | 145.00<br>663.61 | | | | | **FILTER PACK SEAL**<br>Interval: 131.5'-134'<br>Type: 3/8" Bentonite Pellets |
| | | Boring completed at 146.00 ft | | | | | | | | **ANNULUS SEAL**<br>Interval: 0'-131.5'<br>Type: Portland Type 1 |
| 150 | 660 | | | | | | | | | **WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum |
| 155 | 655 | | | | | | | | | **DRILLING METHODS**<br>Soil Drill: 4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 160 | 650 | | | | | | | | | |
| 165 | 645 | | | | | | | | | |
| 170 | 640 | | | | | | | | | |
| 175 | 635 | | | | | | | | | |
| 180 | 630 | | | | | | | | | |

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

Log updated with revised survey data certified 6/16/2020. Original boring ID in parentheses.
Easting and Northing in NAD 83. Elevation in NAVD 88.



SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/8/2014 **COMPLETED** 12/9/2014 **SURF. ELEV.** 821.44 **COORDINATES:** N:1240860.18 E:2025773.39
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 47 ft. **GROUND WATER DEPTH: DURING** **COMP.** 27 ft. **DELAYED** 31.6 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|
| | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 823.96 | |
| 0 | | **Silt (ML)**<br>- red, moist, sandy, mottled yellow, trace mica | Surface Seal: concrete | 819.44<br>(2.0) |
| 5 | | - mottled yellow, trace gravel | | |
| 10 | | | | |
| 15 | | - mottled brown | | |
| 20 | | | Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal | |
| 25 | | - gray, moist, mottled orange, black, and white, micaceous | | |
| 30 | | | | |
| 35 | | | | 788.84<br>(32.6) |
| | | | Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips | 786.84<br>(34.6) |
| | | | Filter: silica filter sand - 3.5 bags, 50 lbs, #1A filter media | |
| 40 | | | | 783.14<br>(38.3) |

*(Continued Next Page)*

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 823.96 | |
| 45 | | **Silt (ML)***(Con't)* | | (CONTINUED)<br>**Well: 2" OD PVC (SCH 40)**<br>**Well: 2" OD PVC (SCH 40)**<br>**Screen: 10 ft. pre-pack** | |
| | | | 774.44 | | |
| | | Bottom of borehole at 47.0 feet. | | Sump:0.40 ft. | 773.14 |

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

# RECORD OF BOREHOLE WGWC12/APC-4D

SHEET 1 of 2

PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 77.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/22/15
DATE COMPLETED: 10/22/15

NORTHING: 1240827.68
EASTING: 2025755.99
GS ELEVATION: 820.57
TOC ELEVATION: 823.04

DEPTH W.L.: 20.1' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/22/15
TIME W.L.: 08:05

| DEPTH (ft) | ELEVATION (ft) | DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 820 | 0.00 - 4.00<br>CLAYEY SILT; dry to moist, orange-red, <5% muscovite, <5% medium quartz grains, homogenous texture, no fabric | ML | | 816.57 | | | | | |
| 5 | 815 | 4.00 - 6.00<br>moist, yellow, orange, garnet, muscovite, plagioclase | | | 4.00<br>814.57 | | | | | |
| | | 6.00 - 7.00<br>dry to moist, orange-red, <5% muscovite, <5% medium quartz grains, homogenous texture, no fabric | | | 6.00<br>813.57 | | | | | |
| 10 | 810 | 7.00 - 17.00<br>SAPROLITE/TRANSITIONALLY WEATHERED ROCK; moist (7-49') to wet (49-56'), yellow orange to brown and orange, weathered garnet muscovite feldspar (plagioclase + K-spar) schist, metamorphic fabric more apparent at depth due to the material being less weathered<br>Shelby Tube Collected: 16'-17' | TWR | | 7.00 | | | | | |
| 15 | 805 | | | | 803.57 | | | | | |
| | | 17.00 - 27.00<br>transitionally weathered rock, weathered garnet rich, with muscovite, feldspar, schist fabric | | | 17.00 | | | | | |
| 20 | 800 | | | | | | | | | |
| 25 | 795 | | | | 793.57 | | | | | |
| | | 27.00 - 37.00<br>less weathered, relict fabric evident | | | 27.00 | | | | | |
| 30 | 790 | | | | | | | | Portland Type 1 | |
| 35 | 785 | | | | 783.57 | | | | | |
| | | 37.00 - 56.00<br>transitionally weathered rock, moist to wet at 49 feet | | | 37.00 | | | | | |
| 40 | 780 | | | | | | | | | |
| 45 | | Log continued on next page | | | | | | | | |

**WELL CASING**
Interval: -2.5'-64'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 64'-74'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 61.5'-77'
Type: #1 Sand/ Prepack Filter

**FILTER PACK SEAL**
Interval: 59'-61.5'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-59'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

# RECORD OF BOREHOLE WGWC12/APC-4D

SHEET 2 of 2

PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 77.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/22/15
DATE COMPLETED: 10/22/15

NORTHING: 1240827.68
EASTING: 2025755.99
GS ELEVATION: 820.57
TOC ELEVATION: 823.04

DEPTH W.L.: 20.1' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/22/15
TIME W.L.: 08:05

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 775 | 37.00 - 56.00<br>transitionally weathered rock, moist to wet at 49 feet *(Continued)* | | | | | | | | |
| 50 | 770 | | | | | | | | | |
| 55 | 765 | | | | 764.57 | | | | | |
| | | 56.00 - 57.00<br>SAPROLITE-ROCK; moist to wet, green and dark grey, very fine grained metamorphic rock interlayered with light greenish-grey clay. transition zone | | | 56.00<br>763.57 | | | | | |
| | | 57.00 - 77.00<br>ROCK; unweathered competent grey to dark grey quartzite, predominantly quartz, 5-10% muscovite, <5% garnet, <5% pyrite. rock is difficult to break with several hammer strikes, but is broken into discs along mica foliations from drilling action. rock broken into smaller fragments from 71-72' interval. | | | 57.00 | | | | | |
| 60 | 760 | | | | | | | | 3/8" Bentonite Pellets | |
| 65 | 755 | | BR | | | | | | #1 Sand | |
| 70 | 750 | | | | | | | | 0.010" Slot Screen | |
| 75 | 745 | | | | 743.57 | | | | | |
| | | Boring completed at 77.00 ft | | | | | | | | |
| 80 | 740 | | | | | | | | | |
| 85 | 735 | | | | | | | | | |
| 90 | | | | | | | | | | |

**WELL CASING**
Interval: -2.5'-64'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 64'-74'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 61.5'-77'
Type: #1 Sand/ Prepack Filter

**FILTER PACK SEAL**
Interval: 59'-61.5'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-59'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

# RECORD OF BOREHOLE WGWC13/APC-5D



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 96.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/2/15
DATE COMPLETED: 11/4/15

NORTHING: 1240610.93
EASTING: 2024585.91
GS ELEVATION: 807.32
TOC ELEVATION: 809.78

DEPTH W.L.: 20.25' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/4/15
TIME W.L.: 10:08

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 805 | 0.00 - 2.00<br>SILT; moist, orange overburden | ML | | 805.32 | | | | | **WELL CASING**<br>Interval: -2.5'-73'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded |
| | | 2.00 - 7.00<br>CLAYEY SILT; moist, brown, micaceous, trace garnets up to 1cm, materials are loose/soft | ML | | 2.00<br>800.32 | | | | | **WELL SCREEN**<br>Interval: 73'-93' 3"<br>Material: Schedule 40 PVC<br>Diameter: 2'<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC |
| 5 | 800 | 7.00 - 22.00<br>SILTY SAND; moist to wet (18 - 26 feet), orange, brown and white (saprolite) | SM | | 7.00 | | | | | **FILTER PACK**<br>Interval: 69.5'-96'<br>Type: #1 Sand/ Prepack Filter |
| 10 | 795 | | | | | | | | | **FILTER PACK SEAL**<br>Interval: 66.5'-69.5'<br>Type: 3/8" Bentonite Pellets |
| 15 | 790 | 16.00: Shelby Tube Collected: 16'-17' | | | | | | | | **ANNULUS SEAL**<br>Interval: 0'-66.5'<br>Type: Portland Type 1 |
| 20 | 785 | | | | 785.32 | | | | | **WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum |
| | | 22.00 - 26.00<br>SAPROLITE; weathered pegmatite | ML | | 22.00<br>781.32 | | | | | **DRILLING METHODS**<br>Soil Drill: 4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 25 | 780 | 26.00 - 28.00<br>trace quartz, wet | | | 26.00<br>779.32 | | | | | |
| 30 | 775 | 28.00 - 35.00<br>SILTY CLAY; moist, very light brown. metamorphic foliation present. trace gravel size quartzite rock fragments (saprolite) | CL | | 28.00<br>772.32 | | | | | |
| 35 | | 35.00 - 36.00<br>SAPROLITE-ROCK; weathered micaceous meta-quartzite | TWR | | 35.00<br>771.32 | | | | Portland Type 1 | |
| | 770 | 36.00 - 46.00<br>ROCK; light brown quartzite with light orange oxidation, micaceous meta quartzite | BR | | 36.00 | | | | | |
| 40 | 765 | | | | | | | | | |
| 45 | | Log continued on next page | | | | | | | | |

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

# RECORD OF BOREHOLE WGWC13/APC-5D



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 96.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/2/15
DATE COMPLETED: 11/4/15

NORTHING: 1240610.93
EASTING: 2024585.91
GS ELEVATION: 807.32
TOC ELEVATION: 809.78

DEPTH W.L.: 20.25' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/4/15
TIME W.L.: 10:08

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | SAMPLES: TYPE | SAMPLES: REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | | | BR | | 761.32 / 46.00 | | | | | |
| | | 46.00 - 56.00<br>more competent rock | | | | | | | | |
| | 760 | | | | | | | | | |
| 50 | | | | | | | | | | |
| | 755 | | | | | | | | | |
| 55 | | | | | 751.32 / 56.00 | | | | | |
| | | 56.00 - 87.00<br>light brown quartzite with light orange oxidation, micaceous meta quartzite | | | | | | | | |
| | 750 | | | | | | | | | |
| 60 | | | | | | | | | | |
| | 745 | | | | | | | | | |
| 65 | | | | | | | | | | |
| | 740 | | | | | | | | 3/8" Bentonite Pellets | |
| 70 | | | | | | | | | | |
| | 735 | | BR | | | | | | | |
| 75 | | | | | | | | | | |
| | 730 | | | | | | | | | |
| 80 | | | | | | | | | | |
| | 725 | | | | | | | | 0.010" Slot Screen | |
| 85 | | | | | | | | | #1 Sand | |
| | | | | | 720.32 / 87.00 | | | | | |
| | 720 | 87.00 - 96.00<br>grey and pink quartzite | | | | | | | | |
| 90 | | Log continued on next page | | | | | | | | |

**WELL CASING**
Interval: -2.5'-73'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 73'-93' 3"
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 69.5'-96'
Type: #1 Sand/ Prepack Filter

**FILTER PACK SEAL**
Interval: 66.5'-69.5'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-66.5'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

# RECORD OF BOREHOLE WGWC13/APC-5D



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 96.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/2/15
DATE COMPLETED: 11/4/15

NORTHING: 1240610.93
EASTING: 2024585.91
GS ELEVATION: 807.32
TOC ELEVATION: 809.78

DEPTH W.L.: 20.25' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/4/15
TIME W.L.: 10:08

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 90 | | 87.00 - 96.00<br>grey and pink quartzite *(Continued)* | | | | | | | | **WELL CASING**<br>Interval: -2.5'-73'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded |
| | 715 | | | | | | | | | **WELL SCREEN**<br>Interval: 73'-93' 3"<br>Material: Schedule 40 PVC<br>Diameter: 2'<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC |
| 95 | | | | | 711.32 | | | | | |
| | | Boring completed at 96.00 ft | | | | | | | | **FILTER PACK**<br>Interval: 69.5'-96'<br>Type: #1 Sand/ Prepack Filter |
| | 710 | | | | | | | | | **FILTER PACK SEAL**<br>Interval: 66.5'-69.5'<br>Type: 3/8" Bentonite Pellets |
| 100 | | | | | | | | | | **ANNULUS SEAL**<br>Interval: 0'-66.5'<br>Type: Portland Type 1 |
| | 705 | | | | | | | | | **WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum |
| 105 | | | | | | | | | | **DRILLING METHODS**<br>Soil Drill: 4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| | 700 | | | | | | | | | |
| 110 | | | | | | | | | | |
| | 695 | | | | | | | | | |
| 115 | | | | | | | | | | |
| | 690 | | | | | | | | | |
| 120 | | | | | | | | | | |
| | 685 | | | | | | | | | |
| 125 | | | | | | | | | | |
| | 680 | | | | | | | | | |
| 130 | | | | | | | | | | |
| | 675 | | | | | | | | | |
| 135 | | | | | | | | | | |

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

# WELL NUMBER WGWC-14A



ERM
3200 Windy Hill Rd Ste 1500W
Atlanta, GA 30339
Telephone: 678-486-2700

**COORDINATES:** N:1240604.54 E:2024599.63

**CLIENT** Southern Company Services, Inc.
**PROJECT NAME** Plant Wansley
**PROJECT NUMBER** 0372406
**PROJECT LOCATION** AP-1
**DATE STARTED** 1/31/17 **COMPLETED** 1/31/17
**GROUND ELEVATION** 808.20 **HOLE SIZE** 4.25 inches
**DRILLING CONTRACTOR** Southern Comparny Services, Inc
**GROUND WATER LEVELS:**
**DRILLING METHOD** Hollow Stem Auger 2"
**AT TIME OF DRILLING** ---
**LOGGED BY** MR **CHECKED BY** GEJ
**AT END OF DRILLING** ---
**NOTES**
**AFTER DRILLING** ---

| DEPTH (ft) | SAMPLE TYPE NUMBER | RECOVERY % | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|---|
| 0 | | | | | |
| | SS | 100 | ML | | (ML) Orange SILT, non-plastic, dry |
| | | | | | 2.0 |
| | | | SM | | 806.20 (SM) Brownish orange Silty SAND, loose, micaceous, dry |
| 5 | | | | | |
| | SS | 100 | SM | | (SM) SAA, with white feldspar veins |
| 10 | | | | | |
| | SS | 100 | SM | | (SM) SAA, medium dense, denser with depth, well graded, fine - coarse grained |
| 15 | | | | | |
| | SS | 90 | SM | | (SM) SAA, reddish orange, moist |
| | | | | | 18.5 |
| 20 | | | CL | | 789.70 (CL) Orange Silty CLAY, stiff, low plasticity, moist |
| | SS | 70 | CL | | (CL) Reddish orange Silty CLAY, medium stiff, low plasticity, wet |
| 25 | | | CL | | (CL) Orange Silty CLAY, stiff, low plasticity, saprolitic, wet |
| | | | | | 24.0 |
| | SS | 60 | CL | | 784.20 (CL) SAA, very stiff |
| 30 | | | | | 28.0 |
| | | | | | 780.20 PWR, foliated |
| | SS | 60 | | | 33.0 |
| 35 | | | | | 775.20 |
| 40 | | | | | |

WELL DIAGRAM

Casing Type: PVC

70/30 Portland Cement / bentonite mix

PEL plug 3/8"

20/40 industrial quartz (ANSI std 61) 4" UPACK

Refusal at 40.0 feet.
Bottom of borehole at 40.0 feet.

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

# RECORD OF BOREHOLE WGWC15/APC-6D

SHEET 1 of 2

PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 53.50 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/11/15
DATE COMPLETED: 11/11/15

NORTHING: 1240483.16
EASTING: 2023912.92
GS ELEVATION: 802.03
TOC ELEVATION: 804.69

DEPTH W.L.: 5.85' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/13/15
TIME W.L.:

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES SAMPLE NO. | SAMPLES TYPE | SAMPLES REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 800 | 0.00 - 3.00<br>CLAYEY SILT; homogenous overburden, orange brown, dry to moist | ML | | 799.03 | | | | | |
| | | 3.00 - 5.00<br>CLAYEY SILT; homogenous overburden some coarse gravel, some subrounded weathered cobbles of quartzite, trace white and black staining, orange brown, dry to moist | | | 3.00<br>797.03 | | | | | |
| 5 | | 5.00 - 7.00<br>CLAYEY SILT; homogenous overburden, orange brown, black foliations, moist, soft | | | 5.00<br>795.03 | | | | | |
| | 795 | 7.00 - 9.00<br>SILTY SAND; grey/brown, silty sand to clayey sand, moist<br>Shelby Tube Collected: 7'-9' | SM | | 7.00<br>793.03 | | | | | |
| 10 | | 9.00 - 11.00<br>SILTY SAND; with some gravel, subangular, slightly weathered quartzite; greyish brown, moist | | | 9.00<br>791.03 | | | | | |
| | 790 | 11.00 - 14.00<br>GRAVELY CLAYEY SILT; fine to coarse quartzite gravel, some medium coarse sand, trace black, brown and white micaceous foliations; greyish brown | MLG | | 11.00<br>788.03 | | | | | |
| 15 | | 14.00 - 16.00<br>SILTY CLAY; micaceous, grey, trace brown and black foliations, dry. soft to firm | CL | | 14.00<br>786.03 | | | | | |
| | 785 | 16.00 - 22.00<br>CLAYEY GRAVEL; fine to coarse gravel and cobbles, some white quartzite, red, orange and black staining, brown silty clay, moist<br>Shelby Tube Collected: 17.1'-17.5' | GC | | 16.00<br>780.03 | | | | Portland Type 1 | **WELL CASING**<br>Interval: -2.5'-43'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded<br>**WELL SCREEN**<br>Interval: 43.5'-53.5'<br>Material: Schedule 40 PVC<br>Diameter: 2'<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC<br>**FILTER PACK**<br>Interval: 41'-53.5'<br>Type: #1 Sand/Prepack filter<br>**FILTER PACK SEAL**<br>Interval: 38.8'-41'<br>Type: 3/8" Bentonite Pellets<br>**ANNULUS SEAL**<br>Interval: 0'-38.8'<br>Type: Portland Type 1<br>**WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum<br>**DRILLING METHODS**<br>Soil Drill: 4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 20 | 780 | 22.00 - 24.50<br>TRANSITIONALLY WEATHERED ROCK/SAPROLITE; cobble and pulverized quartzite | TWR | | 22.00<br>777.53 | | | | | |
| | | 24.50 - 27.00<br>weathered quartzose schist, trace fine pyrite, drill pulverized rock into grey powder, some 3-4" cobbles | | | 24.50<br>775.03 | | | | | |
| 25 | 775 | 27.00 - 29.00<br>weathered, quartzose gravel, some grey clay | | | 27.00<br>773.03 | | | | | |
| | | 29.00 - 30.00<br>weathered, pulverized schist, wet | | | 29.00<br>772.03 | | | | | |
| 30 | | 30.00 - 33.00<br>weathered, quartzose gravel, some grey clay, wet | | | 30.00<br>769.03 | | | | | |
| | 770 | 33.00 - 37.00<br>BEDROCK; quartzose schist/gneiss, large garnets, green amphibole, mica, black hornblende/biotite, white feldspar | BR | | 33.00<br>765.03 | | | | | |
| 35 | | 37.00 - 43.00<br>various sizes of mafic gneiss and quartzose schist, weathered | | | 37.00<br>759.03 | | | | 3/8" Bentonite Pellets | |
| | 765 | | | | | | | | | |
| 40 | | | | | | | | | | |
| | 760 | | | | | | | | | |
| 45 | | 43.00 - 53.50<br>mafic gneiss, fine to coarse grey gravel, small weathered cobbles, bedrock | | | 43.00 | | | | | |

Log continued on next page

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: David Wilcox

GA INSPECTOR: Kristen Jurinko
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

# RECORD OF BOREHOLE WGWC15/APC-6D

SHEET 2 of 2

PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 53.50 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/11/15
DATE COMPLETED: 11/11/15

NORTHING: 1240483.16
EASTING: 2023912.92
GS ELEVATION: 802.03
TOC ELEVATION: 804.69

DEPTH W.L.: 5.85' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/13/15
TIME W.L.:

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | | 43.00 - 53.50<br>mafic gneiss, fine to coarse grey gravel, small weathered cobbles, bedrock *(Continued)* | | | | | | | #1 Sand<br>0.010" slot screen | **WELL CASING**<br>Interval: -2.5'-43'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded<br><br>**WELL SCREEN**<br>Interval: 43.5'-53.5'<br>Material: Schedule 40 PVC<br>Diameter: 2'<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC<br><br>**FILTER PACK**<br>Interval: 41'-53.5'<br>Type: #1 Sand/Prepack filter<br><br>**FILTER PACK SEAL**<br>Interval: 38.8'-41'<br>Type: 3/8" Bentonite Pellets<br><br>**ANNULUS SEAL**<br>Interval: 0'-38.8'<br>Type: Portland Type 1<br><br>**WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum<br><br>**DRILLING METHODS**<br>Soil Drill: 4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 50 | 755 | | | | | | | | | |
| 55 | 750 | | | | 748.53 | | | | | |
| 60 | 745 | Boring completed at 53.50 ft | | | | | | | | |
| 65 | 740 | | | | | | | | | |
| 70 | 735 | | | | | | | | | |
| 75 | 730 | | | | | | | | | |
| 80 | 725 | | | | | | | | | |
| 85 | 720 | | | | | | | | | |
| 90 | 715 | | | | | | | | | |

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: David Wilcox

GA INSPECTOR: Kristen Jurinko
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

# RECORD OF BOREHOLE WGWC16/APC-6S

SHEET 1 of 1

PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 32.00 ft
LOCATION: Carrollton, GA

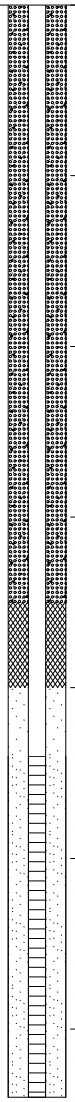
DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/11/15
DATE COMPLETED: 11/11/15

NORTHING: 1240480.46
EASTING: 2023903.77
GS ELEVATION: 801.72
TOC ELEVATION: 804.21

DEPTH W.L.: 5.99' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/13/15
TIME W.L.:

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE DESCRIPTION | USCS | GRAPHIC LOG | ELEV. DEPTH (ft) | SAMPLES SAMPLE NO. | SAMPLES TYPE | SAMPLES REC |
|---|---|---|---|---|---|---|---|---|
| 0 | 800 | 0.00 - 3.00<br>CLAYEY SILT (ML); Trace mica flakes, orange brown, homogenous, moist (wet from previous drilling), firm | ML | | 798.72 | | | |
| | | 3.00 - 5.00<br>trace coarse gravel, trace mica flakes, light and trace foliations, firm gravel-subrounded quartzite | | | 3.00<br>796.72 | | | |
| 5 | 795 | 5.00 - 7.00<br>SILTY CLAY (ML); trace coarse sand (black, subrounded, firm), orange brown, some light brown and black foliation, moist | ML | | 5.00<br>794.72 | | | |
| | | 7.00 - 9.00<br>SILTY SAND (SM); poorly graded, fine to coarse, angular, white quartzite, some clay, orange brown, wet<br>Shelby Tube Collected: 7'-9' | SM | | 7.00<br>792.72 | | | |
| 10 | 790 | 9.00 - 11.00<br>CLAYEY SILT (ML); saprolite, trace coarse sand, trace fine gravel, stained black and white quartzite, black, dark brown and light brown foliations, some mica flakes, dry to moist | ML | | 9.00<br>790.72 | | | |
| | | 11.00 - 15.00<br>CLAYEY SILT with GRAVEL; fine to coarse brown gravel, trace rounded cobbles, trace medium coarse sand, quartzite stained black and red, some black foliations, moist | | | 11.00<br>786.72 | | | |
| 15 | 785 | 15.00 - 17.00<br>SILTY SAND; trace fine gravel (quartzite, quartz and schist), orange brown, dry to moist | SM | | 15.00<br>784.72 | | | |
| | | 17.00 - 20.00<br>SILTY CLAY (ML); gravelly, fine to coarse gravel, cobbles of white quartzite, trace mica flakes, red, orange and black stringers, moist | ML | | 17.00<br>781.72 | | | |
| 20 | 780 | 20.00 - 22.00<br>SILT (ML); micaceous, trace to large cobbles of quartzite, angular, white/black/orange weathered schist | MLG | | 20.00<br>779.72 | | | |
| | | 22.00 - 26.00<br>SAPROLITE (ML); pulverized quartzose schist, some cobbles of quartzose schist with coarse sand, orange staining, dry | | | 22.00<br>775.72 | | | |
| 25 | 775 | 26.00 - 26.30<br>GRAVELLY SILT (MLG); brown, weathered micaceous schist, small fracture with fine gravel, dark brown, red brow, orange foliations, moist | ML | | 774.72<br>27.00<br>773.72 | | | |
| | | 26.30 - 27.00<br>SILT (ML); micaceous, grey silt, moist | TWR | | 28.00<br>772.71 | | | |
| | | 27.00 - 28.00<br>SAPROLITE | | | 29.00<br>771.72 | | | |
| 30 | 770 | 28.00 - 29.00<br>TRANSITIONALLY WEATHERED ROCK; saprolite and gravel, quartzose schist, some cobbles, dry | | | 30.00<br>770.72 | | | |
| | | 29.00 - 30.00<br>sand and gravel, coarse, weathered quartzose schist, small to large cobbles, dry | | | 31.00<br>769.72 | | | |
| | | 30.00 - 31.00<br>sand and gravel, some grey quartzose schist, some silt, fine to coarse sand, fine to coarse gravel, trace cobbles, angular | | | | | | |
| 35 | 765 | 31.00 - 32.00<br>sand and gravel, saprolite and coarse, weathered quartzose schist, small to large cobbles, some sand, dry | | | | | | |
| | | Boring completed at 32.00 ft | | | | | | |
| 40 | 760 | | | | | | | |
| 45 | | | | | | | | |

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES




WELL CONSTRUCTION DETAILS

**WELL CASING**
Interval: -2.5'-23'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 22'-32'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 20'-32'
Type: #1 Sand/Prepack Filter

**FILTER PACK SEAL**
Interval: 17.5'-20'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-17.5'
Type: Type 1 Portland

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: David Wilcox

GA INSPECTOR: Kristen Jurinko
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

# RECORD OF BOREHOLE WGWC17/APC-7



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 97.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/6/15
DATE COMPLETED: 11/6/15

NORTHING: 1240052.06
EASTING: 2022623.82
GS ELEVATION: 813.36
TOC ELEVATION: 816.00

DEPTH W.L.: 23' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/6/15
TIME W.L.: 08:00

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES SAMPLE NO. | SAMPLES TYPE | SAMPLES REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 810 | 0.00 - 13.00<br>CLAYEY SILT; moist, orange red and orange brown, mottled, homogenous, soft. | ML | | | | | | | **WELL CASING**<br>Interval: -2.5'-83'<br>Material: Schedule 40 PVC<br>Diameter: 6"<br>Joint Type: Threaded<br><br>**WELL SCREEN**<br>Interval: 83'-93'<br>Material: Schedule 40 PVC<br>Diameter: 2'<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC<br><br>**FILTER PACK**<br>Interval: 81'-94'<br>Type: #1 sand/ Prepack Filter<br><br>**FILTER PACK SEAL**<br>Interval: 78.5'-81'<br>Type: 3/8" Bentonits Pellets<br><br>**ANNULUS SEAL**<br>Interval: 0'-78.5'<br>Type: Portland Type 1<br><br>**WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum<br><br>**DRILLING METHODS**<br>Soil Drill: 4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 5 | | 7.00: Shelby Tube Collected: 7'-9' | | | | | | | | |
| 10 | 805 | | | | 800.36 | | | | | |
| 15 | 800 | 13.00 - 17.00<br>CLAYEY SILT; dry to moist, light brown to orange, mottled, relict metamorphic texture, fine to medium sand, light brown | ML | | 13.00<br>796.36 | | | | | |
| 20 | 795 | 17.00 - 27.00<br>SILTY SAND; Fine to medium, light brown<br>Shelby Tube Collected: 17'-19' | SM | | 17.00<br>786.36 | | | | | |
| 25 | 790 | | | | | | | | | |
| 30 | 785 | 27.00 - 37.00<br>CLAYEY SILT; dry to moist, light brown to orange, mottled, relict metamorphic texture, fine to medium sand, light brown | ML | | 27.00<br>776.36 | | | | | |
| 35 | 780 | | | | | | | | | |
| 40 | 775 | 37.00 - 42.00<br>CLAYEY SILT and SILT; dry to moist, brown and grey, metamorphic texture observed, predominantly feldspar, varying amounts of quartz (<5-15%), biotite and muscovite (5-15%), saprolite | | | 37.00<br>771.36 | | | | Portland Tpe 1 | |
| 45 | 770 | 42.00 - 47.00<br>NO RECOVERY; not competent (soil washout) | | | 42.00 | | | | | |

Log continued on next page

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

# RECORD OF BOREHOLE WGWC17/APC-7



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 97.00 ft
LOCATION: Carrollton, GA

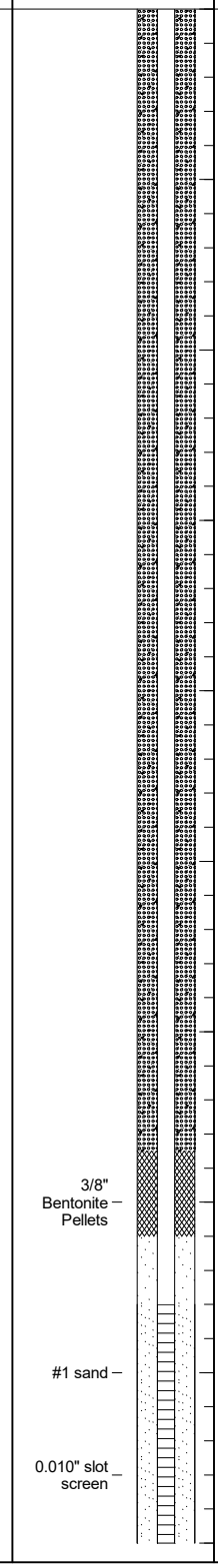
DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/6/15
DATE COMPLETED: 11/6/15

NORTHING: 1240052.06
EASTING: 2022623.82
GS ELEVATION: 813.36
TOC ELEVATION: 816.00

DEPTH W.L.: 23' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/6/15
TIME W.L.: 08:00

| DEPTH (ft) | ELEVATION (ft) | DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLE NO. | TYPE | REC |
|---|---|---|---|---|---|---|---|---|
| 45 | | 42.00 - 47.00<br>NO RECOVERY; not competent (soil washout) *(Continued)* | | | 766.36 | | | |
| | 765 | 47.00 - 53.00<br>CLAYEY SILT and SILT; dry to moist, brown and grey, metamorphic texture observed, predominantly feldspar, varying amounts of quartz (<5-15%), biotite and muscovite (5-15%), saprolite | ML | | 47.00<br>760.36 | | | |
| 50 | 760 | 53.00 - 54.00<br>SILT; grey silt, weathered quartzite and gneiss, trace black laminations, chunks of silt, speckled greywacke | ML | | 53.00<br>759.36 | | | |
| 55 | | 54.00 - 57.00<br>SILT; saprolitic texture more predominant | | | 54.00<br>756.36 | | | |
| | 755 | 57.00 - 59.00<br>SILT; dry, dark brown silt, some fine coarse sand, white quartz/feldspar, some thin laminations of quartzite | | | 57.00<br>754.36 | | | |
| 60 | | 59.00 - 67.00<br>TRANSITIONALLY WEATHERED ROCK; clayey silt, weathered quartzite, trace black minerals | TWR | | 59.00<br>746.36 | | | |
| 65 | 750 | | | | | | | |
| | 745 | 67.00 - 71.00<br>CLAYEY SAND/SILTY SAND; large cobbles of gneiss and quartzite | SC-SM | | 67.00<br>742.36 | | | |
| 70 | | 71.00 - 76.00<br>CLAYEY SAND; moist, brown, some orange silty sand, muscovite, weathered quartzite | | | 71.00 | | | |
| 75 | 740 | 75.00: 75'-76' large cobbles present | | | 737.36 | | | |
| | | 76.00 - 82.00<br>BEDROCK; grey and white, fractured quartzite, some light orange from mineral oxidation, staining present | BR | | 76.00<br>731.36 | | | |
| 80 | 735 | | | | | | | |
| | 730 | 82.00 - 93.00<br>quartzite | | | 82.00 | | | |
| 85 | | | | | | | | |
| | 725 | | | | | | | |
| 90 | | Log continued on next page | | | | | | |

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES




WELL CONSTRUCTION DETAILS

**WELL CASING**
Interval: -2.5'-83'
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Threaded

**WELL SCREEN**
Interval: 83'-93'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 81'-94'
Type: #1 sand/ Prepack Filter

**FILTER PACK SEAL**
Interval: 78.5'-81'
Type: 3/8" Bentonits Pellets

**ANNULUS SEAL**
Interval: 0'-78.5'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

# RECORD OF BOREHOLE WGWC17/APC-7



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 97.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/6/15
DATE COMPLETED: 11/6/15

NORTHING: 1240052.06
EASTING: 2022623.82
GS ELEVATION: 813.36
TOC ELEVATION: 816.00

DEPTH W.L.: 23' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/6/15
TIME W.L.: 08:00

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 90 | | 82.00 - 93.00<br>quartzite *(Continued)* | | | 720.36 | | | | | |
| | 720 | 93.00 - 97.00<br>SCHIST; fractured quartzitic schist | BR | | 93.00<br>716.36 | | | | 3/8" Bentonite Pellets | |
| 95 | | Boring completed at 97.00 ft | | | | | | | | |
| | 715 | | | | | | | | | |
| 100 | | | | | | | | | | |
| | 710 | | | | | | | | | |
| 105 | | | | | | | | | | |
| | 705 | | | | | | | | | |
| 110 | | | | | | | | | | |
| | 700 | | | | | | | | | |
| 115 | | | | | | | | | | |
| | 695 | | | | | | | | | |
| 120 | | | | | | | | | | |
| | 690 | | | | | | | | | |
| 125 | | | | | | | | | | |
| | 685 | | | | | | | | | |
| 130 | | | | | | | | | | |
| | 680 | | | | | | | | | |
| 135 | | | | | | | | | | |

**WELL CASING**
Interval: -2.5'-83'
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Threaded

**WELL SCREEN**
Interval: 83'-93'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 81'-94'
Type: #1 sand/ Prepack Filter

**FILTER PACK SEAL**
Interval: 78.5'-81'
Type: 3/8" Bentonits Pellets

**ANNULUS SEAL**
Interval: 0'-78.5'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

# RECORD OF BOREHOLE WGWC19/APC-2



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 92.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/28/15
DATE COMPLETED: 10/28/15

NORTHING: 1241851.51
EASTING: 2028949.19
GS ELEVATION: 780.60
TOC ELEVATION: 783.42

DEPTH W.L.: 20.5' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/28/15
TIME W.L.: 13:10

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. DEPTH (ft) | SAMPLES: SAMPLE NO. | SAMPLES: TYPE | SAMPLES: REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 780 | 0.00 - 27.00<br>SILTY SAND; reddish orange overburden | SM | | | | | | | **WELL CASING**<br>Interval: -2.5'-82'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded<br><br>**WELL SCREEN**<br>Interval: 82'-92'<br>Material: Schedule 40 PVC<br>Diameter: 2'<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC<br><br>**FILTER PACK**<br>Interval: 79.1'-92'<br>Type: #1 Sand/Prepacked Filter<br><br>**FILTER PACK SEAL**<br>Interval: 77'-79.1'<br>Type: 3/8" Bentonite Pellets<br><br>**ANNULUS SEAL**<br>Interval: 0'-77'<br>Type: Portland Type 1<br><br>**WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum<br><br>**DRILLING METHODS**<br>Soil Drill: Hydrovac/4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 5 | 775 | | | | | | | | | |
| 10 | 770 | | | | | | | | | |
| 15 | 765 | | | | | | | | | |
| 20 | 760 | 22.00: Shelby Tube Collected: 22'-24' | | | | | | | | |
| 25 | 755 | | | | 753.60 | | | | | |
| | | 27.00 - 30.00<br>SILT; dry to moist, light brown, brown, orange brown and grey. Trace white feldspar and black MnO laminations, trace fine gravel, quartz-rich lense from 30-33' (35% quartz). some weathered schist (saprolite) | ML | | 27.00 | | | | | |
| 30 | 750 | | | | 750.60 | | | | | |
| | | 30.00 - 33.00<br>some severely weathered gneiss | | | 30.00 | | | | | |
| | | | | | 747.60 | | | | | |
| | | 33.00 - 60.00<br>dry to moist, light brown, brown, orange brown and grey. Trace white feldspar and black MnO laminations, trace fine gravel, quartz-rich lense from 30-33' (35% quartz). some weathered schist (saprolite) | | | 33.00 | | | | Portland Type 1 | |
| 35 | 745 | | | | | | | | | |
| 40 | 740 | | | | | | | | | |
| 45 | | Log continued on next page | | | | | | | | |

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

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# RECORD OF BOREHOLE WGWC19/APC-2



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 92.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/28/15
DATE COMPLETED: 10/28/15

NORTHING: 1241851.51
EASTING: 2028949.19
GS ELEVATION: 780.60
TOC ELEVATION: 783.42

DEPTH W.L.: 20.5' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/28/15
TIME W.L.: 13:10

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 735 | 33.00 - 60.00<br>dry to moist, light brown, brown, orange brown and grey. Trace white feldspar and black MnO laminations, trace fine gravel, quartz-rich lense from 30-33' (35% quartz). some weathered schist (saprolite) *(Continued)* | | | | | | | | |
| 50 | 730 | | | | | | | | | |
| 55 | 725 | | | | | | | | | |
| 60 | 720 | | | | 720.60 | | | | | |
| | | 60.00 - 63.00<br>stiffer with trace gravel | | | 60.00 | | | | | |
| | | | | | 717.60 | | | | | |
| | | 63.00 - 70.00<br>TRANSITIONALLY WEATHERED ROCK; brown micaceous schist and garnetiferous greywacke, dry | PWR | | 63.00 | | | | | |
| 65 | 715 | | | | | | | | | |
| | | | | | 710.60 | | | | | |
| 70 | 710 | 70.00 - 87.00<br>ROCK; garnetiferous greywacke with white plagioclase laminations | | | 70.00 | | | | | |
| 75 | 705 | | | | | | | | | |
| | | | BR | | | | | | 3/8" Bentonite Pellets | |
| 80 | 700 | | | | | | | | | |
| 85 | 695 | | | | | | | | #1 Sand | |
| | | | | | 693.60 | | | | 0.010" Slot Screen | |
| | | 87.00 - 92.00<br>ROCK; wet, dark grey micaceous schist | BR | | 87.00 | | | | | |
| 90 | | Log continued on next page | | | | | | | | |

**WELL CASING**
Interval: -2.5'-82'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 82'-92'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 79.1'-92'
Type: #1 Sand/Prepacked FIlter

**FILTER PACK SEAL**
Interval: 77'-79.1'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-77'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: Hydrovac/4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

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# RECORD OF BOREHOLE WGWC19/APC-2



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 92.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/28/15
DATE COMPLETED: 10/28/15

NORTHING: 1241851.51
EASTING: 2028949.19
GS ELEVATION: 780.60
TOC ELEVATION: 783.42

DEPTH W.L.: 20.5' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/28/15
TIME W.L.: 13:10

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | SAMPLES: TYPE | SAMPLES: REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 90 | 690 | 87.00 - 92.00<br>ROCK; wet, dark grey micaceous schist *(Continued)* | BR | | 688.60 | | | | | |
| | | Boring completed at 92.00 ft | | | | | | | | |
| 95 | 685 | | | | | | | | | |
| 100 | 680 | | | | | | | | | |
| 105 | 675 | | | | | | | | | |
| 110 | 670 | | | | | | | | | |
| 115 | 665 | | | | | | | | | |
| 120 | 660 | | | | | | | | | |
| 125 | 655 | | | | | | | | | |
| 130 | 650 | | | | | | | | | |
| 135 | | | | | | | | | | |

**WELL CASING**
Interval: -2.5'-82'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 82'-92'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 79.1'-92'
Type: #1 Sand/Prepacked FIlter

**FILTER PACK SEAL**
Interval: 77'-79.1'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-77'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: Hydrovac/4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

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Survey data certified 11/17/2020. Original boring ID in parentheses.
Easting an Northing in NAD 83. Elevation in NAVD 88.

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# WGWC-20 (PZ-22)

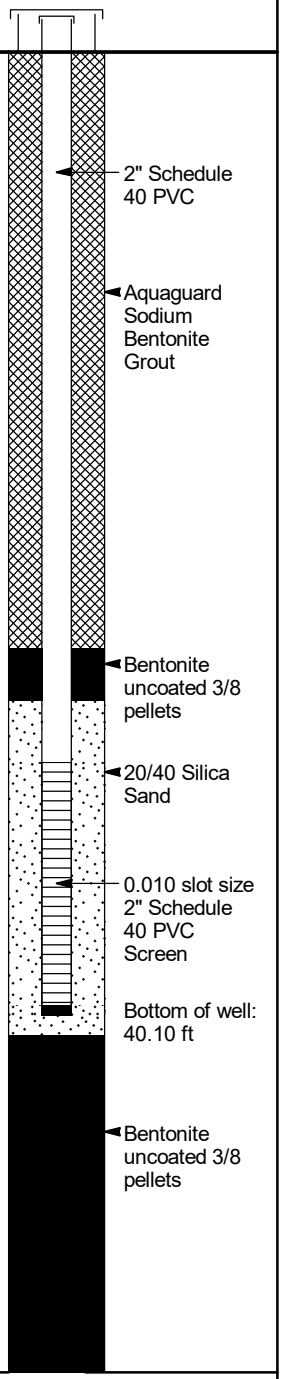


**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 9/29/20 **COMPLETED** 9/29/20
**NORTHING** 1243350.76 ft **EASTING** 2029769.43 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 804.88 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 807.95 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** A. Ramsey **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | | | | Air Knife Excavation (0 ft to 2 ft) NO SAMPLE |
| | | 2 ft: Significant rig chatter. | | 802.9 QUARTZITE, pinkish gray to grayish blue, wet, very hard, granular, trace pyrite, abundant iron oxide staining and scaling on fracture faces. |
| | 800 | | | 6 ft: Increasing pink. |
| 10 | | 10 ft: Decreased rig chatter. | | 10 ft: Pinkish gray to pinkish white, trace bluish gray, moderately fractured. |
| | 790 | 15 ft: Loss of circulation. | | |
| 20 | | | | 20 ft: Few planar fractures with iron oxidation scaling, trace epidote at joints. |
| | 780 | 25 to 30 ft: Coarse sand slough due to drilling. | | |
| 30 | | | | 30 ft: Heavily fractured with iron oxidation scaling and dendrites, trace to some mafics from 32 ft to 35 ft, abundant mica. |
| | 770 | | | 35 ft: Pinkish white to light gray, fractured with iron oxidation staining to 37 ft, increasing competency with depth. |
| 40 | | | | 764.9 GNEISS, light blue to gray, faint micaceous banding, abundant iron oxide staining, competent, fractured by drilling at joints and few fine fractures, very hard, wet. |
| | 760 | | | 45 ft: Light bluish gray to light olive gray, very fine laminations, competent with trace natural fractures and trace iron oxidation staining. |
| 50 | | | | |
| | 750 | | | 749.9 |

Bottom of borehole at 55.0 feet.

CONSTRUCTION DIAGRAM




SCS MONITORING WELLS WANSLEY_PIEZOMETER INSTALL_2020.GPJ ACP GINT LIBRARY CH.GLB 1/5/21

Survey data certified 11/17/2020. Original boring ID in parentheses.
Easting an Northing in NAD 83. Elevation in NAVD 88.

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# WGWC-21 (PZ-23S)



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 10/2/20 **COMPLETED** 10/2/20
**NORTHING** 1242139.33 ft **EASTING** 2028512.65 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 831.79 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 834.41 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** A. Ramsey **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | CONSTRUCTION DIAGRAM |
|---|---|---|---|---|---|
| 0 | 831.79 | | | Air Knife Excavation (0 ft to 10 ft)<br>NO SAMPLE | |
| 5 | 825 | | | | 2" Schedule 40 PVC |
| 10 | 821.8 | | | NO RECOVERY (10 ft to 17 ft) | Aquaguard Sodium Bentonite Grout |
| 15 | 815 | | | 814.8<br>GNEISS, bluish gray, abundant iron oxidation and scaling on fracture faces, thin to moderate laminations, wet. | |
| 20 | 810 | | | 20 ft: Bluish gray and olive to olive gray. | |
| 25 | 805 | | | 26 ft: Bluish gray. | |
| 30 | 800 | | | 30 to 40 ft: Abundant potential fractures throughout. | |
| 35 | 795 | | | 33 ft to 36 ft: Recovered core broke into pebble sized fragments. | |

SCS MONITORING WELLS WANSLEY_PIEZOMETER INSTALL_2020.GPJ ACP GINT LIBRARY CH.GLB 1/5/21

*(Continued Next Page)*

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# WGWC-21 (PZ-23S)



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | CONSTRUCTION DIAGRAM |
|---|---|---|---|---|---|
| 40 | | | | GNEISS, bluish gray, abundant iron oxidation and scaling on fracture faces, thin to moderate laminations, wet. *(continued)* | |
| | 790 | | | | |
| 45 | | | | | Aquaguard Sodium Bentonite Grout |
| | 785 | | | | |
| 50 | | | | 50 ft to 53 ft: Minimal iron scaling. | Bentonite uncoated 3/8 pellets |
| | 780 | | | | |
| 55 | | | | | 20/40 Silica Sand |
| | 775 | | | | Top of screen elev: 773.11 ft |
| 60 | | | | 60 ft: Large potassium feldspar minerals, fractures throughout. | |
| | 770 | | | | 0.010 slot size 2" Schedule 40 PVC Screen |
| 65 | | | | | |
| | 765 | | | | Bottom of screen elev: 763.11 ft |
| 70 | | | | | Bottom of well: 69.09 ft |
| | 760 | | | | Bottom of well elev: 762.71 ft |
| | | | | | 20/40 Silica Sand |
| 75 | | | | 756.8 Bottom of borehole at 75.0 feet. | |

Survey data certified 11/17/2020. Original boring ID in parentheses.
Easting an Northing in NAD 83. Elevation in NAVD 88.

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# WGWC-22 (PZ-24)

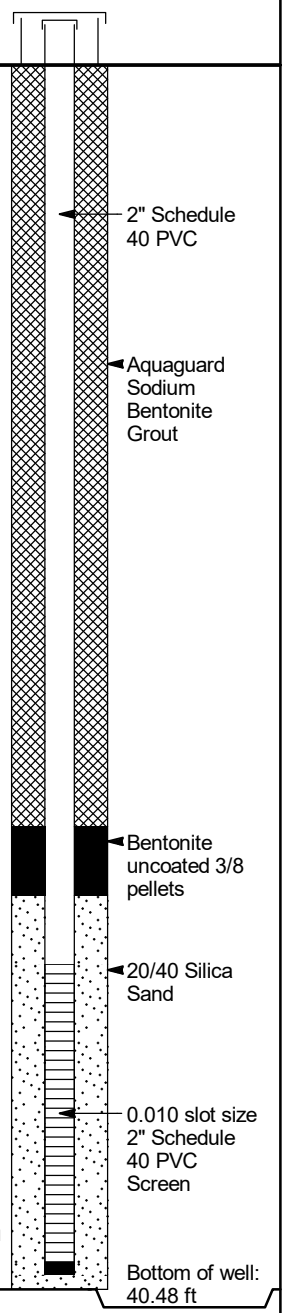


**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 10/18/20 **COMPLETED** 10/18/20
**NORTHING** 1241695.25 ft **EASTING** 2028116.05 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 807.00 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 810.37 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** T. Kessler **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | 807 | | | Air Knife Excavation (0 ft to 10 ft)<br>NO SAMPLE |
| 10 | 797 | | | 797.0<br>SILTY CLAY, reddish yellow with brown and white mottling, fine grained, medium plasticity, some sand, moist. |
| 15 | 792 | | | 794.0<br>SILTY CLAY, reddish yellow with red, brown and white mottling, with fine grained sand, medium plasticity, firm, moist (SAPROLITE). |
| 25 | 782 | 25 ft: Increased rig chatter, drilled 25 to 30 ft, no returns. | | 782.0<br>PARTIALLY WEATHERED ROCK (PWR), reddish yellow, large gravel, silty clays and fine sand throughout, iron oxidation staining between 27 ft and 30 ft, loose, dry. |
| 30 | 777 | | | 777.0<br>PARTIALLY WEATHERED ROCK (PWR), gneiss, gray, loose gravel and coarse sand trhroughout, iron staining on fracture, surfaces wet. |
| 35 | 772 | 35 ft: Increased rig chatter, advance rate slowed. | | 772.0<br>GNEISS, gray, intensely fractured and moderately weathered, iron staining on fractures, wet. |
| 40 | 767 | | | 39 ft to 40 ft: Distinct fracture zone between 39 ft and 40 ft, wet.<br>766.0 |

Bottom of borehole at 41.0 feet.

CONSTRUCTION DIAGRAM




SCS MONITORING WELLS WANSLEY_PIEZOMETER INSTALL_2020.GPJ ACP GINT LIBRARY CH.GLB 1/6/21

Survey data certified 11/17/2020. Original boring ID in parentheses.
Easting an Northing in NAD 83. Elevation in NAVD 88.

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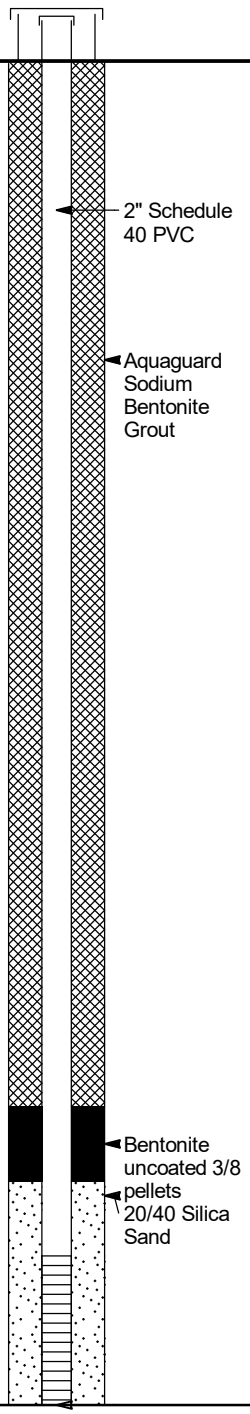
# WGWC-23 (PZ-25S)



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 10/4/20 **COMPLETED** 10/4/20
**NORTHING** 1240769.79 ft **EASTING** 2027414.58 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 820.50 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 823.80 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** A. Ramsey **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | 820 | | | Air Knife Excavation (0 ft to 10 ft)<br>NO SAMPLE |
| 5 | 815 | | | |
| 10 | 810 | 10 ft: Very poor recovery, very soft with sporadic hard intervals. | | 810.5<br>PARTIALLY WEATHERED ROCK (PWR), gneiss, very pale reddish brown, thinly laminated, laminations are friable into coarse sand, some iron staining and scaling, hard. |
| 15 | 805 | | | |
| 20 | 800 | 20 ft: Very soft, core washed out by drilling. | | 800.5<br>NO RECOVERY (20 ft to 30 ft) |
| 25 | 795 | | | |
| 30 | 790 | | | 790.5<br>PARTIALLY WEATHERED ROCK (PWR), highly weathered gneiss, very pale reddish yellowish brown, soft with trace hard pieces, clayey sand, very fine to coarse, iron staining in bottom 2 ft, trace banding visible, dry to wet. |
| 35 | 785 | 35 ft: Drilled without water. | | 38 ft: Iron oxide staining between 38 ft and 40 ft. |
| 40 | 780 | | | 780.5<br>PARTIALLY WEATHERED ROCK (PWR), highly weathered gneiss, pale reddish brown, hard to very hard, moderately friable, some coarse sand, abundant iron staining and scaling. |
| | | | | 775.5 |

CONSTRUCTION DIAGRAM




SCS MONITORING WELLS WANSLEY_PIEZOMETER INSTALL_2020.GPJ ACP GINT LIBRARY CH.GLB 1/5/21

*(Continued Next Page)*

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# WGWC-23 (PZ-25S)



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | CONSTRUCTION DIAGRAM |
|---|---|---|---|---|---|
| 45 | 775 | | | PARTIALLY WEATHERED ROCK (PWR), gneiss, with trace very hard schistose gneiss fragments and clayey sandy silt, pale reddish brown, banded, micaceous, non plastic, some iron staining, hard, moist to dry. | Bottom of screen elev: 770.40 ft<br>Bottom of well elev: 770.00 ft<br>0.010 slot size 2" Schedule 40 PVC Screen<br>Bottom of well: 50.50 ft |
| 50 | 770 | | | | |
| 55 | 765 | | | 765.5<br>SCHIST, black, very hard, thinly laminated. | |
| 60 | 760 | | | 760.5<br>GNEISS, pink, very pale brown, massive with some thin laminations. | Bentonite uncoated 3/8 pellets |
| 65 | 755 | | | | |
| 70 | 750 | | | | |
| 75 | | | | 745.5 | |

Bottom of borehole at 75.0 feet.

Survey data certified 11/17/2020. Original boring ID in parentheses.
Easting an Northing in NAD 83. Elevation in NAVD 88.

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# WGWC-24 (PZ-26S)



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 10/17/20 **COMPLETED** 10/17/20
**NORTHING** 1239916.68 ft **EASTING** 2024139.82 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 802.22 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 804.80 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** V. Taukoor **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | 802 | | | Air Knife Excavation (0 ft to 10 ft)<br>NO SAMPLE |
| 5 | 795 | | | |
| 10 | 792 | | | 792.2<br>SANDY SILT, dark red, fine grained with some coarse sand, micaceous, low plasticity. |
| 15 | 785 | | | 786.2<br>SANDY SILT, olive yellow, relic rock structure, stiff, low plasticity, moist to dry. |
| 20 | 780 | | | 20 ft: Moisture increases with depth. |
| 25 | 775 | | | 776.2<br>PARTIALLY WEATHERED ROCK (PWR), large quartzite rock fragments, light olive green, gravel and sand throughout, moist. 775.2<br>SANDY SILT, olive yellow, relic rock structure, low plasticity, moist. |
| 30 | 770 | | | 772.2<br>PARTIALLY WEATHERED ROCK (PWR), large quartzite rock fragments, light gray to yellow, heavily fractured from 30 ft to 35 ft, moderately fractured from 35 ft to 39 ft, some iron staining, moist to wet. |
| 35 | 765 | | | 763.2 |

CONSTRUCTION DIAGRAM

- 2" Schedule 40 PVC
- Aquaguard Sodium Bentonite Grout
- Bentonite uncoated 3/8 pellets
- 20/40 Silica Sand
- Top of screen elev: 774.43 ft
- 0.010 slot size 2" Schedule 40 PVC Screen
- Bottom of screen elev: 764.43 ft
- Bottom of well elev: 764.03 ft
- Bottom of well: 38.19 ft

Bottom of borehole at 39.0 feet.

SCS MONITORING WELLS WANSLEY_PIEZOMETER INSTALL_2020.GPJ ACP GINT LIBRARY CH.GLB 1/5/21

Survey data certified 11/17/2020. Original boring ID in parentheses.
Easting an Northing in NAD 83. Elevation in NAVD 88.

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# WGWC-25 (PZ-27S)



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 10/28/20 **COMPLETED** 10/28/20
**NORTHING** 1240184.18 ft **EASTING** 2023616.69 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 805.98 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 808.98 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** T. Wilson **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | 805 | | | Air Knife Excavation (0 ft to 9 ft)<br>NO SAMPLE |
| | | | | 797.0 |
| | | | | NO RECOVERY (9 ft to 11 ft) |
| | | | | 795.0 |
| | | | | SAPROLITE, silty clay with sand, yellowish red, firm, low plasticity, fine sand, trace mica, gravel, root material, moist. |
| | | | | 790.7 |
| | | | | PARTIALLY WEATHERED ROCK (PWR), silty sand with gravel, yellow, loose, well graded, fine to coarse, dry. |
| | | | | 787.0 |
| | | | | SAPROLITE, silty clay with sand, yellowish red, firm, low plasticity, fine sand, layer of gravelly mica, moist. |
| | | | | 778.0 |
| | | | | PARTIALLY WEATHERED ROCK (PWR), silty sand with clay, yellowish brown, moist, loose, well graded, fine to coarse, moist.<br>29 ft: some gravel, grayish brown. |
| | | | | 767.0 |

CONSTRUCTION DIAGRAM

- 2" Schedule 40 PVC
- Aquaguard Sodium Bentonite Grout
- Bentonite uncoated 3/8 pellets
- 20/40 Silica Sand
- Top of screen elev: 779.51 ft
- 0.010 slot size 2" Schedule 40 PVC Screen
- Bottom of screen elev: 769.51 ft
- Bottom of well elev: 769.11 ft
- Bottom of well: 36.87 ft

Bottom of borehole at 39.0 feet.

SCS MONITORING WELLS WANSLEY_PIEZOMETER INSTALL_2020.GPJ ACP GINT LIBRARY CH.GLB 1/5/21

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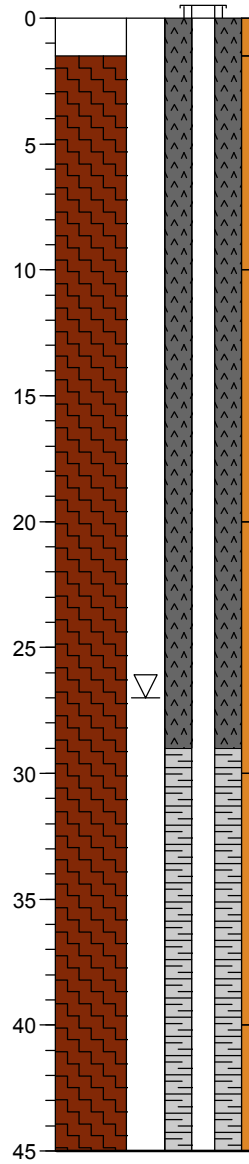
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** WGWC-26D
**Page:** 1 of 2

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | **09/26/2022** | Boring Depth (ft): | **70** | Well Depth (ft TOC): | **69.57** |
| Drilling End Date: | **09/26/2022** | Boring Diameter (in): | **6** | Well Diameter (in): | **2** |
| Drilling Company: | **Cascade Drilling** | Sampling Method(s): | **Core Barrel** | Screen Slot (in): | **0.010** |
| Drilling Method: | **Sonic 4x6** | DTW During Drilling (ft): | **27.0** | Riser Material: | **Sch 40 PVC** |
| Drilling Equipment: | **Terrasonic** | Ground Surface Elev. (ft): | **805.06 NAV88** | Screen Material: | **Sch 40 PVC Slotted** |
| Driller: | **Cory Franklin** | Top of Casing Elev. (ft): | **808.23 NAV88** | Seal Material(s): | **Grout/Bentonite** |
| Logged By: | **T. Kessler** | Location (N,E): | **1243343.658, 2029758.846** | Filter Pack: | **20/40 Sand** |



| DEPTH (ft) | Sample Type | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft NAV88) |
|---|---|---|---|---|
| 0 | GR | (0') Hand augered material. Not logged. | Hand augered to 1.5 feet bgs. | 805 |
| | | (1.5') QUARTZITE; pinkish gray, hard, heavily fractured and broken into gravel at joints, trace bluish gray quartzite gravel, trace pyrite, abundant iron staining. | Hard drilling. | |
| 5 | CB | | | 800 |
| 10 | | (10') Gray to grayish blue, heavily fractured at 10 and 20 feet bgs, abundant iron oxide staining in fractures, trace epidote at joints. | | 795 |
| 15 | CB | | | 790 |
| 20 | | (20') Heavy iron staining throughout. | | 785 |
| 25 | CB | (25') Heavily fractured from 25-26.5 and 29-30 feet bgs, unfractured rock is bluish gray. | | 780 |
| 30 | | (30') Grayish blue, fractures at 30-32 feet bgs, iron staining in fracture zone. | | 775 |
| | | (32') Sand-filled fracture zone from 32-26 feet bgs consisting of poorly graded SAND (SP), subangular, medium to coarse grain, damp | | |
| 35 | CB | | | 770 |
| | | (36') Grayish blue, fractures at 36-40 feet bgs, iron staining and fracture zone. | | |
| 40 | | | | 765 |
| | CB | (40') Pinkish gray, fracture at 44 feet bgs, trace iron staining. | | |
| 45 | | | | |

NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Well completed with aboveground (+3.17 ft) PVC stickup. Well depth measured from top of casing (TOC). Seal extended due to proximity of adjacent well screen.

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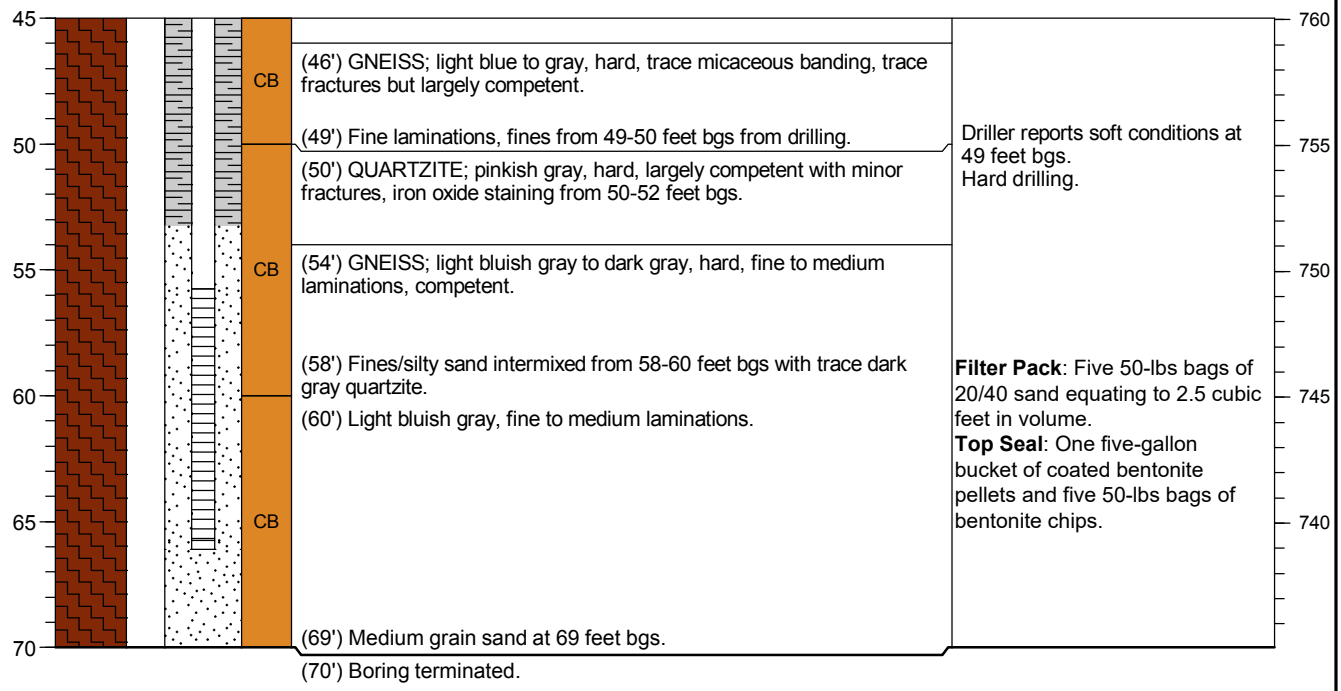
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** WGWC-26D
**Page:** 2 of 2

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | **09/26/2022** | Boring Depth (ft): | **70** | Well Depth (ft TOC): | **69.57** |
| Drilling End Date: | **09/26/2022** | Boring Diameter (in): | **6** | Well Diameter (in): | **2** |
| Drilling Company: | **Cascade Drilling** | Sampling Method(s): | **Core Barrel** | Screen Slot (in): | **0.010** |
| Drilling Method: | **Sonic 4x6** | DTW During Drilling (ft): | **27.0** | Riser Material: | **Sch 40 PVC** |
| Drilling Equipment: | **Terrasonic** | Ground Surface Elev. (ft): | **805.06 NAV88** | Screen Material: | **Sch 40 PVC Slotted** |
| Driller: | **Cory Franklin** | Top of Casing Elev. (ft): | **808.23 NAV88** | Seal Material(s): | **Grout/Bentonite** |
| Logged By: | **T. Kessler** | Location (N,E): | **1243343.658, 2029758.846** | Filter Pack: | **20/40 Sand** |




| DEPTH (ft) | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft NAV88) |
|---|---|---|---|
| | (46') GNEISS; light blue to gray, hard, trace micaceous banding, trace fractures but largely competent. | | |
| | (49') Fine laminations, fines from 49-50 feet bgs from drilling. | Driller reports soft conditions at 49 feet bgs. Hard drilling. | |
| | (50') QUARTZITE; pinkish gray, hard, largely competent with minor fractures, iron oxide staining from 50-52 feet bgs. | | |
| | (54') GNEISS; light bluish gray to dark gray, hard, fine to medium laminations, competent. | | |
| | (58') Fines/silty sand intermixed from 58-60 feet bgs with trace dark gray quartzite. | **Filter Pack**: Five 50-lbs bags of 20/40 sand equating to 2.5 cubic feet in volume. **Top Seal**: One five-gallon bucket of coated bentonite pellets and five 50-lbs bags of bentonite chips. | |
| | (60') Light bluish gray, fine to medium laminations. | | |
| | (69') Medium grain sand at 69 feet bgs. | | |
| | (70') Boring terminated. | | |

NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Well completed with aboveground (+3.17 ft) PVC stickup. Well depth measured from top of casing (TOC). Seal extended due to proximity of adjacent well screen.

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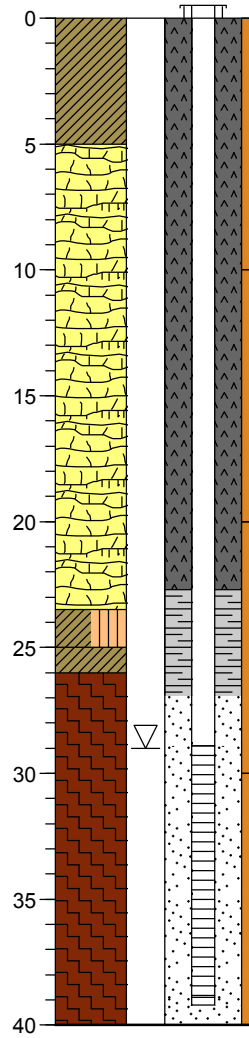
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** WGWC-27
**Page:** 1 of 1

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | **09/26/2022** | Boring Depth (ft): | **40** | Well Depth (ft TOC): | **42.18** |
| Drilling End Date: | **09/27/2022** | Boring Diameter (in): | **6** | Well Diameter (in): | **2** |
| Drilling Company: | **Cascade Drilling** | Sampling Method(s): | **Core Barrel** | Screen Slot (in): | **0.010** |
| Drilling Method: | **Sonic 4x6** | DTW During Drilling (ft): | **29.0** | Riser Material: | **Sch 40 PVC** |
| Drilling Equipment: | **Terrasonic** | Ground Surface Elev. (ft): | **778.05 NAV88** | Screen Material: | **Sch 40 PVC Slotted** |
| Driller: | **Cory Franklin** | Top of Casing Elev. (ft): | **780.54 NAV88** | Seal Material(s): | **Grout/Bentonite** |
| Logged By: | **T. Kessler** | Location (N,E): | **1243215.513, 2029878.918** | Filter Pack: | **20/40 Sand** |




| DEPTH (ft) | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft NAV88) |
|---|---|---|---|
| 0 | (0') CLAY (CL); reddish-brown, moist, firm, medium plasticity, coarse angular gravel throughout with trace silt and sand. | Hand augered to 10 feet bgs. | 775 |
| 5 | (5') PARTIALLY WEATHERED ROCK; relict rock structures from 5-10 feet bgs. | | 770 |
| 10 | (10') Yellowish red, relict rock structures throughout. | | 765 |
| 15 | (16.5') SANDY SILTY CLAY (CL); white to pinkish white, moist, firm, medium to low plasticity, relict rock structures throughout. | | 760 |
| 20 | (23') White, dry, hard, friable, light gray gneiss fragments throughout. | Rock encountered at 26 feet bgs; hard drilling. PWR appears to be gneiss. Wet zone largely influenced by drilling water in rods. No signs of staining. | 755 |
| 25 | (23.5') SILTY CLAY (CL-ML); yellowish red, wet, soft, low plasticity to nonplastic, trace fine sand. | | 750 |
| | (25') SANDY CLAY (CL); white to pinkish white, dry to moist, firm, low to medium plasticity, PWR throughout. | | |
| 30 | (26') GNEISS; dark to light gray, dry, hard, competent, trace quartzite banding throughout, trace garnets, trace hornblende and plagioclase. | | |
| | (29') Light gray, wet, fractured, abundant fine to coarse sand and trace silt. | **Filter Pack:** Six 50 lbs bags 20/40 sand equating to 3 cubic feet in volume. **Top Seal:** One five gallon bucket of coated bentonite pellets | 745 |
| 35 | (30') Heavily fractured, abundant iron oxide staining throughout but heavy from 30-32 feet bgs. | | |
| | (35') Stiff, broken into gravel with fine to medium grain light gray sand. | Very hard drilling. Rod drop from 36.5 to 37 feet bgs. | 740 |
| 40 | (40') Boring terminated. | | |

NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Well completed with aboveground (+2.49 feet) PVC stickup. Well depth measured from top of casing (TOC).

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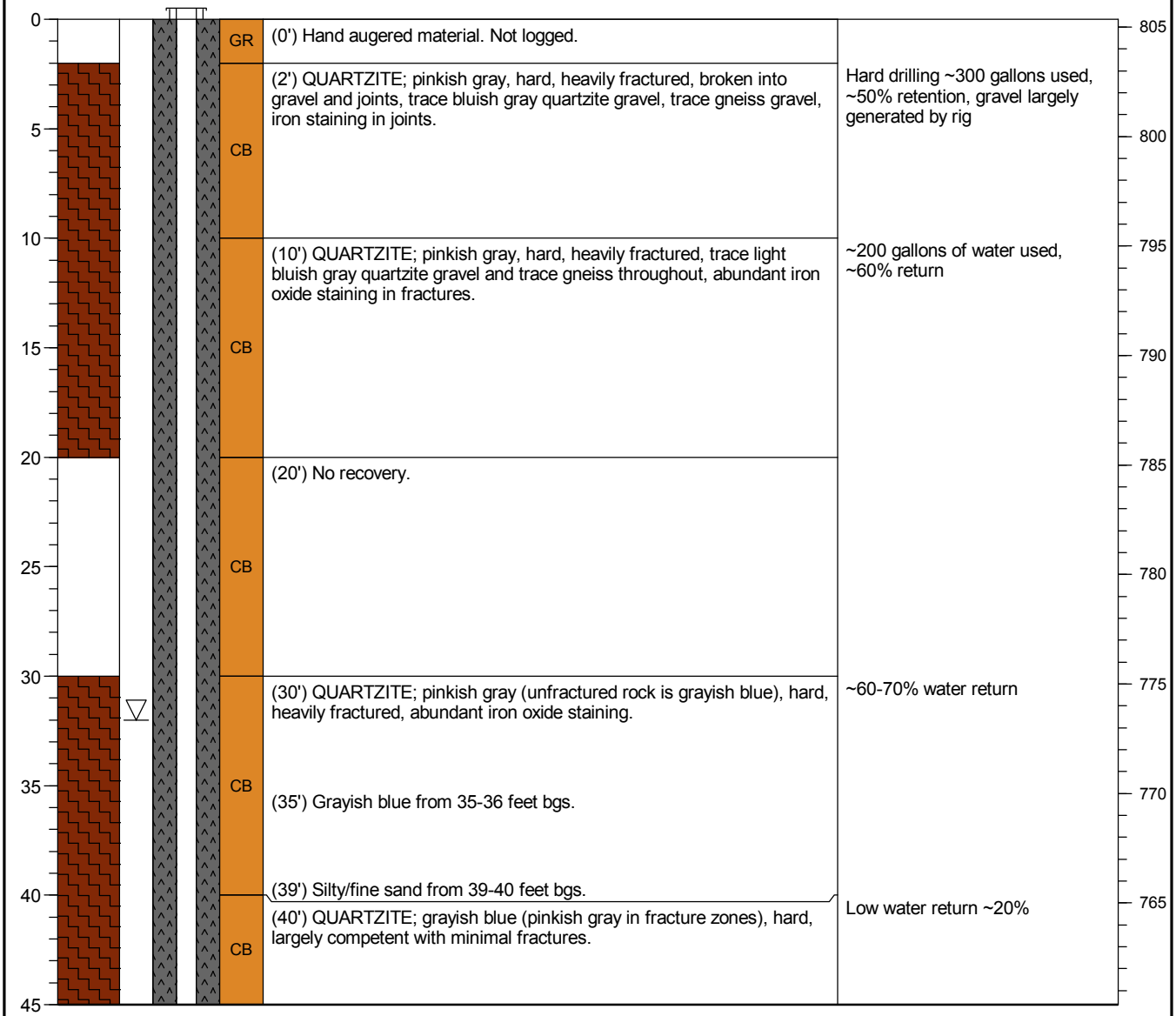
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** WGWC-28D
**Page:** 1 of 5

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | **06/26/2023** | Boring Depth (ft): | **220** | Well Depth (ft TOC): | **209.6** |
| Drilling End Date: | **08/18/2023** | Boring Diameter (in): | **6** | Well Diameter (in): | **2** |
| Drilling Company: | **Cascade Drilling** | Sampling Method(s): | **Core Barrel** | Screen Slot (in): | **0.010** |
| Drilling Method: | **Sonic 4x6** | DTW During Drilling (ft): | **32.0** | Riser Material: | **Sch 40 PVC** |
| Drilling Equipment: | **Terrasonic TSI-150T** | Ground Surface Elev. (ft): | **805.36 NAV88** | Screen Material: | **Sch 40 PVC U-Pack** |
| Driller: | **C. Franklin/B. Griffis** | Top of Casing Elev. (ft): | **808.24 NAV88** | Seal Material(s): | **Grout/Bentonite** |
| Logged By: | **T. Kessler/T. Payne** | Location (N,E): | **1243337.13, 2029751.04** | Filter Pack: | **20/40 Sand** |




NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Boring backfilled with bentonite pellets to 207.8 ft bgs prior to well installation. Well completed with aboveground (+2.88 ft) PVC stickup with metal protective cover and guard posts set in concrete. Well depth measured from top of casing (TOC).

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**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** WGWC-28D
**Page:** 2 of 5

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | **06/26/2023** | Boring Depth (ft): | **220** | Well Depth (ft TOC): | **209.6** |
| Drilling End Date: | **08/18/2023** | Boring Diameter (in): | **6** | Well Diameter (in): | **2** |
| Drilling Company: | **Cascade Drilling** | Sampling Method(s): | **Core Barrel** | Screen Slot (in): | **0.010** |
| Drilling Method: | **Sonic 4x6** | DTW During Drilling (ft): | **32.0** | Riser Material: | **Sch 40 PVC** |
| Drilling Equipment: | **Terrasonic TSI-150T** | Ground Surface Elev. (ft): | **805.36 NAV88** | Screen Material: | **Sch 40 PVC U-Pack** |
| Driller: | **C. Franklin/B. Griffis** | Top of Casing Elev. (ft): | **808.24 NAV88** | Seal Material(s): | **Grout/Bentonite** |
| Logged By: | **T. Kessler/T. Payne** | Location (N,E): | **1243337.13, 2029751.04** | Filter Pack: | **20/40 Sand** |

| DEPTH (ft) | Sample Type | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft NAV88) |
|---|---|---|---|---|
| 45 | CB | (48') Iron oxide staining evident in fracture zones. | | 760 |
| 50 | CB | (50') QUARTZITE; pinkish gray to grayish blue, hard, competent, quartz seams throughout. | | 755 |
| 55 | | | | 750 |
| 60 | CB | (60') QUARTZITE; bluish gray green, hard, competent, quartz seams throughout. | Switch bit | 745 |
| 65 | CB | (64') Iron staining.<br>(65') Same as above. | | 740 |
| | GR | (67') GNEISS; light bluish gray, hard, fine laminations, micaceous. | | |
| 70 | CB | (69') Large fracture zone with iron oxide staining from 69-70 feet bgs.<br>(70') Competent. | Packer testing conducted from 70-80 ft bgs | 735 |
| 75 | | | | 730 |
| 80 | CB | (80') AMPHIBOLITE GNEISS; gray to dark gray, hard, fine laminations, competent, pink quartz inclusions throughout. | Packer testing conducted from 80-90 ft bgs | 725 |
| 85 | | | | 720 |
| 90 | | | | |

NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Boring backfilled with bentonite pellets to 207.8 ft bgs prior to well installation. Well completed with aboveground (+2.88 ft) PVC stickup with metal protective cover and guard posts set in concrete. Well depth measured from top of casing (TOC).

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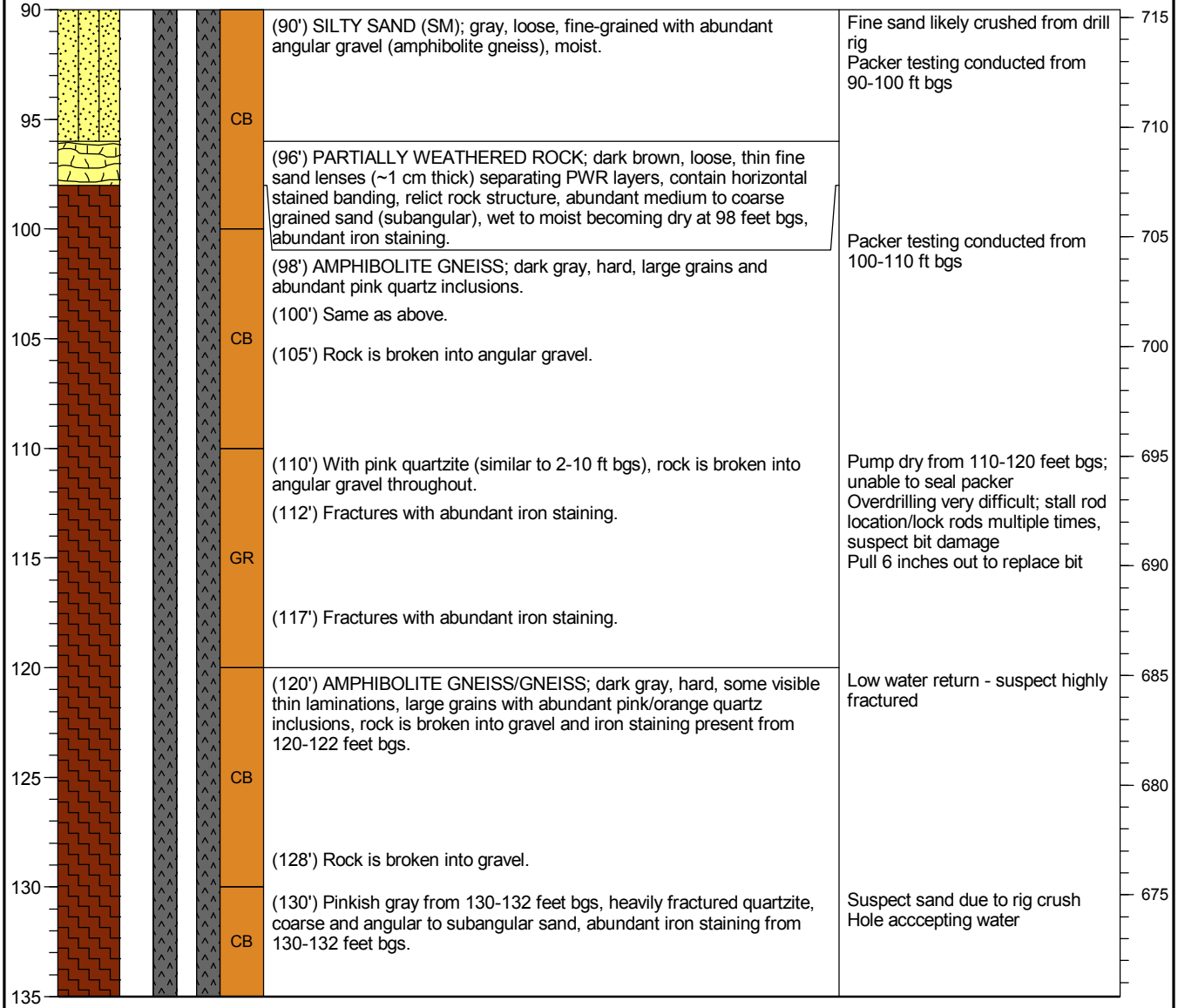
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** WGWC-28D
**Page:** 3 of 5

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | **06/26/2023** | Boring Depth (ft): | **220** | Well Depth (ft TOC): | **209.6** |
| Drilling End Date: | **08/18/2023** | Boring Diameter (in): | **6** | Well Diameter (in): | **2** |
| Drilling Company: | **Cascade Drilling** | Sampling Method(s): | **Core Barrel** | Screen Slot (in): | **0.010** |
| Drilling Method: | **Sonic 4x6** | DTW During Drilling (ft): | **32.0** | Riser Material: | **Sch 40 PVC** |
| Drilling Equipment: | **Terrasonic TSI-150T** | Ground Surface Elev. (ft): | **805.36 NAV88** | Screen Material: | **Sch 40 PVC U-Pack** |
| Driller: | **C. Franklin/B. Griffis** | Top of Casing Elev. (ft): | **808.24 NAV88** | Seal Material(s): | **Grout/Bentonite** |
| Logged By: | **T. Kessler/T. Payne** | Location (N,E): | **1243337.13, 2029751.04** | Filter Pack: | **20/40 Sand** |




NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Boring backfilled with bentonite pellets to 207.8 ft bgs prior to well installation. Well completed with aboveground (+2.88 ft) PVC stickup with metal protective cover and guard posts set in concrete. Well depth measured from top of casing (TOC).

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**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** WGWC-28D
**Page:** 4 of 5

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | **06/26/2023** | Boring Depth (ft): | **220** | Well Depth (ft TOC): | **209.6** |
| Drilling End Date: | **08/18/2023** | Boring Diameter (in): | **6** | Well Diameter (in): | **2** |
| Drilling Company: | **Cascade Drilling** | Sampling Method(s): | **Core Barrel** | Screen Slot (in): | **0.010** |
| Drilling Method: | **Sonic 4x6** | DTW During Drilling (ft): | **32.0** | Riser Material: | **Sch 40 PVC** |
| Drilling Equipment: | **Terrasonic TSI-150T** | Ground Surface Elev. (ft): | **805.36 NAV88** | Screen Material: | **Sch 40 PVC U-Pack** |
| Driller: | **C. Franklin/B. Griffis** | Top of Casing Elev. (ft): | **808.24 NAV88** | Seal Material(s): | **Grout/Bentonite** |
| Logged By: | **T. Kessler/T. Payne** | Location (N,E): | **1243337.13, 2029751.04** | Filter Pack: | **20/40 Sand** |

| DEPTH (ft) | LITHOLOGY | WATER LEVEL | WELL COMPLETION | Sample Type | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft NAV88) |
|---|---|---|---|---|---|---|---|
| 135 | | | | CB | | Harder drilling | 670 |
| 140 | | | | CB | (140') AMPHIBOLITE GNEISS/GNEISS; dark gray, hard, thin visible laminations, pink quartz inclusions throughout. | ~50% water retention<br>Packer testing conducted from 140-150 ft bgs | 665 |
| 145 | | | | CB | (145') Broken into gravel from 145-150 feet bgs. | | 660 |
| 150 | | | | CB | (149') Heavily weathered gneiss and abundant iron staining.<br>(150') Micaceous. | 50% return<br>Packer testing conducted from 150-160 ft bgs | 655 |
| 155 | | | | CB | | | 650 |
| 160 | | | | GR | (159') Trace iron staining.<br>(160') Same as above.<br>(161') Iron staining from 161-162 feet bgs. | 60% return<br>Packer testing conducted from 160-170 ft bgs | 645 |
| 165 | | | | GR | | | 640 |
| 170 | | | | CB | (170') Same as above. | No packer due to similarity to previous intervals, lack of fracture | 635 |
| 175 | | | | CB | (174') Trace iron staining. | | 630 |
| 180 | | | | | | | |

NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Boring backfilled with bentonite pellets to 207.8 ft bgs prior to well installation. Well completed with aboveground (+2.88 ft) PVC stickup with metal protective cover and guard posts set in concrete. Well depth measured from top of casing (TOC).

Geosyntec consultants
engineers | scientists | innovators

**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** WGWC-28D
**Page:** 5 of 5

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | **06/26/2023** | Boring Depth (ft): | **220** | Well Depth (ft TOC): | **209.6** |
| Drilling End Date: | **08/18/2023** | Boring Diameter (in): | **6** | Well Diameter (in): | **2** |
| Drilling Company: | **Cascade Drilling** | Sampling Method(s): | **Core Barrel** | Screen Slot (in): | **0.010** |
| Drilling Method: | **Sonic 4x6** | DTW During Drilling (ft): | **32.0** | Riser Material: | **Sch 40 PVC** |
| Drilling Equipment: | **Terrasonic TSI-150T** | Ground Surface Elev. (ft): | **805.36 NAV88** | Screen Material: | **Sch 40 PVC U-Pack** |
| Driller: | **C. Franklin/B. Griffis** | Top of Casing Elev. (ft): | **808.24 NAV88** | Seal Material(s): | **Grout/Bentonite** |
| Logged By: | **T. Kessler/T. Payne** | Location (N,E): | **1243337.13, 2029751.04** | Filter Pack: | **20/40 Sand** |

| DEPTH (ft) | LITHOLOGY | WATER LEVEL | WELL COMPLETION | Sample Type | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft NAV88) |
|---|---|---|---|---|---|---|---|
| 180 | | | | | (180') Same as above. | Core return in larger pieces, more competent | 625 |
| 185 | | | | CB | | | 620 |
| 190 | | | | | (189') Abundant/heavy iron staining and weathering.<br>(190') GNEISS/AMPHIBOLITE GNEISS; gray to dark gray, hard, visible thin and large laminations, heavily fractured with pink quartzite and iron staining from 190-193 ft bgs. | | 615 |
| 195 | | | | CB | (196') Broken into coarse gravel, iron staining from 196-197 feet bgs. | **Filter Pack**: Four 50-lbs bags of 20/40 sand equating to 2 cubic feet in volume. | 610 |
| 200 | | | | | (200') Dark gray, laminations throughout, gneiss with olivine. | **Top Seal**: One five-gallon bucket of coated bentonite pellets. | 605 |
| 205 | | | | CB | (204') Heavily fractured from 204-207 ft bgs, white and pink quartzite inclusions. | | 600 |
| 210 | | | | | (208.5') Heavily fractured.<br>(210') Same as above. | | 595 |
| 215 | | | | CB | | | 590 |
| 220 | | | | | (217') Dark red inclusions, some iron staining. | | |

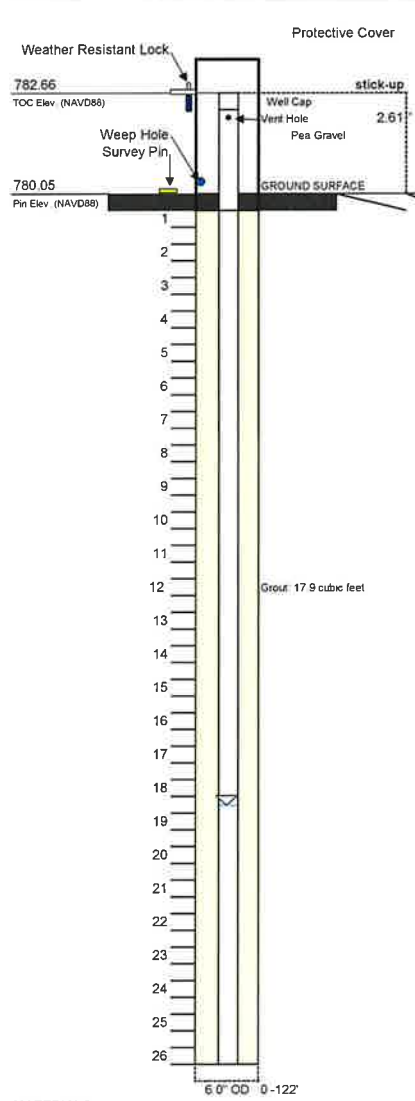
NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Boring backfilled with bentonite pellets to 207.8 ft bgs prior to well installation. Well completed with aboveground (+2.88 ft) PVC stickup with metal protective cover and guard posts set in concrete. Well depth measured from top of casing (TOC).

Log updated with revised survey data certified 6/16/2020
Easting and Northing in NAD 83 Elevation in NAVD 88

ATLANTIC COAST CONSULTING, INC.

**WAMW-1**
BORING ID

| | | | |
|---|---|---|---|
| PROJECT: | Plant Wansley - Ash Pond | PROJECT NO.: | I054-110 |
| TOTAL DEPTH: | 124.94 ft. TOC | SITE LOCATION: | Carrollton, Georgia |
| DATE BEGIN: | 7-Sep-2018 | DRILLER: | Issac Youub |
| DATE COMPLETE: | 16-Sep-2018 | RIG TYPE: | T-300 Rotosonic |
| INSTALLED BY: | Cascade | METHOD: | Rotosonic |
| SUPERVISED BY: | Ryan Walker | TOC Elev. | 782.66 NAVD88 |
| WATER 1ST ENCOUNTERED: | 55' BGS | | |
| WATER AFTER 48 HOURS: | 21.34' TOC | | |




Northing: 1241843.66
Easting: 2028944.63

**SURFACE COMPLETION:**
4"x4" Aluminum Protective Casing
4'x4'x4" Concrete Pad
Weather Resistant Lock
Survey Pin

*SOIL DESCRIPTION*

0.00 - 10.00'
No recovery; Hydrovac

10.0 - 19.0 Recovery (9/9)
Reddish orange, silty SAND (overburden)
(SM)

19.0 - 29.0 Recovery (10/10)
Reddish orange, silty SAND (overburden)
(SM)

**MATERIALS:**

| | | |
|---|---|---|
| GROUT: | | Portland Type I/II Cement |
| MANUFACTURER: | | Sakrete |
| BENTONITE SEAL: | | 3/8" Bentonite Pellets |
| MANUFACTURER: | | PDS |
| FILTER PACK SAND: | | 20/40 Mesh |
| MANUFACTURER: | | Filter Media GP#1 |
| WELL SCREEN: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line™ |
| SLOT SIZE: | | 0.010-Inch Slot |
| WELL CASING: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line™ |

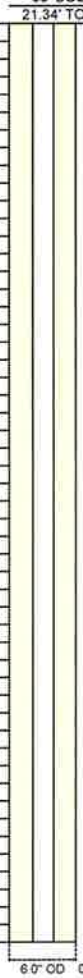
TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

**WAMW-1**
BORING ID

| | | | |
|---|---|---|---|
| PROJECT: | Plant Wansley - Ash Pond | PROJECT NO.: | 1054-110 |
| TOTAL DEPTH: | 124.94 ft. TOC | SITE LOCATION: | Carrollton, Georgia |
| DATE BEGIN: | 14-Sep-2018 | DRILLER: | Issac Youub |
| DATE COMPLETE: | 16-Sep-2018 | RIG TYPE: | T-300 Rotosonic |
| INSTALLED BY: | Cascade | METHOD: | Rotosonic |
| SUPERVISED BY: | Ryan Walker | TOC Elev. | 782.66 NAVD88 |
| WATER 1ST ENCOUNTERED: | 55' BGS | | |
| WATER AFTER 48 HOURS: | 21.34' TOC | | |

| Elevation NAVD88 | Depth BGS | |
|---|---|---|
| 28 | | Reddish orange, silty SAND (overburden) (SM) |
| 29 | | |
| 30 | | |
| 31 | | 29.0 - 39.0 Recovery (10/10) Reddish orange to light brown, sandy SILT, trace gravel, MnO laminations (ML) |
| 32 | | |
| 33 | | |
| 34 | | |
| 35 | | |
| 36 | | |
| 37 | | |
| 38 | | |
| 39 | | |
| 40 | | 39.0 - 49.0 Recovery (10/10) Reddish orange to light brown, sandy SILT, trace gravel, MnO laminations (ML) |
| 41 | | |
| 42 | | |
| 43 | | |
| 44 | | |
| 45 | | |
| 46 | | |
| 47 | | |
| 48 | | |
| 49 | | |
| 50 | | 49.0 - 59.0 Recovery (10/10) Reddish orange to light brown, sandy SILT, trace gravel, MnO laminations (ML) |
| 51 | | |
| 52 | | |




**MATERIALS:**

| | | |
|---|---|---|
| GROUT: | | Portland Type I/II Cement |
| MANUFACTURER: | | Sakrete |
| BENTONITE SEAL: | | 3/8" Bentonite Pellets |
| MANUFACTURER: | | PDS |
| FILTER PACK SAND: | | 20/40 Mesh |
| MANUFACTURER: | | Filter Media GP#1 |
| WELL SCREEN: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line™ |
| SLOT SIZE: | | 0.010-Inch Slot |
| WELL CASING: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line™ |

TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

**WAMW-1**
BORING ID

| | | | |
|---|---|---|---|
| PROJECT: | Plant Wansley - Ash Pond | PROJECT NO.: | I054-110 |
| TOTAL DEPTH: | 124.94 ft. TOC | SITE LOCATION: | Carrollton, Georgia |
| DATE BEGIN: | 14-Sep-2018 | DRILLER: | Issac Youub |
| DATE COMPLETE: | 16-Sep-2018 | RIG TYPE: | T-300 Rotosonic |
| INSTALLED BY: | Cascade | METHOD: | Rotosonic |
| SUPERVISED BY: | Ryan Walker | TOC Elev. | 782.66 NAVD88 |
| WATER 1ST ENCOUNTERED: | 55' BGS | | |
| WATER AFTER 48 HOURS: | 21.34' TOC | | |

| Elevation NAVD88 | Depth BGS |
|---|---|
| | 54 |
| | 55 |
| | 56 |
| | 57 |
| | 58 |
| | 59 |
| | 60 |
| | 61 |
| | 62 |
| | 63 |
| | 64 |
| | 65 |
| | 66 |
| | 67 |
| | 68 |
| | 69 |
| | 70 |
| | 71 |
| | 72 |
| | 73 |
| | 74 |
| | 75 |
| | 76 |
| | 77 |
| | 78 |

6.0" OD 0-122'

49.0 - 59.0 Recovery (10/10)
Reddish orange to light brown, sandy SILT, trace gravel, MnO laminations (ML)

59.0 - 69.0 Recovery (10/10)
Brown to tan, white and gray, silty Sand, trace gravel. Saprolite (SM)

69.0 - 79.0 Recovery (8/10)
Brown to tan, white and gray, silty Sand, trace gravel. Saprolite (SM)

**MATERIALS:**

| | | |
|---|---|---|
| GROUT: | | Portland Type I/II Cement |
| MANUFACTURER: | | Sakrete |
| BENTONITE SEAL: | | 3/8" Bentonite Pellets |
| MANUFACTURER: | | PDS |
| FILTER PACK SAND: | | 20/40 Mesh |
| MANUFACTURER: | | Filter Media GP#1 |
| WELL SCREEN: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line™ |
| SLOT SIZE: | | 0.010-Inch Slot |
| WELL CASING: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line™ |

TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

**WAMW-1**
BORING ID

| | | | |
|---|---|---|---|
| PROJECT: | Plant Wansley - Ash Pond | PROJECT NO.: | I054-110 |
| TOTAL DEPTH: | 124.94 ft. TOC | SITE LOCATION: | Carrollton, Georgia |
| DATE BEGIN: | 14-Sep-2018 | DRILLER: | Issac Youub |
| DATE COMPLETE: | 16-Sep-2018 | RIG TYPE: | T-300 Rotosonic |
| INSTALLED BY: | Cascade | METHOD: | Rotosonic |
| SUPERVISED BY: | Ryan Walker | TOC Elev. | 782.66 NAVD88 |
| WATER 1ST ENCOUNTERED: | 55' BGS | | |
| WATER AFTER 48 HOURS: | 21.34' TOC | | |

| Elevation NAVD88 | Depth BGS |
|---|---|
| | 80 |
| | 81 |
| | 82 |
| | 83 |
| | 84 |
| | 85 |
| | 86 |
| | 87 |
| | 88 |
| | 89 |
| | 90 |
| | 91 |
| | 92 |
| | 93 |
| | 94 |
| | 95 |
| | 96 |
| | 97 |
| | 98 |
| | 99 |
| | 100 |
| | 101 |
| | 102 |
| | 103 |
| | 104 |

6.0" OD 0 -122'

79.0 - 89.0 Recovery (4/10)
Dark gray micaeous Schist, wet - broken pieces

89.0 - 92.0 Recovery (0/3)

92.00 - 99.00
No recovery

99.00 - 109.00 Recovery (5/10)
Dark gray micaceous Schist, wet

**MATERIALS:**

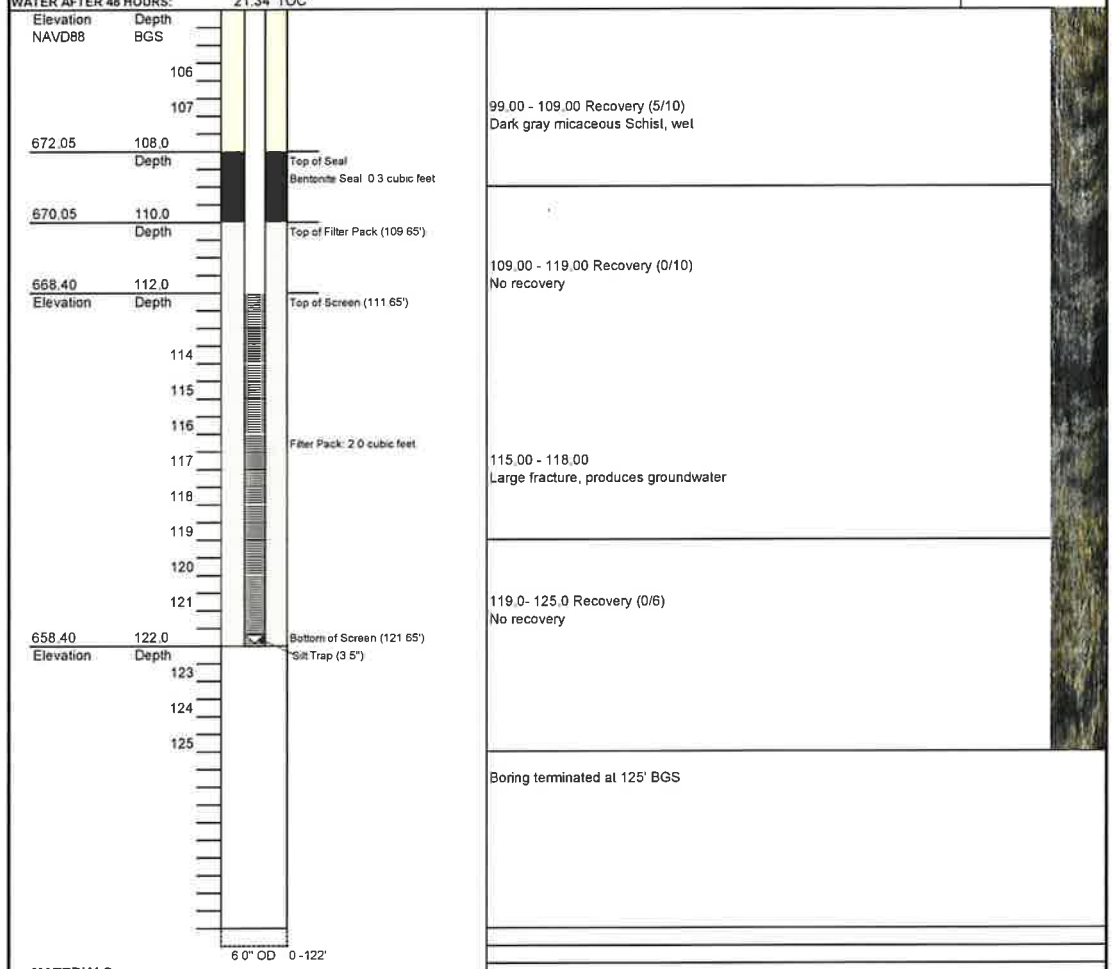
| | | |
|---|---|---|
| GROUT: | | Portland Type I/II Cement |
| MANUFACTURER | | Sakrete |
| BENTONITE SEAL | | 3/8" Bentonite Pellets |
| MANUFACTURER | | PDS |
| FILTER PACK SAND | | 20/40 Mesh |
| MANUFACTURER | | Filter Media GP#1 |
| WELL SCREEN | | Sch. 40 - 2" PVC |
| MANUFACTURER | | Silver-Line™ |
| SLOT SIZE: | | 0.010-Inch Slot |
| WELL CASING | | Sch. 40 - 2" PVC |
| MANUFACTURER | | Silver-Line™ |

TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

**WAMW-1**
BORING ID

| | | | |
|---|---|---|---|
| PROJECT: | Plant Wansley - Ash Pond | PROJECT NO.: | I054-110 |
| TOTAL DEPTH: | 124.94 ft TOC | SITE LOCATION: | Carrollton, Georgia |
| DATE BEGIN: | 14-Sep-2018 | DRILLER: | Issac Youub |
| DATE COMPLETE: | 16-Sep-2018 | RIG TYPE: | T-300 Rotosonic |
| INSTALLED BY: | Cascade | METHOD: | Rotosonic |
| SUPERVISED BY: | Ryan Walker | TOC Elev. | 782.66 NAVD88 |
| WATER 1ST ENCOUNTERED: | 55' BGS | | |
| WATER AFTER 48 HOURS: | 21.34' TOC | | |




99.00 - 109.00 Recovery (5/10)
Dark gray micaceous Schist, wet

109.00 - 119.00 Recovery (0/10)
No recovery

115.00 - 118.00
Large fracture, produces groundwater

119.0- 125.0 Recovery (0/6)
No recovery

Boring terminated at 125' BGS

**MATERIALS:**

| | | |
|---|---|---|
| GROUT: | | Portland Type I/II Cement |
| MANUFACTURER: | | Sakrete |
| BENTONITE SEAL | | 3/8" Bentonite Pellets |
| MANUFACTURER | | PDS |
| FILTER PACK SAND | | 20/40 Mesh |
| MANUFACTURER: | | Filter Media GP#1 |
| WELL SCREEN | | Sch. 40 - 2" PVC |
| MANUFACTURER | | Silver-Line™ |
| SLOT SIZE: | | 0.010-Inch Slot |
| WELL CASING | | Sch. 40 - 2" PVC |
| MANUFACTURER | | Silver-Line™ |

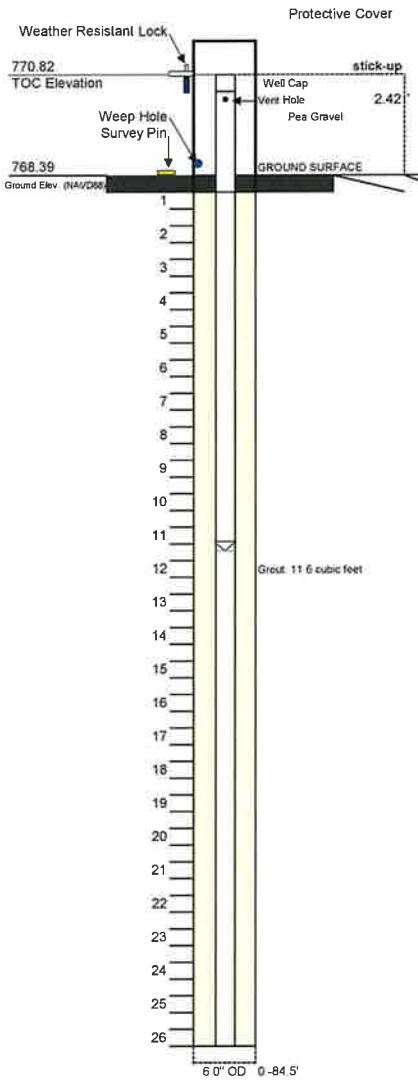
TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

Log updated with revised survey data certified 6/16/2020
Easting and Northing in NAD 83 Elevation in NAVD 88

ATLANTIC COAST CONSULTING, INC.

**WAMW-2**
BORING ID

| | | | |
|---|---|---|---|
| PROJECT: | Plant Wansley - Ash Pond | PROJECT NO.: | I054-110 |
| TOTAL DEPTH: | 85.14 ft. TOC | SITE LOCATION: | Carrollton, Georgia |
| DATE BEGIN: | 12-Sep-2018 | DRILLER: | Issac Youub |
| DATE COMPLETE: | 14-Sep-2018 | RIG TYPE: | T-300 Rotosonic |
| INSTALLED BY: | Cascade | METHOD: | Rotosonic |
| SUPERVISED BY: | Ryan Walker | TOC Elev. | 770.82 NAVD88 |
| WATER 1ST ENCOUNTERED: | 44' BGS | | |
| WATER AFTER 48 HOURS: | 14.42' TOC | | |




Northing: 1241547.56
Easting: 2028806.27

**SURFACE COMPLETION:**
4"x4" Aluminum Protective Casing
4'x4'x4" Concrete Pad
Weather Resistant Lock
Survey Pin

*SOIL DESCRIPTION*

0.00 - 10.00'
No recovery; Hydrovac

10.0 - 19.0'
Orange to reddish brown, SILT, little quartz gravel (ML)

19.0 - 29.0 Recovery (10/10)
Orangish brown, clayey SILT (MH)

**MATERIALS:**

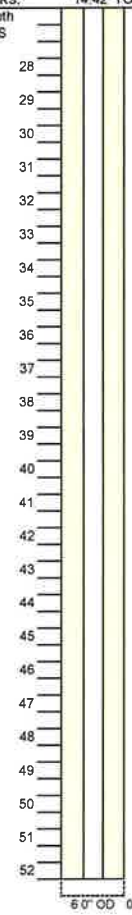
| | | |
|---|---|---|
| GROUT: | | Portland Type I/II Cement |
| MANUFACTURER | | Sakrete |
| BENTONITE SEAL: | | 3/8" Bentonite Pellets |
| MANUFACTURER | | PDS |
| FILTER PACK SAND | | 20/40 Mesh |
| MANUFACTURER | | Filter Media GP#1 |
| WELL SCREEN | | Sch. 40 - 2" PVC |
| MANUFACTURER | | Silver-Line™ |
| SLOT SIZE | | 0.010-Inch Slot |
| WELL CASING | | Sch. 40 - 2" PVC |
| MANUFACTURER | | Silver-Line™ |

TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

**WAMW-2**
BORING ID

| | | | |
|---|---|---|---|
| PROJECT: | Plant Wansley - Ash Pond | PROJECT NO.: | I054-110 |
| TOTAL DEPTH: | 86.14 ft. TOC | SITE LOCATION: | Carrollton, Georgia |
| DATE BEGIN: | 12-Sep-2018 | DRILLER: | Issac Youub |
| DATE COMPLETE: | 14-Sep-2018 | RIG TYPE: | T-300 Rotosonic |
| INSTALLED BY: | Cascade | METHOD: | Rotosonic |
| SUPERVISED BY: | Ryan Walker | TOC Elev. | 770.82 NAVD88 |
| WATER 1ST ENCOUNTERED: | 44' BGS | | |
| WATER AFTER 48 HOURS: | 14.42' TOC | | |




19.0 - 29.0 Recovery (10/10)
Orangish brown, clayey SILT (MH)

29.0 - 39.0 Recovery (10/10)
Orangish brown, clayey SILT (MH)

39.0 - 49.0 Recovery (10/10)
Orangish brown, clayey SILT (MH)

44.0 - 48.0
Dark brown to reddish brown, dry silty CLAY (CH)

49.0 - 59.0 Recovery (10/10)
Reddish brown, clayey SILT (MH)

**MATERIALS:**

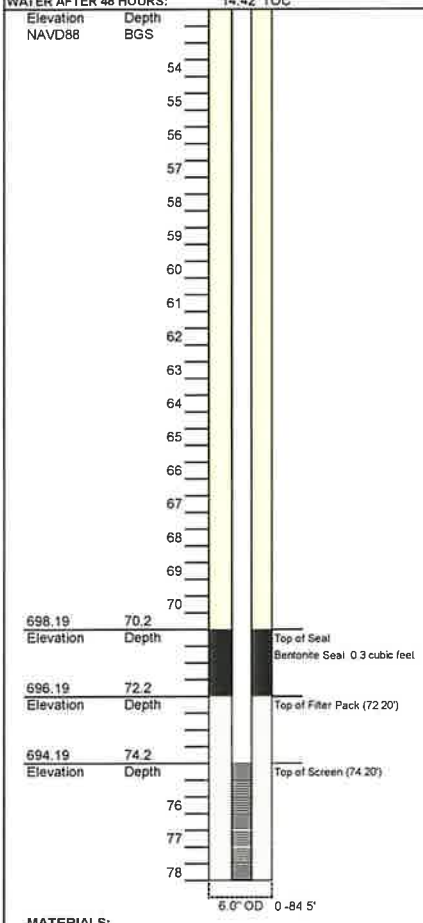
| | | |
|---|---|---|
| GROUT: | | Portland Type I/II Cement |
| MANUFACTURER: | | Sakrete |
| BENTONITE SEAL: | | 3/8" Bentonite Pellets |
| MANUFACTURER: | | PDS |
| FILTER PACK SAND: | | 20/40 Mesh |
| MANUFACTURER: | | Filter Media GP#1 |
| WELL SCREEN: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line™ |
| SLOT SIZE: | | 0.010-Inch Slot |
| WELL CASING: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Johnson Screens™ |

TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

**WAMW-2**
BORING ID

| | | | |
|---|---|---|---|
| PROJECT: | Plant Wansley - Ash Pond | PROJECT NO.: | I054-110 |
| TOTAL DEPTH: | 86.14 ft. TOC | SITE LOCATION: | Carrollton, Georgia |
| DATE BEGIN: | 12-Sep-2018 | DRILLER: | Issac Youub |
| DATE COMPLETE: | 14-Sep-2018 | RIG TYPE: | T-300 Rotosonic |
| INSTALLED BY: | Cascade | METHOD: | Rotosonic |
| SUPERVISED BY: | Ryan Walker | TOC Elev. | 770.82 NAVD88 |
| WATER 1ST ENCOUNTERED: | 44' BGS | | |
| WATER AFTER 48 HOURS: | 14.42' TOC | | |




Reddish brown, clayey SILT (MH)

55.00 - 56.00
Brown, wet SILT

56.00 - 59.00
Light brown, orange and gray, dry to moist, SILT (MH) Saprolite

59.0 - 69.0 Recovery (4.2/10)
Brown micaceous schist and garnetiferous greywacke, dry

69.0 - 79.0 Recovery (3.4/10)
Brown to gray, greywacke/schist with white plagioclase laminations, some garnets with banding.

**MATERIALS:**

| | | |
|---|---|---|
| GROUT: | | Portland Type I/II Cement |
| MANUFACTURER: | | Sakrete |
| BENTONITE SEAL: | | 3/8" Bentonite Pellets |
| MANUFACTURER: | | PDS |
| FILTER PACK SAND: | | 20/40 Mesh |
| MANUFACTURER: | | Filter Media GP#1 |
| WELL SCREEN: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line™ |
| SLOT SIZE: | | 0.010-inch Slot |
| WELL CASING: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Johnson Screens™ |

TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

**WAMW-2**
BORING ID

| | | | |
|---|---|---|---|
| PROJECT: | Plant Wansley - Ash Pond | PROJECT NO.: | I054-110 |
| TOTAL DEPTH: | 86.14 ft. TOC | SITE LOCATION: | Carrollton, Georgia |
| DATE BEGIN: | 12-Sep-2018 | DRILLER: | Issac Youub |
| DATE COMPLETE: | 14-Sep-2018 | RIG TYPE: | T-300 Rotosonic |
| INSTALLED BY: | Cascade | METHOD: | Rotosonic |
| SUPERVISED BY: | Ryan Walker | TOC Elev. | 770.82 NAVD88 |
| WATER 1ST ENCOUNTERED: | 44' BGS | | |
| WATER AFTER 48 HOURS: | 14.42' TOC | | |

| Elevation NAVD88 | Depth BGS | |
|---|---|---|
| | 80 | Filter Pack 2.0 cubic feet |
| | 81 | |
| | 82 | |
| | 83 | |
| | 84 | |
| 684.19 | 84.2 | Bottom of Screen (84.20') |
| Elevation | Depth | Silt Trap (3.5") |

6.0" OD 0 -84.5'

69.0 - 79.0 Recovery (3.4/10)

79.0 - 84.0 Recovery (1.0/5.0)

Dark brown to gray, wet micaceous, Schist/Greywacke with banding

Boring terminated at 84.5' BGS

**MATERIALS:**

| | | |
|---|---|---|
| GROUT: | | Portland Type I/II Cement |
| MANUFACTURER: | | Sakrete |
| BENTONITE SEAL: | | 3/8" Bentonite Pellets |
| MANUFACTURER: | | PDS |
| FILTER PACK SAND: | | 20/40 Mesh |
| MANUFACTURER: | | Filter Media GP#1 |
| WELL SCREEN: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line™ |
| SLOT SIZE: | | 0.010-Inch Slot |
| WELL CASING: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Johnson Screens™ |

TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.



SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING PZ-01**
PAGE 1 OF 2
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/12/2014 **COMPLETED** 12/12/2014 **SURF. ELEV.** 853.91 **COORDINATES:** N:1240249.86 E:2022319.93
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 47.6 ft. **GROUND WATER DEPTH: DURING** **COMP.** 19.1 ft. **DELAYED** 16.7 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 856.72 | |
| 5 | | **Clayey Gravel (GC)**<br>- red, moist, fine grain, trace sand | 848.91 | ← Surface Seal: concrete | 851.91<br>(2.0) |
| 10 | | **Silt (ML)**<br>- gray, moist, sandy, yellow mottling, trace mica and angular rock fragments | | | |
| 15 | | - mottled brown, larger angular rock fragments | 838.91 | | |
| 20 | | **Schist**<br>- gray, fine to aphanitic grain, hard to medium hard, slightly to moderately weathered | | ← Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal | |
| 25 | | - very hard, becomes non-foliated | | | |
| 30 | | | | | 820.71<br>(33.2) |
| 35 | | | | ← Annular Seal: bentonite chips - 1 bag, 5 lbs, Baroid 3/8" chips | 0 818.71<br>(35.2) |
| | | | | ← Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media | 817.81<br>(36.1) |
| 40 | | | | **Well: 2" OD PVC (SCH 40)** | |

*(Continued Next Page)*

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 856.72 | |
| 45 | | **Schist***(Con't)* (CONTINUED) | | **Well: 2" OD PVC (SCH 40)**<br>**Screen: 10 ft. pre-pack** | |
| | | | | Sump:0.40 ft. | 807.81 (46.1) |
| | | | 806.31 | | |

Bottom of borehole at 47.6 feet.

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING PZ-04**
PAGE 1 OF 1
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/22/2014 **COMPLETED** 12/22/2014 **SURF. ELEV.** 886.13 **COORDINATES:** N:1242592.03 E:2023595.91
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 17 ft. **GROUND WATER DEPTH: DURING** **COMP.** 4.5 ft. **DELAYED** 6 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 889.01 | |
| | | **Silt (ML)**<br>- orange, moist, sandy, mottled red, trace mica | | Surface Seal: concrete | 883.53<br>(2.6) |
| | | | | Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips | |
| 5 | | - brown, moist, sandy, mottled orange, trace mica and weathered rock | | | 881.53<br>(4.6) |
| | | | | Filter: silica filter sand - 4.5 bags, 50 lbs, #1A filter media | |
| | | | 878.13 | | 878.93<br>(7.2) |
| | | **Schist**<br>- gray, fine grain, soft to medium hard, slightly to moderately weathered, thinly foliated, oxide staining | | **Well: 2" OD PVC (SCH 40)** | |
| 10 | | | | | |
| | | | | **Well: 2" OD PVC (SCH 40)**<br>**Screen: 10 ft. pre-pack** | |
| 15 | | | 869.13 | | 868.93 |
| | | Bottom of borehole at 17.0 feet. | | Sump:0.40 ft. | |

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 2/26/15 15:57 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\WANSLEY ASH POND PIEZ\GINT\PLANT_WANSLEY_ASH_POND_1 (2).GPJ

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING PZ-06**
PAGE 1 OF 1
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/16/2014 **COMPLETED** 12/17/2014 **SURF. ELEV.** 912.30 **COORDINATES:** N:1244382.89 E:2024661.39
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 23 ft. **GROUND WATER DEPTH: DURING** **COMP.** 7.8 ft. **DELAYED** 8.3 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 915.15 | |
| | | **Silt (ML)**<br>- orange, moist, clayey, mottled dark orange, trace mica and weathered rock | | Surface Seal: concrete | 910.30 (2.0) |
| 5 | | - brown, moist, sandy, mottled orange and red, trace mica and weathered rock | | Annular Fill: Cement-Bentonite Grout - 2 bags, 46 lbs, Portland Type I/II, 11 gal | |
| | | | 904.30 | | 904.30 (8.0) |
| | | **Schist**<br>- gray, fine grain, medium hard to hard, moderately to highly weathered, foliated, oxide staining | | Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips | |
| 10 | | | | | 900.70 (11.6) |
| | | | | Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media | |
| | | | | | 898.60 (13.7) |
| 15 | | | | **Well: 2" OD PVC (SCH 40)** | |
| | | | | **Well: 2" OD PVC (SCH 40)**<br>**Screen: 10 ft. pre-pack** | |
| 20 | | | 889.30 | | |
| | | Bottom of borehole at 23.0 feet. | | Sump:0.40 ft. | 888.60 |

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 2/26/15 15:57 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\WANSLEY ASH POND PIEZ\GINT\PLANT_WANSLEY_ASH_POND_1 (2).GPJ

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING PZ-08**
PAGE 1 OF 1
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/15/2014 **COMPLETED** 12/15/2014 **SURF. ELEV.** 864.65 **COORDINATES:** N:1245514.59 E:2026807.30
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 37.5 ft. **GROUND WATER DEPTH: DURING** **COMP.** 9.5 ft. **DELAYED** 13.6 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. |
|---|---|---|---|
| | | **Silt (ML)**<br>- orange, dry, sandy, mottled light brown and red, trace mica and gravel | |
| 5 | | | |
| | | | 857.65 |
| | | **Silty Sand (SM)**<br>- brown, dry, fine to medium grain, mottled orange, trace mica and gravel | |
| 10 | | | |
| 15 | | | |
| 20 | | | |
| 25 | | - gray, dry, fine to medium grain, mottled orange and light brown, trace mica and gravel | |
| | | | 835.65 |
| 30 | | **Gneiss**<br>- gray, fine grain, hard, slightly weathered, massive, some oxidation | |
| 35 | | | |
| | | | 827.65) |
| | | Bottom of borehole at 37.5 feet. | |

**WELL DATA**

Protective aluminum cover with bollards
4-foot square concrete pad
Top of casing Elev. = 867.29

ELEV. (DEPTH)

- Surface Seal: concrete — 862.65 (2.0)
- Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal
- 842.55 (22.1)
- Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips — 840.15 (24.5)
- Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media — 836.85 (27.8)
- **Well: 2" OD PVC (SCH 40)**
- **Well: 2" OD PVC (SCH 40)**
  **Screen: 10 ft. pre-pack**
- 826.85
- Sump:0.40 ft.

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 2/26/15 15:57 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\WANSLEY ASH POND PIEZ\GINT\PLANT_WANSLEY_ASH_POND_1 (2).GPJ

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

Well renamed in 2025 to WGWC-41

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING PZ-10**
PAGE 1 OF 1
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/5/2014 **COMPLETED** 12/5/2014 **SURF. ELEV.** 829.26 **COORDINATES:** N:1242058.41 E:2028554.29
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 30 ft. **GROUND WATER DEPTH: DURING** **COMP.** 17 ft. **DELAYED** 20.25 ft. after 24 hrs.
**NOTES**

DEPTH (ft) | GRAPHIC LOG

## STRATA DESCRIPTION

ELEV.

**Utility Clearance (HYDROEXCAVATION)**

819.26

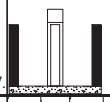
**Gneiss**
- gray, fine to medium grain, hard to medium hard, slightly to moderately weathered, massive, banded, with oxidation

- light brown, heavier oxidation

799.26

Bottom of borehole at 30.0 feet.

## WELL DATA



Protective aluminum cover with bollards
4-foot square concrete pad
Top of casing Elev. = 832.02

ELEV. (DEPTH)

Surface Seal: concrete
827.26 (2.0)

Annular Fill: Cement-Bentonite Grout - 3 bags, 46 lbs, Portland Type I/II, 16.5 gal

814.96 (14.3)

Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips

812.96 (16.3)

Filter: silica filter sand - 3.5 bags, 50 lbs, #1A filter media

810.46 (18.8)

**Well: 2" OD PVC (SCH 40)**

**Well: 2" OD PVC (SCH 40)**
**Screen: 10 ft. pre-pack**

800.46 (28.8)

Sump:0.40 ft.

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 2/26/15 15:57 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\WANSLEY ASH POND PIEZ\GINT\PLANT_WANSLEY_ASH_POND_1 (2).GPJ

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

Well renamed in 2025 to WGWC-40

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING PZ-12**
PAGE 1 OF 2
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/8/2014 **COMPLETED** 12/8/2014 **SURF. ELEV.** 816.17 **COORDINATES:** N:1240838.50 E:2026731.05
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 47 ft. **GROUND WATER DEPTH: DURING** **COMP.** 22 ft. **DELAYED** 24.28 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|
| | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 818.74 | |
| 0 | | **Silt (ML)**<br>- orange, dry, sandy, mottled red and white, micaceous, trace gravel | Surface Seal: concrete | 814.17<br>(2.0) |
| 5 | | | | |
| 10 | | | | |
| 15 | | - red, moist, mottled yellow with black spots, micaceous, trace gravel | Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal | |
| 20 | | | | |
| 25 | | | | |
| 30 | | - mottled orange | | 783.57<br>(32.6) |
| 35 | | | Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips | 781.57<br>(34.6) |
| | | | Filter: silica filter sand - 3.5 bags, 50 lbs, #1A filter media | 779.37<br>(36.8) |
| 40 | | | **Well: 2" OD PVC (SCH 40)** | |

*(Continued Next Page)*

Well renamed in 2025 to WGWC-40

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING PZ-12**
PAGE 2 OF 2
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 818.74 | |
| 45 | | **Silt (ML)***(Con't)* (CONTINUED) | | **Well: 2" OD PVC (SCH 40)**<br>**Screen: 10 ft. pre-pack** | |
| | | | 769.17 | Sump:0.40 ft. | 769.37 |
| | | Bottom of borehole at 47.0 feet. | | | |

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

Well renamed in 2025 to WGWC-39

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING PZ-15**
PAGE 1 OF 1
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/10/2014 **COMPLETED** 12/10/2014 **SURF. ELEV.** 824.59 **COORDINATES:** N:1240457.61 E:2025105.38
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 37 ft. **GROUND WATER DEPTH: DURING** **COMP.** 22.5 ft. **DELAYED** 30.5 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 826.86 | |
| | | **Utility Clearance (HYDROEXCAVATION)** | | Surface Seal: concrete | 822.59 (2.0) |
| 5 | | | 817.59 | | |
| 10 | | **Silt (ML)**<br>- red, moist, sandy, mottled brown and yellow with black streaking, micaceous, trace gravel | | Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal | |
| 15 | | | | | |
| 20 | | | | | |
| 25 | | - wet | | | 802.29 (22.3) |
| | | | | Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips | |
| | | | | | 797.99 (26.6) |
| | | | | Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media | 795.79 (28.8) |
| 30 | | | | **Well: 2" OD PVC (SCH 40)** | |
| | | | | **Well: 2" OD PVC (SCH 40)**<br>**Screen: 10 ft. pre-pack** | |
| 35 | | | 787.59 | | |
| | | Bottom of borehole at 37.0 feet. | | Sump:0.40 ft. | 785.79 |

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 2/26/15 15:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\WANSLEY ASH POND PIEZ\GINT\PLANT_WANSLEY_ASH_POND_1 (2).GPJ

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.



SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING PZ-16**
PAGE 1 OF 1
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/10/2014 **COMPLETED** 12/11/2014 **SURF. ELEV.** 798.05 **COORDINATES:** N:1239419.77 E:2023662.22
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 24.5 ft. **GROUND WATER DEPTH: DURING** **COMP.** 11.4 ft. **DELAYED** 10.5 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 800.70 | |
| | | **Silt (ML)**<br>- brown, moist, clayey, mottled orange | | Surface Seal: concrete | 796.05 (2.0) |
| 5 | | - gray, moist, sandy, mottled orange, trace gravel | | Annular Fill: Cement-Bentonite Grout - 2 bags, 46 lbs, Portland Type I/II, 11 gal | |
| 10 | | ▽ - wet | | Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips | 787.95 (10.1) |
| | | | | Filter: silica filter sand - 4.5 bags, 50 lbs, #1A filter media | 785.95 (12.1) |
| 15 | | | 782.05 | **Well: 2" OD PVC (SCH 40)** | 785.05 (13.0) |
| | | **Silty Sand (SM)**<br>- gray, wet, fine to coarse grain, trace mica | | **Well: 2" OD PVC (SCH 40)**<br>**Screen: 10 ft. pre-pack** | |
| 20 | | | | Sump:0.50 ft. | 775.05 (23.0) |
| | | | 773.55 | | |

Bottom of borehole at 24.5 feet.

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.



SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING PZ-17**
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ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/11/2014 **COMPLETED** 12/11/2014 **SURF. ELEV.** 828.54 **COORDINATES:** N:1239270.02 E:2023086.51
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 48 ft. **GROUND WATER DEPTH: DURING** **COMP.** 23.1 ft. **DELAYED** 23.6 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|
| | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 831.01 | ELEV. |
| | | **Silt (ML)**<br>- orange, moist, clayey, mottled yellow, trace mica and angular rock | Surface Seal: concrete | 826.54<br>(2.0) |
| 5 | | | | |
| 10 | | - orange, moist, sandy, mottled light brown and yellow, trace mica | | |
| 15 | | | | |
| 20 | | - mottled red | Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal | |
| 25 | | | | |
| 30 | | - tan, very moist | | |
| 35 | | - dark brown, dry, sandy, micaceous, with gravel | | 794.94<br>(33.6) |
| | | | Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips | 792.94<br>(35.6) |
| | | | Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media | |
| 40 | | | | 789.84<br>(38.7) |

*(Continued Next Page)*

SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 831.01 | |
| 45 | | **Silt (ML)***(Con't)* (CONTINUED) | | **Well: 2" OD PVC (SCH 40)**<br>**Well: 2" OD PVC (SCH 40)**<br>**Screen: 10 ft. pre-pack** | |
| | | | 780.54 | | 779.84 |
| | | Bottom of borehole at 48.0 feet. | | Sump:0.40 ft. | |

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.



SOUTHERN COMPANY

# LOG OF TEST BORING AND WELL INSTALLATION

**BORING PZ-18**
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ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

**PROJECT** Ash Pond Piezometers
**LOCATION** Plant Wansley

**DATE STARTED** 12/11/2014 **COMPLETED** 12/12/2014 **SURF. ELEV.** 812.10 **COORDINATES:** N:1239569.52 E:2022299.20
**CONTRACTOR** CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
**DRILLED BY** T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
**BORING DEPTH** 37 ft. **GROUND WATER DEPTH: DURING** **COMP.** 17.9 ft. **DELAYED** 16.1 ft. after 24 hrs.
**NOTES**

| DEPTH (ft) | GRAPHIC LOG | STRATA DESCRIPTION | ELEV. | WELL DATA | ELEV. (DEPTH) |
|---|---|---|---|---|---|
| | | | | Protective aluminum cover with bollards<br>4-foot square concrete pad<br>Top of casing Elev. = 814.51 | |
| 0 | | **Utility Clearance (HYDROEXCAVATION)** | | Surface Seal: concrete | 810.10 (2.0) |
| 5 | | | | | |
| 10 | | | 802.10 | | |
| 15 | | **Silt (ML)**<br>- red, moist, sandy, mottled yellow with black streaks, trace mica and weathered rock | | Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal | |
| 20 | | - mottled orange and white | | | 789.50 (22.6) |
| 25 | | | | Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips | 788.20 (23.9) |
| | | | | Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media | (24.6) 787.50 |
| | | | | **Well: 2" OD PVC (SCH 40)** | |
| 30 | | - light brown, wet, mottled orange with black specks | | **Well: 2" OD PVC (SCH 40)**<br>**Screen: 10 ft. pre-pack** | |
| 35 | | | | Sump:0.40 ft. | 778.20 (33.9) |
| | | | 775.10 | | |

Bottom of borehole at 37.0 feet.

Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

Well renamed in 2025 to WGWC-42

# WELL NUMBER PZ-20



ERM
3200 Windy Hill Rd Ste 1500W
Atlanta, GA 30339
Telephone: 678-486-2700

**COORDINATES:** N:1243496.86 E:2030132.73

**CLIENT** Southern Company Services, Inc.
**PROJECT NAME** Plant Wansley
**PROJECT NUMBER** 0372406
**PROJECT LOCATION** AP
**DATE STARTED** 1/31/17 **COMPLETED** 1/31/17
**GROUND ELEVATION** 784.45 **HOLE SIZE** 4.25 inches
**DRILLING CONTRACTOR** Southern Comparny Services, Inc
**GROUND WATER LEVELS:**
**DRILLING METHOD** Hollow Stem Auger 2"
**AT TIME OF DRILLING** 14.50 ft
**LOGGED BY** MR **CHECKED BY** GEJ
**AT END OF DRILLING** ---
**NOTES**
**AFTER DRILLING** ---

| DEPTH (ft) | SAMPLE TYPE NUMBER | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | | | | Hydrovac. No sample collected |
| 10 | | | | 10.0 |
| | SS | SM | | (SM) white, brown, & red Silty SAND, loose, moist |
| | | | | 14.0 |
| 15 | | SM | | (SM) red silty SAND, very dense, moist |
| | | | | 15.0 |
| | SS | SM | | (SM) reddish pink Silty SAND with lenses of white CLAY, loose, moist |
| 20 | | | | 20.0 |
| | SS | SP-SM | | (SP-SM) reddish orange SAPROLITE, poorly graded, granitic remnant rock fabric, moist |
| 25 | | | | 25.0 |
| | SS | SP | | (SP) red, brown, & orange coarse SAND, loose, quartz, wet |
| 30 | | | | |
| | SS | SP | | (SP) SAA |
| 35 | | | | 35.0 |

**WELL DIAGRAM**

Casing Type: PVC
70/30 Portland Cement / bentonite mix
765.45
PEL plug 3/8"
761.95
759.45
20/40 industrial quartz (ANSI std 61)
4" UPACK
749.45

Refusal at 35.0 feet.
Bottom of borehole at 35.0 feet.

Survey data certified 11/17/2020.
Easting an Northing in NAD 83. Elevation in NAVD 88.

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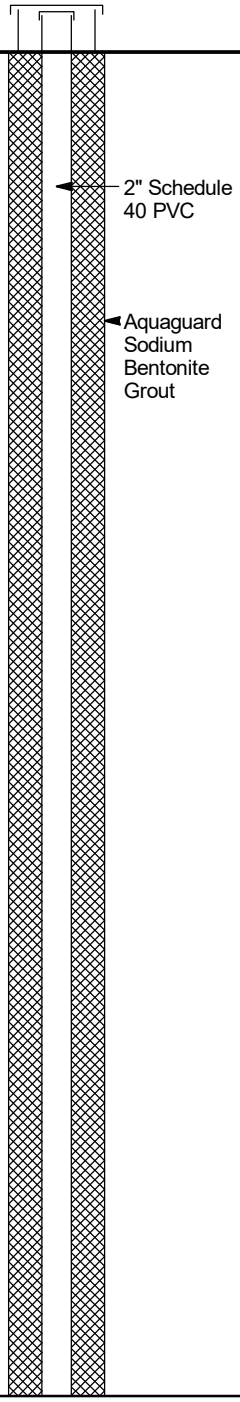
# PIEZOMETER PZ-23D



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 9/30/20 **COMPLETED** 10/2/20
**NORTHING** 1242139.53 ft **EASTING** 2028520.87 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 831.89 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 834.32 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** A. Ramsey **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | 830 | | | Air Knife Excavation (0 ft to 5 ft)<br>NO SAMPLE |
| | | 5 ft: Significant rig chatter. | | 826.9<br>PARTIALLY WEATHERED ROCK (PWR), gneiss, very pale brown to brown, wet, very thin lamination, hard, friable, some coarse silty sand throughout, few 2 inch thick competent non-friable fragments, wet. |
| 10 | 820 | 10 ft: Decreased rig chatter, advance rate slowed ~50%. | | 14 ft: Highly weathered, white to reddish brown, clayey with silty to very fine sand, original bandad structure visible, abundant iron oxidation staining to 18 ft, very soft to soft, low plasticity to non-plastic, moist to 18 ft then dry. |
| 20 | 810 | | | 811.9<br>GNEISS, gray to bluish gray, iron scaling present on fracture faces and vertical hairline fractures, broken into cobble size pieces along joints, faint thin banding, very hard, wet. Fracture zone between 20 ft and 23 ft. |
| | | 27 ft: Some water circulation loss observed. | | 25 ft: Fracture zone between 25 ft and 27 ft. |
| 30 | 800 | | | 30 ft: Fracture zone between 30 ft and 33 ft. |
| | | | | 35 ft: Fracture zone between 35 ft and 36 ft. |
| 40 | 790 | 40 ft: Significantly increased rig chatter, no return of drill water. | | 47 ft: Little to no iron scaling.<br>781.9 |

CONSTRUCTION DIAGRAM




SCS MONITORING WELLS WANSLEY_PIEZOMETER INSTALL_2020.GPJ ACP GINT LIBRARY CH.GLB 1/5/21

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# PIEZOMETER PZ-23D



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | CONSTRUCTION DIAGRAM |
|---|---|---|---|---|---|
| 50 | 780 | | | GNEISS, gray to bluish gray, iron scaling present on fracture faces and vertical hairline fractures, broken into cobble size pieces along joints, faint thin banding, very hard, wet. | |
| | | | | 53 ft: Likely fracture. | |
| 60 | 770 | | | 60 ft: Increased separation of minerals in very thin laminations. | Aquaguard Sodium Bentonite Grout |
| 70 | 760 | | | 75 ft: Large potassium feldspar minerals. | Bentonite uncoated 3/8 pellets |
| 80 | 750 | | | 80 ft: Potassium feldspar throughout. | 20/40 Silica Sand; Top of screen elev: 749.92 ft |
| 90 | 740 | 90 ft: Increased rig chatter and resistance. | | | 0.010 slot size 2" Schedule 40 PVC Screen; Bottom of screen elev: 739.92 ft; Bottom of well elev: 739.52 ft; Bottom of well: 92.37 ft; Slough |
| | | | | 736.9 Bottom of borehole at 95.0 feet. | |

Survey data certified 11/17/2020.
Easting an Northing in NAD 83. Elevation in NAVD 88.

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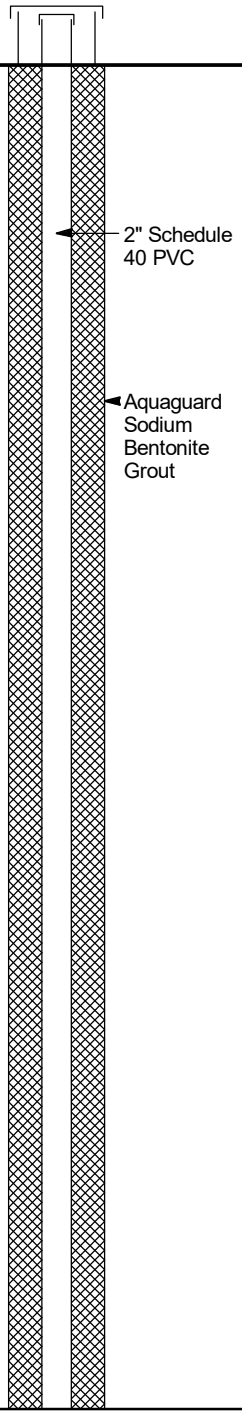
# PIEZOMETER PZ-26D



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 10/12/20 **COMPLETED** 10/12/20
**NORTHING** 1239919.45 ft **EASTING** 2024146.35 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 802.31 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 804.93 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** T. Kessler **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | | | | Air Knife Excavation (0 ft to 9 ft)<br>NO SAMPLE |
| 5 | 800 | | | |
| | 795 | | | |
| | | | | 793.3 |
| 10 | | | | SANDY SILT, yellow, relic rock structure, fine to medium grained, low plasticity, soft, wet. |
| | 790 | | | |
| 15 | | | | |
| | 785 | | | |
| 20 | | | | |
| | 780 | | | |
| 25 | | | | 777.3 |
| | 775 | | | SAPROLITE, gravel, sand and silt with large rock fragments, relic rock structure, moist. |
| | | | | 773.3 |
| 30 | | | | PARTIALLY WEATHERED ROCK (PWR), large quartzite rock fragments, gravel, light gray to yellow, gravel, sand, iron staining, moist. |
| | 770 | | | |
| 35 | | 36 ft: Increased rig chatter. | | |
| | 765 | | | |
| | | 39 ft: Advance rate slowed. | | 763.3 |

CONSTRUCTION DIAGRAM

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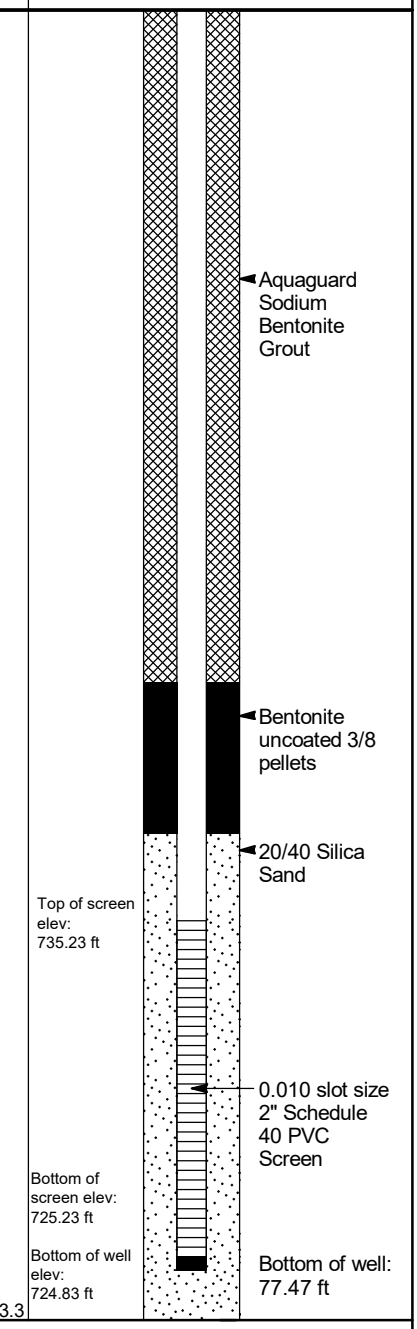
# PIEZOMETER PZ-26D



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 40 | | | | QUARTZITE, pinkish gray, slightly weathered and highly fractured, large quartz fragments, micaceous, iron staining, hard, wet. *(continued)* |
| | 760 | | | |
| 45 | | | | |
| | 755 | 49 ft: Increased rig chatter. | | |
| 50 | | | | |
| | 750 | | | |
| 55 | | | | |
| | 745 | 59 ft: Increased rig chatter. | | |
| 60 | | | | 59 ft: Pinkish gray to blue gray. |
| | 740 | | | |
| 65 | | | | |
| | 735 | | | |
| 70 | | | | 69 ft: Blue gray. |
| | 730 | | | |
| 75 | | | | |
| | 725 | | | |
| | | | | 723.3 |

CONSTRUCTION DIAGRAM




Bottom of borehole at 79.0 feet.

Survey data certified 11/17/2020.
Easting an Northing in NAD 83. Elevation in NAVD 88.

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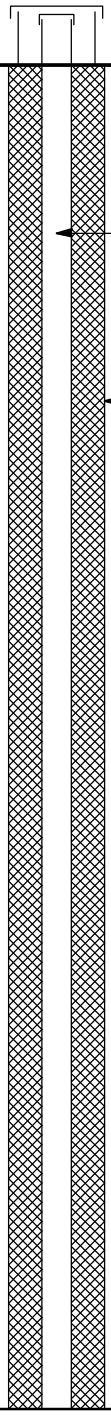
# PIEZOMETER PZ-27D



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 10/15/20 **COMPLETED** 10/15/20
**NORTHING** 1240190.93 ft **EASTING** 2023620.36 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 806.22 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 809.28 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** T. Kessler **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | MATERIAL DESCRIPTION |
|---|---|---|---|
| 0 | 805 | | Air Knife Excavation (0 ft to 9 ft)<br>NO SAMPLE |
| 5 | 800 | | |
| | | | 797.2 |
| 10 | 795 | | SAPROLITE, yellowish red, silty, dense, low plasticity, relic rock structures preset, mica, dry. |
| | | 13 ft: Increased rig chatter. | 793.2 |
| 15 | 790 | | PARTIALLY WEATHERED ROCK (PWR), brown, large rock fragments, clayey sandy silts, hard, low plasticity, dry. |
| | | 19 ft: Advance rate slowed. | 787.2 |
| 20 | 785 | | SAPROLITE, yellowish red, silty with fine sand, medium plasticity, dense, moist. |
| 25 | 780 | | |
| | | | 778.2 |
| 30 | 775 | 30 ft: Advance rate slowed. | PARTIALLY WEATHERED ROCK (PWR), brown, large rock fragments, clayey sandy silts, low plasticity, hard, moist. |
| 35 | 770 | | 770.2 |
| | | | SCHIST, gray, micaceous, sand and clay filled fracture between 37 and 38 ft. |
| | | | 39 ft: Iron staining on fractured surfaces from 39 ft to 44 ft, olive |

CONSTRUCTION DIAGRAM

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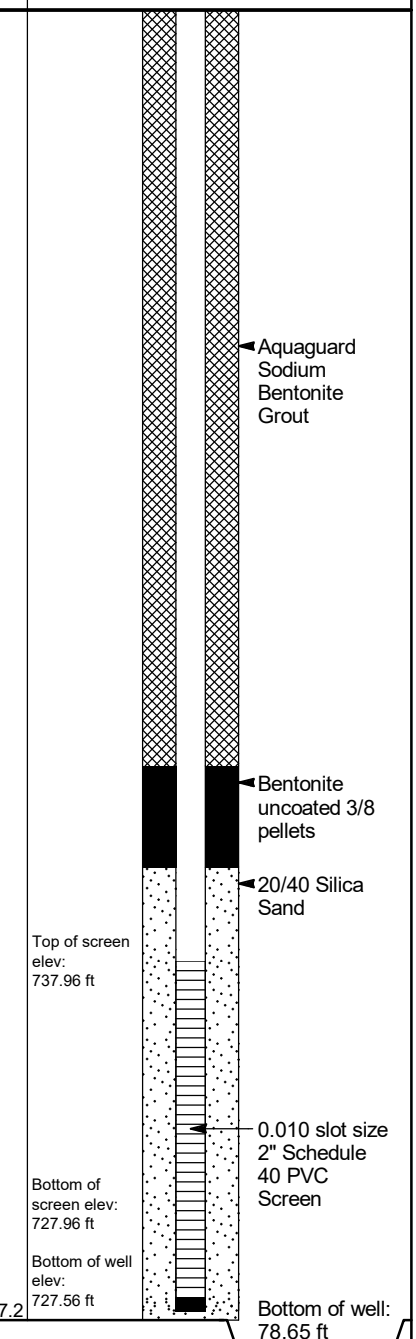
# PIEZOMETER PZ-27D



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 40 | 765 | | | staining on fractured surfaces from 44 ft to 48 ft, quartz banding, garnets present.<br>SCHIST, gray, micaceous, sand and clay filled fracture between 37 and 38 ft. *(continued)* |
| 45 | 760 | | | |
| | | 49 ft: Slow advance rate, moderate rig chatter. | | 48 ft to 49 ft: Highly weathered, gray, silty sands and gravel, wet. |
| 50 | 755 | | | |
| 55 | 750 | | | |
| | | 59 ft: Slow advance rate, increased rig chatter. | | 59 ft: Highly fractured, gravel and weathered cobbles, less garnet, sand zone at 64 ft. |
| 60 | 745 | | | |
| 65 | 740 | | | |
| | | 69 ft: Slow advance rate, significant rig chatter. | | 69 ft: Highly fractured, gravel and weathered cobbles, some quartzite fragments. |
| 70 | 735 | | | |
| 75 | 730 | | | |
| | | | | 727.2 Bottom of borehole at 79.0 feet. |



Survey data certified 11/17/2020.
Easting an Northing in NAD 83. Elevation in NAVD 88.

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# PIEZOMETER PZ-28



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 10/29/20 **COMPLETED** 10/29/20
**NORTHING** 1240066.02 ft **EASTING** 2022624.73 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 813.57 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 816.18 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** T. Wilson **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | | | | Air Knife Excavation (0 ft to 4 ft)<br>NO SAMPLE |
| | 810 | | | 809.6 |
| 5 | | | | SILTY CLAY with sand, red, soft, low plasticity, trace root material, moist. |
| | | | | 806.6 |
| | 805 | | | SILTY SAND with clay, reddish yellow, fine grained, moist, loose, poorly graded, moist. |
| 10 | | | | 10 ft: Increasing clay content with depth. |
| | 800 | | | |
| 15 | | | | |
| | 795 | | | |
| 20 | | | | 793.6<br>NO RECOVERY (20 ft to 23 ft) |
| | 790 | | | 790.6<br>SILTY CLAY with sand, reddish yellow, soft, low plasticity, fine grained, moist. |
| 25 | | | | |
| | 785 | | | |
| 30 | | | | |
| | 780 | | | |
| 35 | | | | |
| | 775 | | | 773.6 |

CONSTRUCTION DIAGRAM

2" Schedule 40 PVC

Aquaguard Sodium Bentonite Grout

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# PIEZOMETER PZ-28



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | CONSTRUCTION DIAGRAM |
|---|---|---|---|---|---|
| 40 | | | | SAPROLITE, sandy silt, reddish yellow, stiff, non plastic, iron concretions and staining, faint rock fabric visible, moist. | |
| | 770 | | | | |
| 45 | | | | | Aquaguard Sodium Bentonite Grout |
| | 765 | | | | |
| 50 | | | | 51 ft: Dense, well graded, trace gravel, increasing gravel content with depth. | |
| | 760 | | | | Bentonite uncoated 3/8 pellets |
| 55 | | | | | |
| | 755 | | | | 20/40 Silica Sand |
| 60 | | | | | Top of screen elev: 753.68 ft |
| | | | | 751.6 | |
| | | | | PARTIALLY WEATHERED ROCK (PWR), silty sand and gravel, very pale brown, fine to coarse grained, relic rock structure, iron staining, increasing gravel with depth, moist. | |
| 65 | 750 | | | | 0.010 slot size 2" Schedule 40 PVC Screen |
| | | | | | Bottom of screen elev: 743.68 ft |
| | 745 | | | | Bottom of well elev: 743.28 ft |
| 70 | | | | 743.1 | Bottom of well: 70.29 ft |

Bottom of borehole at 70.5 feet.

Survey data certified 11/17/2020.
Easting an Northing in NAD 83. Elevation in NAVD 88.

Well renamed in 2025 to WGWC-37S

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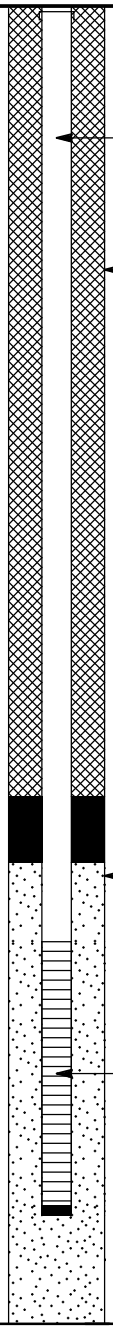
# PIEZOMETER PZ-29S



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 10/30/20 **COMPLETED** 10/31/20
**NORTHING** 1244317.13 ft **EASTING** 2028839.68 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 805.80 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 805.30 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** T. Wilson **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION |
|---|---|---|---|---|
| 0 | | | | Air Knife Excavation (0 ft to 10 ft)<br>NO SAMPLE |
| | 800 | | | |
| 10 | | | | 795.8<br>SILTY CLAY, reddish brown, firm, no plasticity, trace gravel and mica, moist. |
| | 790 | | | |
| 20 | | | | 20 ft: Stiff, trace white sand layers, fine grained. |
| | 780 | | | |
| 30 | | | | 775.8<br>NO RECOVERY (30 ft to 32 ft)<br>773.8<br>SILTY CLAY, reddish brown, firm, no plasticity, trace gravel, cobbles and mica, moist. |
| | 770 | | | |
| 40 | | | | 766.3<br>765.8<br>CLAYEY SILT, dark brownish yellow (10YR, 4/4), dry, loose, no plasticity, some gravel and mica.<br>763.8<br>SANDY SILT, brown, soft, no plasticity, some clay and gravel, moist.<br>762.1<br>SILTY CLAY, yellowish red, stiff, low plasticity, trace gravel and mica, moist.<br>760.8<br>SANDY SILT, brown, soft, no plasticity, some clay and gravel, moist. |
| | 760 | | | |
| 50 | | | | CLAYEY SILT, dark brownish yellow, loose, no plasticity, some gravel and mica, dry.<br>755.8<br>Bottom of borehole at 50.0 feet. |

CONSTRUCTION DIAGRAM




Top of screen elev: 770.28 ft
Bottom of screen elev: 760.28 ft
Bottom of well elev: 759.88 ft

SCS MONITORING WELLS WANSLEY_PIEZOMETER INSTALL_2020.GPJ ACP GINT LIBRARY CH.GLB 1/5/21

Survey data certified 11/17/2020.
Easting an Northing in NAD 83. Elevation in NAVD 88.

Well renamed in 2025 to WGWC-37D

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# PIEZOMETER PZ-29D



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1
**DATE STARTED** 10/31/20 **COMPLETED** 11/1/20
**NORTHING** 1244304.90 ft **EASTING** 2028853.29 ft
**DRILLER** Cascade Drilling
**GROUND ELEVATION** 805.77 ft **BORING DIAMETER** 6 in.
**DRILLING METHOD** Sonic
**TOP OF CASING ELEVATION** 805.24 ft
**SAMPLING METHOD** 4 in. core 6 in. override
**GEOPHYSICAL CONTRACTOR** ---
**RIG TYPE** Terrasonic 1051181
**LOGGED BY** T. Wilson **CHECKED BY** A. Reimer

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | CONSTRUCTION DIAGRAM |
|---|---|---|---|---|---|
| 0 | | | | Air Knife Excavation (0 ft to 10 ft)<br>NO SAMPLE | |
| | 800 | | | | 2" Schedule 40 PVC |
| 10 | | | | 795.8<br>NO RECOVERY (10 ft to 11 ft) 794.8<br>SILT, dark yellowish brown to reddish brown, soft, few coarse gravel, some clay, non plastic, moist. | Aquaguard Sodium Bentonite Grout |
| | 790 | | | | |
| 20 | | | | 20 ft: Stiff. | |
| | 780 | | | | |
| 30 | | | | 775.8<br>NO RECOVERY (30 ft to 31 ft) 774.8<br>SILT, reddish brown, soft, few coarse gravel, some clay, non plastic, moist. | |
| | 770 | | | | |
| 40 | | | | 767.3<br>CLAYEY SILT, dark yellowish brown, soft, few coarse gravel mica present, dry. | |
| | 760 | | | 755.8 | |

SCS MONITORING WELLS WANSLEY_PIEZOMETER INSTALL_2020.GPJ ACP GINT LIBRARY CH.GLB 1/5/21

(Continued Next Page)

Well renamed in 2025 to WGWC-37D

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Kennesaw, GA 30144

# PIEZOMETER PZ-29D



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | CONSTRUCTION DIAGRAM |
|---|---|---|---|---|---|
| 50 | | | | SANDY SILT, yellowish brown, yellowish red, light greenish gray, and strong brown, stiff, trace fine to coarse gravel, some clay, non plastic, mica present, moist. | |
| | 750 | | | 746.8 | |
| 60 | | | | CLAYEY SILT, strong brown, soft, few coarse gravel mica present, dry. 745.8 | |
| | | | | SANDY SILT, yellowish brown, yellowish red, light greenish gray, and strong brown, stiff, trace fine to coarse gravel, some clay, non-plastic, mica present, moist. | |
| | 740 | | | | |
| 70 | | | | | |
| | 730 | | | | |
| 80 | | | | 725.8 CLAYEY SILT, reddish brown, very stiff, few fine tocoarse gravel, little fine-medium sand, medium plasticity, moist. | Aquaguard Sodium Bentonite Grout |
| | 720 | | | | |
| 90 | | | | 715.8 SANDY SILT, strong brown, very stiff, little coarse gravel, some clay, non-plastic, mica present, moist. | |
| | 710 | | | | |
| 100 | | | | 705.8 NO RECOVERY (100 ft to 102 ft) 703.8 | |
| | 700 | | | SILTY CLAY, red, stiff, trace fine to coarse gravel, non-plastic, increasing clay content with depth, moist. | |



*(Continued Next Page)*

Well renamed in 2025 to WGWC-37D

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# PIEZOMETER PZ-29D



**CLIENT** Southern Company Services
**PROJECT NAME** Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
**PROJECT NUMBER** GW7327
**PROJECT LOCATION** Plant Wansley AP-1

| DEPTH (ft) | ELEVATION (ft) | REMARKS | GRAPHIC LOG | MATERIAL DESCRIPTION | CONSTRUCTION DIAGRAM |
|---|---|---|---|---|---|
| 110 | 690 | | | SILTY CLAY, red, stiff, trace fine to coarse gravel, non-plastic, increasing clay content with depth, moist. *(continued)* | Aquaguard Sodium Bentonite Grout<br>Bentonite uncoated 3/8 pellets<br>Top of screen elev: 688.69 ft<br>20/40 Silica Sand |
| | | | | 687.3 | |
| 120 | | | | SILT, light greenish gray, soft, some clay, non-plastic, trace subrounded gravel, moist. | |
| | | | | 685.8 | |
| | | | | NO RECOVERY (120 ft to 126 ft) | 0.010 slot size 2" Schedule 40 PVC Screen |
| | 680 | | | | Bottom of screen elev: 678.69 ft |
| | | | | 679.8 | |
| | | | | SCHIST, light grayish olive, weathered, numerous natural fractures with iron staining, with weathered garnets and mica, thinly foliated. | Bottom of well elev: 678.29 ft<br>Bottom of well: 127.48 ft |
| | | | | 676.8 | |

Bottom of borehole at 129.0 feet.

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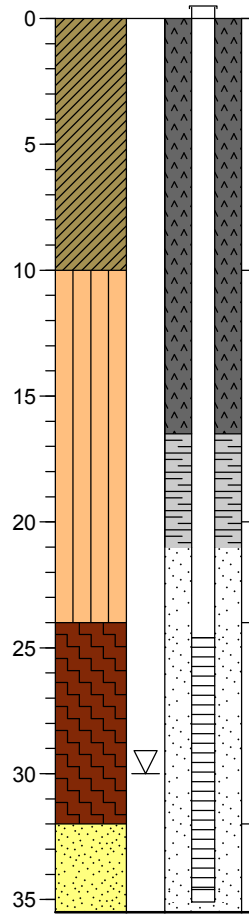
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG

**Well No.** PZ-30
**Page:** 1 of 1

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/28/2024 | Boring Depth (ft): | 35.5 | Well Depth (ft): | 35.1 |
| Drilling End Date: | 3/30/2024 | Boring Diameter (in): | 6" | Well Diameter (in): | 2 |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 30.0 | Riser Material: | Sch 40 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 812.43 | Screen Material: | Sch 40 PVC U-Pack |
| Driller: | K. Grant | Top of Casing Elev. (ft): | 814.80 | Seal Material(s): | Bentonite |
| Logged By: | T. Kessler/Z. Webb | North, East (Y,X): | 1240592.30, 2027321.68 | Filter Pack: | 20/40 Sand |




| DEPTH (ft) | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft MSL) |
|---|---|---|---|
| 0 | (0') Silty CLAY (CL); pinkish gray, dry to moist, trace angular to subangular gravel throughout, no recovery-soil logged from air knifed material. | Logged air knife material. | 810 |
| 5 | | | 805 |
| 8 | (8') Trace rock from 8-10 feet bgs - highly weathered schist (broken into gravel). | Hard drilling and increased rig chatter. | |
| 10 | (10') Sandy SILT (ML); pinkish gray, dry, friable, relict rock structure, abundant PWR, trace fine-grained sand throughout. | | 800 |
| 15 | (16') PWR increases with depth. | Increased chatter from 14-15 feet bgs. | |
| 16.5 | (16.5') PWR includes iron staining. | Hard drilling, swelling noted in core. | 795 |
| 20 | (20') Sandy SILT (ML); pinkish gray, dry, PWR (broken into medium to coarse gravel-sized pieces), trace fine-grained sand throughout, with iron staining throughout. | Hard drilling from 20-30 feet bgs. | 790 |
| 24 | (24') GNEISS; moderate orange pink with bluish white banding, hard, moderately weathered, abundant iron staining throughout. | **Filter Pack:** Four and one half 50-lbs bags of 20/40 sand equating to 225 cubic feet in volume. **Top Seal:** One five-gallon bucket of bentonite pellets. | 785 |
| 25 | | | |
| 30 | (30') Coarse grained subangular reddish yellow sand, with iron staining throughout. | | |
| 32 | (32') SAND (SP); reddish yellow, coarse grained subangular sand with trace PWR and abundant subrounded to subangular gneiss fragments. | | 780 |
| 35 | | | |
| 35.5 | (35.5') Boring terminated. | | |

NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Well completed with 6 inch long PVC sump below well screen, and aboveground (+2.37 feet) PVC stickup with metal protective cover and guard posts set in concrete. Well depth measured from ground surface.

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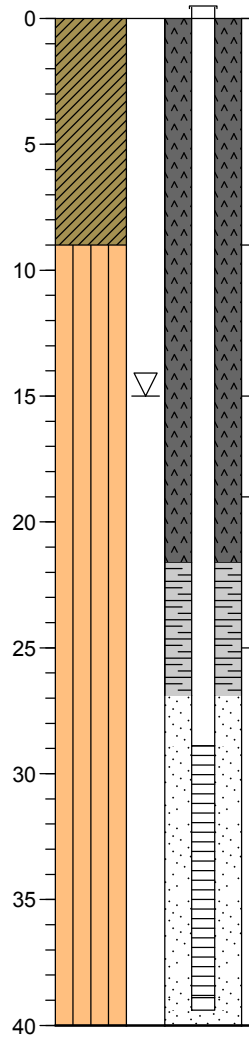
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG

**Well No.** PZ-31
**Page:** 1 of 1

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/21/2024 | Boring Depth (ft): | 40 | Well Depth (ft): | 39.4 |
| Drilling End Date: | 3/22/2024 | Boring Diameter (in): | 6" | Well Diameter (in): | 2 |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 15.0 | Riser Material: | Sch 40 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 807.86 | Screen Material: | Sch 40 PVC U-Pack |
| Driller: | K. Grant | Top of Casing Elev. (ft): | 810.90 | Seal Material(s): | Bentonite |
| Logged By: | Z. Webb | North, East (Y,X): | 1239941.77, 2024324.33 | Filter Pack: | 20/40 Sand |




| DEPTH (ft) | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft MSL) |
|---|---|---|---|
| 0 | (0') Silty CLAY (CL); red, moist becoming drier with depth, low plasticity. | Logged air knife material. | 805 |
| 5 | | | 800 |
| 10 | (9') Sandy SILT (ML); red, moist, soft, low plasticity, with coarse grained sand interspersed, abundant mica. | | 795 |
| 15 | (15') Sandy SILT (ML); light brown, moist, low plasticity, some coarse grained sand and rock fragments throughout, abundant mica, orange bands within core (iron staining). | | 790 |
| 20 | (19') Sandy SILT (ML); light brown, moist, low plasticity, PWR fragments throughout, abundant mica, reddish yellow bands. | | 785 |
| 25 | (25') Sandy SILT (ML); pale brown, moist, low plasticity, mica and PWR fragments throughout, orange bands. | | 780 |
| 30 | (29') Decreasing moisture content with depth, chalkier with depth, reddish yellow bands throughout, iron staining. | **Filter Pack:** Four and one half 50-lbs bags of 20/40 sand equating to 225 cubic feet in volume. **Top Seal:** One five-gallon bucket of bentonite pellets. | 775 |
| 35 | | | 770 |
| 40 | (40') Boring terminated. | | |

NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Well completed with 6 inch long PVC sump below well screen, and aboveground (+3.04 feet) PVC stickup with metal protective cover and guard posts set in concrete. Well depth measured from ground surface.

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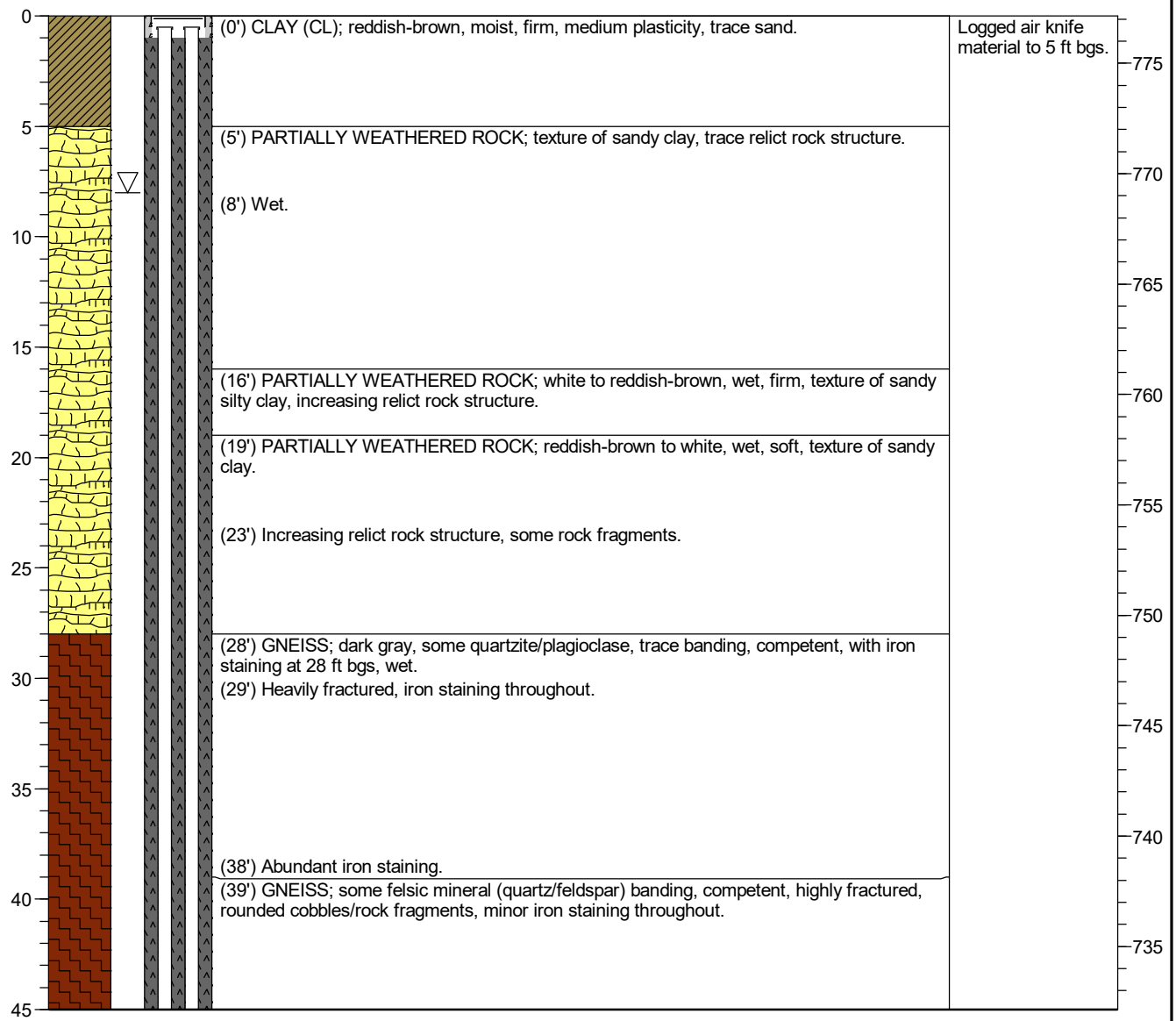
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** PZ-32D/33D
**Page:** 1 of 10

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/5/2024 | Boring Depth (ft): | 413 | Well Depth (ft TOC): | 325.3 (32D), 405.3 (33D) |
| Drilling End Date: | 10/17/2024 | Boring Diameter (in): | 4", 6" | Well Diameter (in): | 1 (32D), 2 (33D) |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 8.0 | Riser Material: | Sch 80 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 777.14 | Screen Material: | Sch 80 PVC Slotted |
| Driller: | J. Hall, D. Wilcox, K. Grant | Top of Casing Elev. (ft): | 776.74 (32D,33D) | Seal Material(s): | Grout/Bentonite |
| Logged By: | D. Kegley, T. Kessler | North, East: | (see Notes below)* | Filter Pack: | #1 Sand |




NOTES: Boring backfilled with bentonite to 408.6 ft below ground surface (bgs) prior to installing wells.
*PZ-32D - 1243211.88 N, 2029886.45 E; PZ-33D - 1243211.76 N, 2029886.78 E. Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Wells completed with flush-mount well cover set in concrete. Top of Casing (toc). Total well depth includes 4-inch sump.

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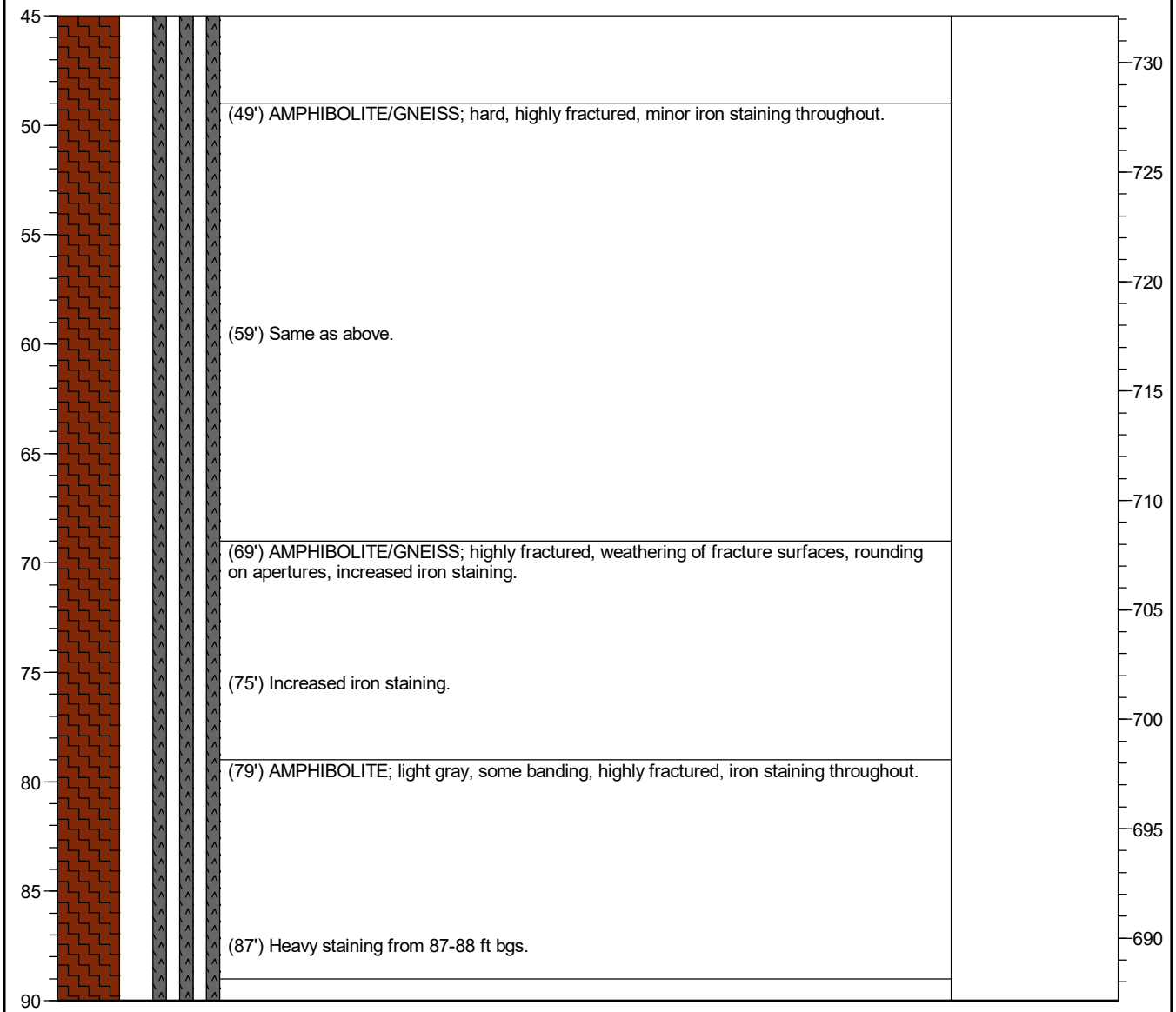
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** PZ-32D/33D
**Page:** 2 of 10

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/5/2024 | Boring Depth (ft): | 413 | Well Depth (ft TOC): | 325.3 (32D), 405.3 (33D) |
| Drilling End Date: | 10/17/2024 | Boring Diameter (in): | 4", 6" | Well Diameter (in): | 1 (32D), 2 (33D) |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 8.0 | Riser Material: | Sch 80 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 777.14 | Screen Material: | Sch 80 PVC Slotted |
| Driller: | J. Hall, D. Wilcox, K. Grant | Top of Casing Elev. (ft): | 776.74 (32D,33D) | Seal Material(s): | Grout/Bentonite |
| Logged By: | D. Kegley, T. Kessler | North, East: | (see Notes below)* | Filter Pack: | #1 Sand |




NOTES: Boring backfilled with bentonite to 408.6 ft below ground surface (bgs) prior to installing wells.
*PZ-32D - 1243211.88 N, 2029886.45 E; PZ-33D - 1243211.76 N, 2029886.78 E. Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Wells completed with flush-mount well cover set in concrete. Top of Casing (toc). Total well depth includes 4-inch sump.

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**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** PZ-32D/33D
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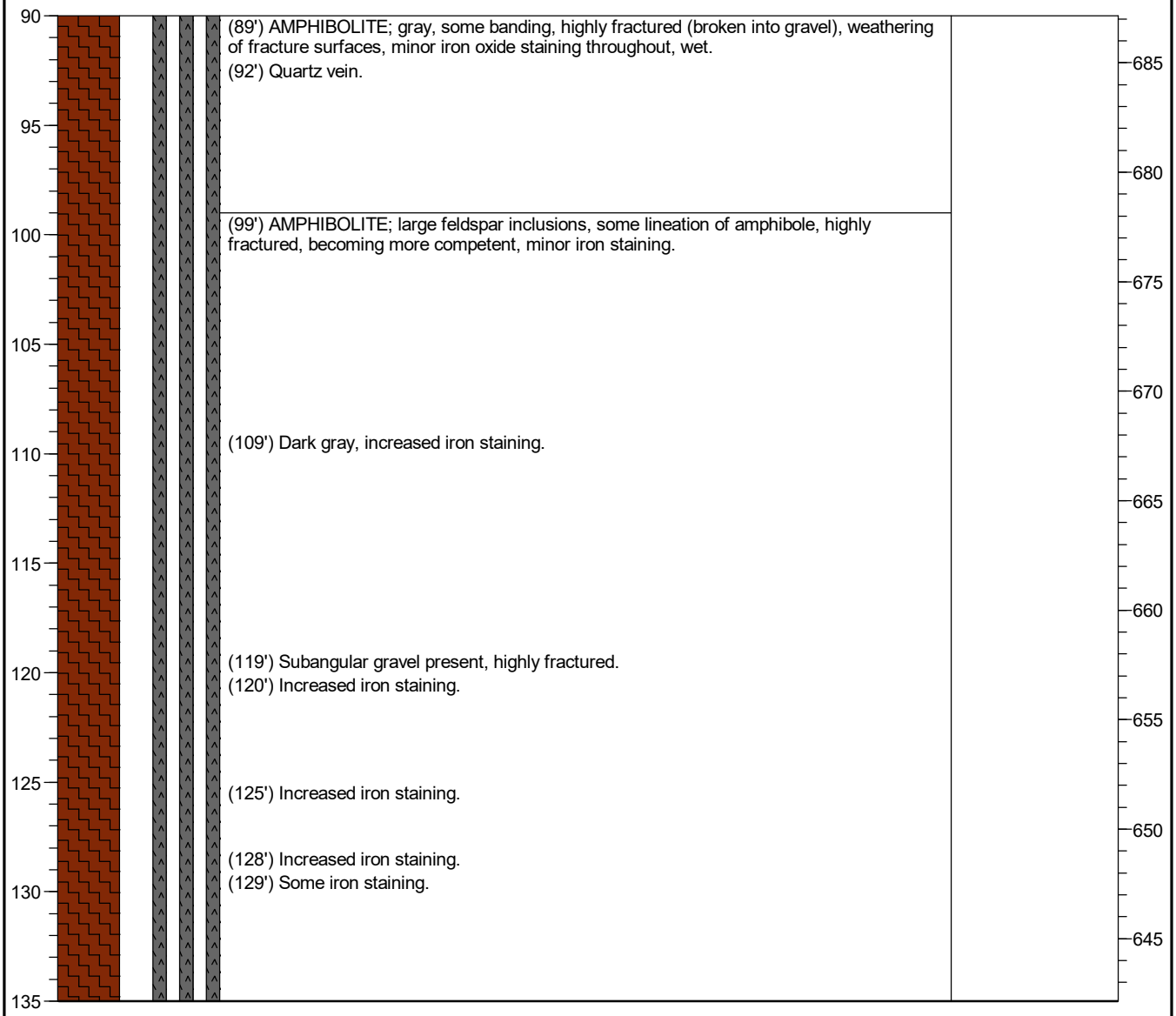
| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/5/2024 | Boring Depth (ft): | 413 | Well Depth (ft TOC): | 325.3 (32D), 405.3 (33D) |
| Drilling End Date: | 10/17/2024 | Boring Diameter (in): | 4", 6" | Well Diameter (in): | 1 (32D), 2 (33D) |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 8.0 | Riser Material: | Sch 80 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 777.14 | Screen Material: | Sch 80 PVC Slotted |
| Driller: | J. Hall, D. Wilcox, K. Grant | Top of Casing Elev. (ft): | 776.74 (32D,33D) | Seal Material(s): | Grout/Bentonite |
| Logged By: | D. Kegley, T. Kessler | North, East: | (see Notes below)* | Filter Pack: | #1 Sand |




NOTES: Boring backfilled with bentonite to 408.6 ft below ground surface (bgs) prior to installing wells.
*PZ-32D - 1243211.88 N, 2029886.45 E; PZ-33D - 1243211.76 N, 2029886.78 E. Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Wells completed with flush-mount well cover set in concrete. Top of Casing (toc). Total well depth includes 4-inch sump.

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**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** PZ-32D/33D
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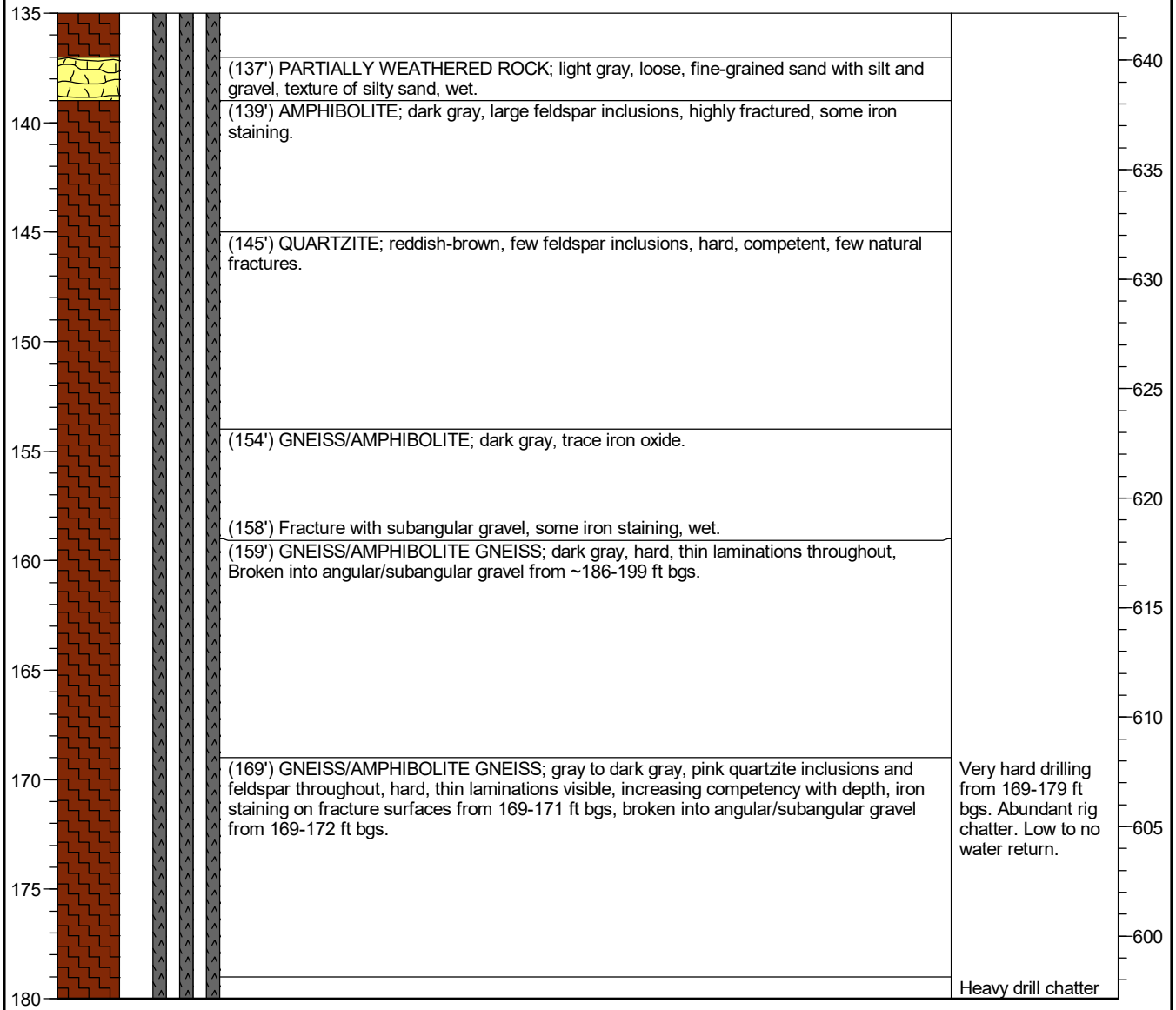
| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/5/2024 | Boring Depth (ft): | 413 | Well Depth (ft TOC): | 325.3 (32D), 405.3 (33D) |
| Drilling End Date: | 10/17/2024 | Boring Diameter (in): | 4", 6" | Well Diameter (in): | 1 (32D), 2 (33D) |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 8.0 | Riser Material: | Sch 80 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 777.14 | Screen Material: | Sch 80 PVC Slotted |
| Driller: | J. Hall, D. Wilcox, K. Grant | Top of Casing Elev. (ft): | 776.74 (32D,33D) | Seal Material(s): | Grout/Bentonite |
| Logged By: | D. Kegley, T. Kessler | North, East: | (see Notes below)* | Filter Pack: | #1 Sand |




NOTES: Boring backfilled with bentonite to 408.6 ft below ground surface (bgs) prior to installing wells.
*PZ-32D - 1243211.88 N, 2029886.45 E; PZ-33D - 1243211.76 N, 2029886.78 E. Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Wells completed with flush-mount well cover set in concrete. Top of Casing (toc). Total well depth includes 4-inch sump.

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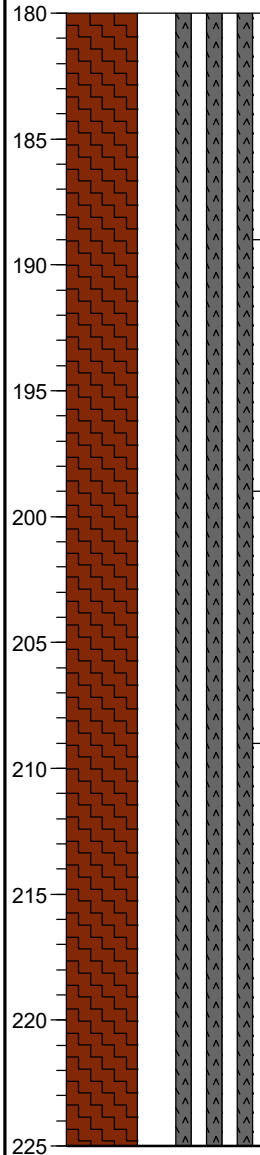
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** PZ-32D/33D
**Page:** 5 of 10

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/5/2024 | Boring Depth (ft): | 413 | Well Depth (ft TOC): | 325.3 (32D), 405.3 (33D) |
| Drilling End Date: | 10/17/2024 | Boring Diameter (in): | 4", 6" | Well Diameter (in): | 1 (32D), 2 (33D) |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 8.0 | Riser Material: | Sch 80 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 777.14 | Screen Material: | Sch 80 PVC Slotted |
| Driller: | J. Hall, D. Wilcox, K. Grant | Top of Casing Elev. (ft): | 776.74 (32D,33D) | Seal Material(s): | Grout/Bentonite |
| Logged By: | D. Kegley, T. Kessler | North, East: | (see Notes below)* | Filter Pack: | #1 Sand |



| DEPTH (ft) | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft MSL) |
|---|---|---|---|
| 180 | (179') GNEISS/AMPHIBOLITE GNEISS; gray to dark gray, pink quartzite and feldspar inclusions visible, thin laminations visible, abundant fractures with iron staining throughout. | from 179-189 ft bgs. ~30% water return. | 595 |
| | (181') Light gray, mostly quartzite, competent from 181-182 ft bgs. | | |
| 185 | (186') Broken into angular/subangular gravel from ~186-199 ft bgs. | | 590 |
| 190 | (189') GNEISS/AMPHIBOLITE GNEISS; gray to dark gray, abundant pink quartzite (feldspar inclusions) throughout, hard, thin laminations, black staining on fracture surfaces, trace iron staining. | ~20% water return. | 585 |
| 195 | | | 580 |
| 200 | (199') GNEISS/AMPHIBOLITE GNEISS; gray to dark gray, hard, thin laminations, competent. | | 575 |
| | (203') Quartzite seam ~1" thick, abundant pink quartzite and feldspar. | | |
| 205 | (204') Thin ~1mm fractures from 204-209 ft bgs. | | 570 |
| 210 | (209') GNEISS/AMPHIBOLITE GNEISS; dark gray, trace angular gravel from 209-212 ft bgs, abundant feldspar/pink quartzite, hard, thin laminations, competent, trace ~1mm fractures throughout. | Heavy rig chatter from 209-213 and 214-215 ft bgs. ~30% water return. | 565 |
| 215 | (215') Trace angular gravel from 215-219 ft bgs. | | 560 |
| 220 | (219') Increasing feldspar content with depth. | Increase in competency with depth. ~40-60% water return. | 555 |
| 225 | | | |

NOTES: Boring backfilled with bentonite to 408.6 ft below ground surface (bgs) prior to installing wells.
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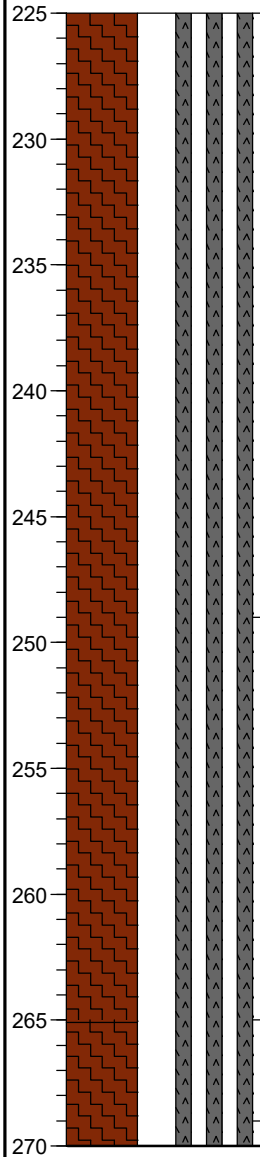
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** PZ-32D/33D
**Page:** 6 of 10

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/5/2024 | Boring Depth (ft): | 413 | Well Depth (ft TOC): | 325.3 (32D), 405.3 (33D) |
| Drilling End Date: | 10/17/2024 | Boring Diameter (in): | 4", 6" | Well Diameter (in): | 1 (32D), 2 (33D) |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 8.0 | Riser Material: | Sch 80 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 777.14 | Screen Material: | Sch 80 PVC Slotted |
| Driller: | J. Hall, D. Wilcox, K. Grant | Top of Casing Elev. (ft): | 776.74 (32D,33D) | Seal Material(s): | Grout/Bentonite |
| Logged By: | D. Kegley, T. Kessler | North, East: | (see Notes below)* | Filter Pack: | #1 Sand |



| DEPTH (ft) | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft MSL) |
|---|---|---|---|
| 225 | (225') Broken into angular to subangular gravel from 225-229 ft bgs. | | 550 |
| 230 | (229') Increasing feldspar, trace mica, increasing small fractures. | Water return reduced to ~20%. | 545 |
| 235 | | Heavy rig chatter. | 540 |
| 240 | (239') Rock broken into medium angular gravel from 239-241 ft bgs. | | 535 |
| 245 | (246') Abundant feldspar and quartzite from 246-249 ft bgs.<br>(247') Rock broken into medium angular gravel from 247-249 ft bgs. | | 530 |
| 250 | (249') GNEISS/AMPHIBOLITE GNEISS; medium gray (N5), abundant grayish orange pink (5YR 7/2) feldspar throughout, hard, thin laminations, trace ~1mm fractures throughout with black staining in fractures. | Heavy rig chatter. Suspect fractures from 249-254 ft bgs. | 525 |
| 255 | (254') Broken into angular gravel from 254-256 ft bgs, small grayish green (10GY 5/2) inclusions from 254-255.5 ft bgs. | | 520 |
| 260 | (259') Same as above. | Heavy chatter from 259-264 ft bgs. | 515 |
| 265 | (265') MUSCOVITE SCHIST; medium gray (N5), abundant white (N9) quartz and grayish orange pink (5YR 7/2) feldspar throughout, some biotite and some mica throughout, hard, competent.<br>(267') Trace grayish yellow-green (5GY 7/2) inclusions, iron staining from 267-269 ft bgs. | Heavy rig chatter from 266-269 ft bgs. | 510 |
| 270 | (269') MUSCOVITE SCHIST; medium dark gray (N4), abundant white (N9) quartz and | | |

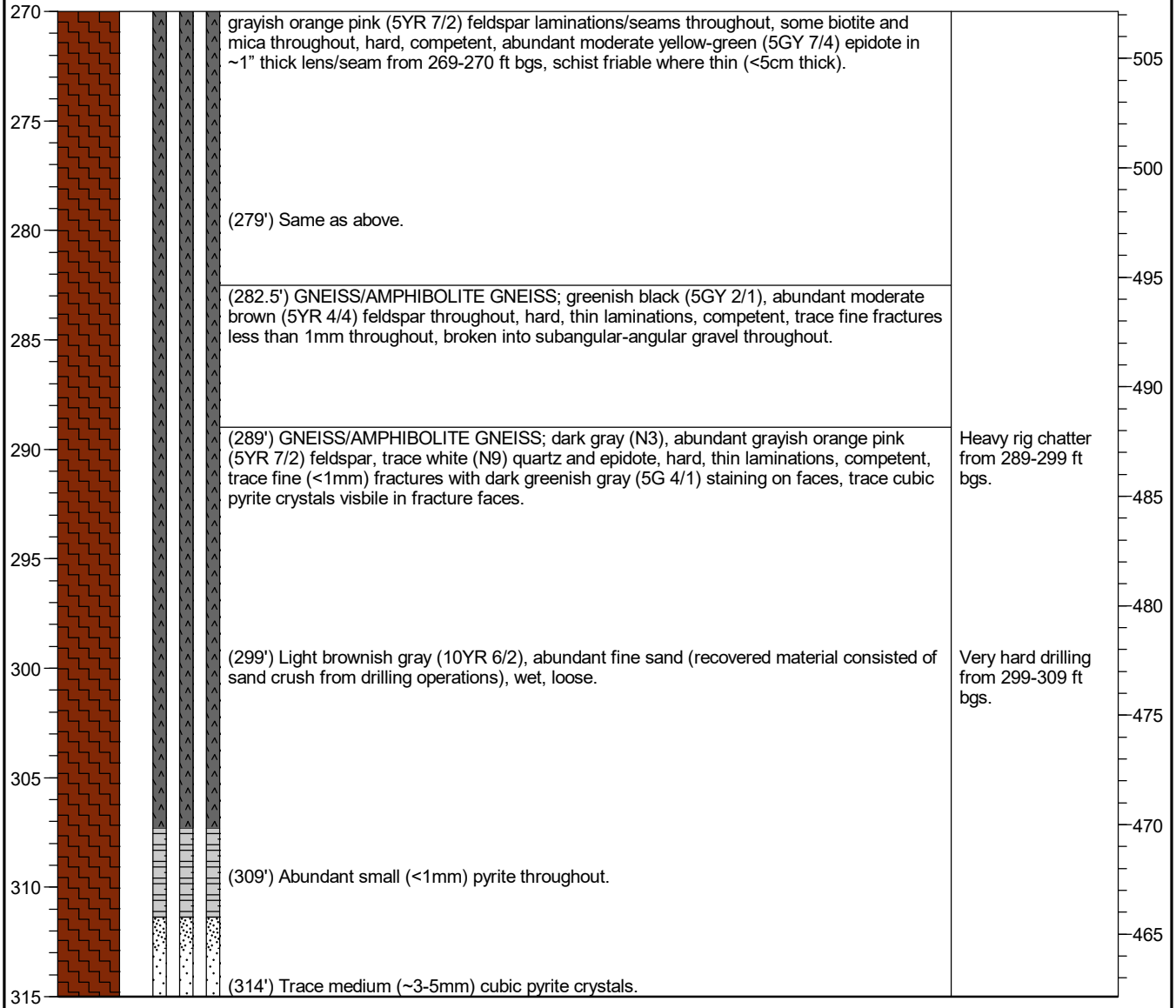
NOTES: Boring backfilled with bentonite to 408.6 ft below ground surface (bgs) prior to installing wells.
*PZ-32D - 1243211.88 N, 2029886.45 E; PZ-33D - 1243211.76 N, 2029886.78 E. Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Wells completed with flush-mount well cover set in concrete. Top of Casing (toc). Total well depth includes 4-inch sump.

Geosyntec consultants
engineers | scientists | innovators

**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** PZ-32D/33D
**Page:** 7 of 10

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/5/2024 | Boring Depth (ft): | 413 | Well Depth (ft TOC): | 325.3 (32D), 405.3 (33D) |
| Drilling End Date: | 10/17/2024 | Boring Diameter (in): | 4", 6" | Well Diameter (in): | 1 (32D), 2 (33D) |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 8.0 | Riser Material: | Sch 80 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 777.14 | Screen Material: | Sch 80 PVC Slotted |
| Driller: | J. Hall, D. Wilcox, K. Grant | Top of Casing Elev. (ft): | 776.74 (32D,33D) | Seal Material(s): | Grout/Bentonite |
| Logged By: | D. Kegley, T. Kessler | North, East: | (see Notes below)* | Filter Pack: | #1 Sand |




NOTES: Boring backfilled with bentonite to 408.6 ft below ground surface (bgs) prior to installing wells.
*PZ-32D - 1243211.88 N, 2029886.45 E; PZ-33D - 1243211.76 N, 2029886.78 E. Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Wells completed with flush-mount well cover set in concrete. Top of Casing (toc). Total well depth includes 4-inch sump.

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**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** PZ-32D/33D
**Page:** 8 of 10

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/5/2024 | Boring Depth (ft): | 413 | Well Depth (ft TOC): | 325.3 (32D), 405.3 (33D) |
| Drilling End Date: | 10/17/2024 | Boring Diameter (in): | 4", 6" | Well Diameter (in): | 1 (32D), 2 (33D) |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 8.0 | Riser Material: | Sch 80 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 777.14 | Screen Material: | Sch 80 PVC Slotted |
| Driller: | J. Hall, D. Wilcox, K. Grant | Top of Casing Elev. (ft): | 776.74 (32D,33D) | Seal Material(s): | Grout/Bentonite |
| Logged By: | D. Kegley, T. Kessler | North, East: | (see Notes below)* | Filter Pack: | #1 Sand |

| DEPTH (ft) | LITHOLOGY | WATER LEVEL | WELL COMPLETION | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft MSL) |
|---|---|---|---|---|---|---|
| 315 | | | | (315') Trace iron staining from 315-316 ft bgs. | | 460 |
| 320 | | | | (319') Same as above.<br>(320') Trace medium/large pyrite crystals. | | 455 |
| 325 | | | | (327') Trace epidote. | | 450 |
| 330 | | | | (329') GNEISS/AMPHIBOLITE GNEISS; dark greenish gray (5GY 4/1), abundant grayish orange pink (5YR 7/2) feldspar, some white (N9) quartz/quartzite, hard, thin laminations, competent, abundant small (<1mm) fractures from 329-330 ft bgs with very light gray staining present in open fractures, wet.<br>(329.5') Trace weathered small garnet in fracture zone, trace pyrite.<br>(334') Small (less than 1mm) fractures with black staining on fractures. | Core broken into angular gravel from 332-336 ft bgs. Driller reports soft spot at 334 ft bgs. | 445 |
| 335 | | | | | | 440 |
| 340 | | | | (339') GNEISS/AMPHIBOLITE GNEISS; dark greenish gray (5GY 4/1), abundant gray orange pink (5YR 7/2) feldspar throughout, abundant white (N9) quartzite, hard, thin laminations throughout, competent, abundant small (<1mm) fractures throughout with gray (N8) and dark greenish gray (5GY 4/1) staining and fractures, abundant iron staining on fracture surfaces from 339-340 ft bgs, broken into medium subangular gravel from 339-340 ft bgs, wet. | | 435 |
| 345 | | | | (347') Trace/some ~1-2mm pyrite crystals and ~0.5mm garnet in fracture faces, trace iron staining from 347-347.5 ft bgs. | | 430 |
| 350 | | | | (349') GNEISS/AMPHIBOLITE GNEISS; dark gray (N3), abundant light brown (5YR 5/6) feldspar throughout, hard, thin laminations throughout, competent, thin (<1mm) fractures throughout with gray (N8) dark green gray (5G 4/1) and black (N1) staining on fracture surfaces, broken into medium to large subrounded to angular gravel (heavily weathered gneiss, friable) with abundant iron staining from 349-351 ft bgs, trace garnet at 349-349.1 ft bgs, wet.<br>(351') Trace very small (>0.5mm) pyrite in fractures. | Heavy rig chatter from 349-353 ft bgs. | 425 |
| 355 | | | | (357') Angular gravel from 357-357.5 ft bgs. | | 420 |
| 360 | | | | | | |

NOTES: Boring backfilled with bentonite to 408.6 ft below ground surface (bgs) prior to installing wells.
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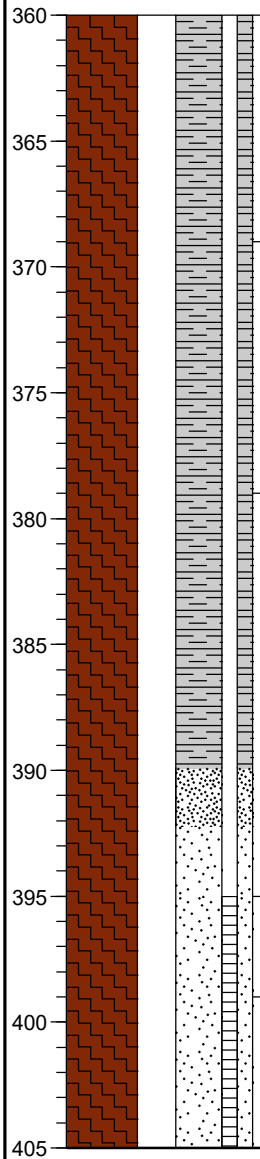
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** PZ-32D/33D
**Page:** 9 of 10

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/5/2024 | Boring Depth (ft): | 413 | Well Depth (ft TOC): | 325.3 (32D), 405.3 (33D) |
| Drilling End Date: | 10/17/2024 | Boring Diameter (in): | 4", 6" | Well Diameter (in): | 1 (32D), 2 (33D) |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 8.0 | Riser Material: | Sch 80 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 777.14 | Screen Material: | Sch 80 PVC Slotted |
| Driller: | J. Hall, D. Wilcox, K. Grant | Top of Casing Elev. (ft): | 776.74 (32D,33D) | Seal Material(s): | Grout/Bentonite |
| Logged By: | D. Kegley, T. Kessler | North, East: | (see Notes below)* | Filter Pack: | #1 Sand |




| DEPTH (ft) | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft MSL) |
|---|---|---|---|
| 360 | (359') GNEISS/AMPHIBOLITE GNEISS; dark gray (N3), abundant light brown (5YR 5/6) feldspar throughout, trace epidote throughout core, hard, competent, some small (>1mm) fractures throughout with dark greenish gray and gray staining on fracture surfaces, some very small pyrite (>0.05-0.5mm) throughout core concentrated in, but not limited to, open fractures, wet. | Very heavy rig chatter from 359-364.5 ft bgs. | 415 |
| 365 | (363') Broken into medium to large angular gravel from 363-367 ft bgs. | | 410 |
| 370 | (369') GNEISS/AMPHIBOLITE GNEISS; black (N2), abundant moderate brown (5YR4/4) feldspar decreasing with depth, hard, some thin laminations, competent, small (>1mm) fractures from 369-372 ft bgs with white and dark green gray staining on fracture surfaces, wet. | Very heavy rig chatter from 369-379 ft bgs. | 405 |
| | (371') Broken into medium to coarse angular to subangular gravel from 371-377 ft bgs. | | |
| 375 | (372') Some epidote from 372-373 ft bgs. | | 400 |
| | (376') Some epidote from 376-379 ft bgs. | | |
| 380 | (379') GNEISS/GRANITIC AMPHIBOLITE GNEISS; dark gray (N3), abundant light brown (5YR 5/6) feldspar, small white (N9) quartzite (1-2mm thick) and some epidote throughout, hard, thin laminations decrease with depth, competent, some small fractures (>1mm) throughout with white and dark green gray staining on faces, broken into small to coarse angular to subangular gravel throughout core, wet. | Heavy rig chatter; very hard drilling from 379-389 ft bgs. | 395 |
| 385 | (384') Some quartzite (1-2" thick) from 384-384.5 ft bgs. | | 390 |
| 390 | (390') Abundant biotite in fractures, large (~1" thick) quartzite vein vertically from 390-391.5 ft bgs. | | 385 |
| 395 | (395') BIOTITE HORNFELS/WEAK SCHIST; medium dark gray (N4), fine-grained, abundant biotite and mica, some light brown (5YR 5/6) feldspar, pyrite crystals (1-2mm), and epidote throughout, trace small garnets (<1mm), trace thin laminations, competent, some fractures (1-5mm) with white calcium-rich fill (HCl reactive), wet. | | 380 |
| 400 | (399') BIOTITE HORNFELS/WEAK SCHIST; medium dark gray (N4), abundant biotite and mica, some thin (1-5mm) white (N9) quartzite lenses, some light brown (5YR 5/6) feldspar and small (1.5mm) pyrite crystals throughout, trace small garnets (<1mm) and epidote throughout, decreasing feldspar and quartzite with depth, hard, competent, wet. | | 375 |
| 405 | | | |

NOTES: Boring backfilled with bentonite to 408.6 ft below ground surface (bgs) prior to installing wells.
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Geosyntec consultants
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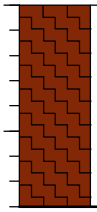
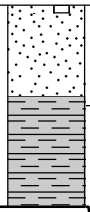
**Client:** Southern Company Services
**Project:** Plant Wansley Well Installation
**Address:** 1371 Liberty Church Rd, Carrollton, GA

# WELL LOG
**Well No.** PZ-32D/33D
**Page:** 10 of 10

| | | | | | |
|---|---|---|---|---|---|
| Drilling Start Date: | 3/5/2024 | Boring Depth (ft): | 413 | Well Depth (ft TOC): | 325.3 (32D), 405.3 (33D) |
| Drilling End Date: | 10/17/2024 | Boring Diameter (in): | 4", 6" | Well Diameter (in): | 1 (32D), 2 (33D) |
| Drilling Company: | Cascade Drilling | Sampling Method(s): | Core Barrel | Screen Slot (in): | 0.010 |
| Drilling Method: | Sonic | DTW During Drilling (ft): | 8.0 | Riser Material: | Sch 80 PVC |
| Drilling Equipment: | Terra Sonic 150CC | Ground Surface Elev. (ft): | 777.14 | Screen Material: | Sch 80 PVC Slotted |
| Driller: | J. Hall, D. Wilcox, K. Grant | Top of Casing Elev. (ft): | 776.74 (32D,33D) | Seal Material(s): | Grout/Bentonite |
| Logged By: | D. Kegley, T. Kessler | North, East: | (see Notes below)* | Filter Pack: | #1 Sand |

| DEPTH (ft) | LITHOLOGY | WATER LEVEL | WELL COMPLETION | SOIL/ROCK VISUAL DESCRIPTION | REMARKS | ELEVATION (ft MSL) |
|---|---|---|---|---|---|---|
| 405 |  | |  | (405') Broken into angular gravel from 405-406 ft bgs. | | 370 |
| 410 | | | | (409') BIOTITE HORNFELS/WEAK SCHIST; medium dark gray (N4), fine to medium grained, abundant biotite, mica, and epidote throughout, some white (N9) feldspar becoming moderate orange pink (10R 7/4) in the bottom 2", trace garnets throughout, hard, some thin (1-~5mm) white (N9) quartzite lenses, competent, trace calcium-rich fracture infilling at 409 ft bgs, wet.<br>(411') Trace white calcium-rich fill (HCl reactive) of fractures at 411 ft bgs.<br>(413') Boring terminated. | | 365 |

NOTES: Boring backfilled with bentonite to 408.6 ft below ground surface (bgs) prior to installing wells.
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Easting and Northing in NAD 83. Elevation in NAVD 88.

# RECORD OF BOREHOLE WGWC-14/APC-5S

SHEET 1 of 2

PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 52.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/4/15
DATE COMPLETED: 11/5/15

NORTHING: 1,240,621.86
EASTING: 2,024,584.92
GS ELEVATION: 806.87
TOC ELEVATION: 809.50 ft

DEPTH W.L.: 33' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/4/15
TIME W.L.: 14:00

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 805 | 0.00 - 2.00<br>SILT; OVERBURDEN; moist, orange | ML | | 804.87 | | | | | |
| | | 2.00 - 11.00<br>CLAYEY SILT; moist, brown, micaceous, trace garnet, material is loose/soft | | | 2.00 | | | | | |
| 5 | | 6.00: Shelby Tube Collected: 6'-7' | ML | | | | | | | |
| 10 | 800 | | | | 795.87 | | | | | |
| | | 11.00 - 26.70<br>SILTY CLAY; moist to wet, light orange to orange-brown. weathered pegmatitic unit, veins of feldspar, manganese and quartz (<5%), saprolite | | | 11.00 | | | | | |
| 15 | 795 | | | | | | | | | |
| | 790 | | CL | | | | | | | |
| 20 | | | | | | | | | | |
| | 785 | | | | | | | | Portland Type 1 | |
| 25 | | | | | | | | | | |
| | | 26.00 - 37.00<br>lense of silty clay<br>Shelby Tube Collected: 26'-26.7' | | | 780.17 | | | | | |
| | 780 | | | | 26.70 | | | | | |
| | | 26.70 - 43.00<br>SAP-ROCK; TRANSITIONALLY WEATHERED ROCK; meta granitic in texture and composition. predominantly k-spa and plagioclase with increasing quartz content with depth (<5-20%) | | | | | | | | |
| 30 | | | CL | | | | | | | |
| | 775 | | | | | | | | | |
| 35 | | | TWR | | | | | | | |
| | 770 | | | | 769.87 | | | | 3/8" Bentonite Pellets | |
| 40 | | | | | | | | | | |
| | 765 | | | | 763.87 | | | | | |
| | | 43.00 - 52.00<br>ROCK; wet, light brown meta-quartzite with light orange mineral oxidation. meta-quartzite, 5-10% muscovite | BR | | 43.00 | | | | | |
| 45 | | Log continued on next page | | | | | | | | |

**WELL CASING**
Interval: -2.5'-42'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

**WELL SCREEN**
Interval: 42'-52'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

**FILTER PACK**
Interval: 39'-52'
Type: #1 Sand/ Prepack Filter

**FILTER PACK SEAL**
Interval: 36'-39'
Type: 3/8" Bentonite Pellets

**ANNULUS SEAL**
Interval: 0'-36'
Type: Portland Type 1

**WELL COMPLETION**
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

**DRILLING METHODS**
Soil Drill: 4-inch Sonic
Rock Drill: 4-inch Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

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

# RECORD OF BOREHOLE WGWC-14/APC-5S

SHEET 2 of 2

PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 52.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/4/15
DATE COMPLETED: 11/5/15

NORTHING: 1,240,621.86
EASTING: 2,024,584.92
GS ELEVATION: 806.87
TOC ELEVATION: 809.50 ft

DEPTH W.L.: 33' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/4/15
TIME W.L.: 14:00

| DEPTH (ft) | ELEVATION (ft) | SOIL PROFILE: DESCRIPTION | USCS | GRAPHIC LOG | ELEV. / DEPTH (ft) | SAMPLES: SAMPLE NO. | TYPE | REC | MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES | WELL CONSTRUCTION DETAILS |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | | 43.00 - 52.00<br>ROCK; wet, light brown meta-quartzite with light orange mineral oxidation. meta-quartzite, 5-10% muscovite *(Continued)* | BR | | 754.87 | | | | #1 sand<br>0.010" slot screen | **WELL CASING**<br>Interval: -2.5'-42'<br>Material: Schedule 40 PVC<br>Diameter: 2"<br>Joint Type: Threaded<br>**WELL SCREEN**<br>Interval: 42'-52'<br>Material: Schedule 40 PVC<br>Diameter: 2'<br>Slot Size: 0.010"<br>End Cap: Schedule 40 PVC<br>**FILTER PACK**<br>Interval: 39'-52'<br>Type: #1 Sand/ Prepack Filter<br>**FILTER PACK SEAL**<br>Interval: 36'-39'<br>Type: 3/8" Bentonite Pellets<br>**ANNULUS SEAL**<br>Interval: 0'-36'<br>Type: Portland Type 1<br>**WELL COMPLETION**<br>Pad: 4'x4'x4"<br>Protective Casing: Anodized Aluminum<br>**DRILLING METHODS**<br>Soil Drill: 4-inch Sonic<br>Rock Drill: 4-inch Sonic |
| 50 | 760 | | | | | | | | | |
| 55 | 755 | Boring completed at 52.00 ft | | | | | | | | |
| 60 | 750 | | | | | | | | | |
| 65 | 745 | | | | | | | | | |
| 70 | 740 | | | | | | | | | |
| 75 | 735 | | | | | | | | | |
| 80 | 730 | | | | | | | | | |
| 85 | 725 | | | | | | | | | |
| 90 | 720 | | | | | | | | | |

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G.
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD WANSLEY BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

# SURETY RIDER

To be attached to and form a part of

Bond No. 800031223

Type of Bond: Performance Bond for Water Well Contractors

dated effective June 30, 2017
(MONTH-DAY-YEAR)

executed by Michael C. Rice/Cascade Drilling, L.P. , as Principal,
(PRINCIPAL)

and by Atlantic Specialty Insurance Company , as Surety,

in favor of State of Georgia
(OBLIGEE)

in consideration of the mutual agreements herein contained the Principal and the Surety hereby consent to changing

Coverage under the bond to include:
Michael Coleman

Nothing herein contained shall vary, alter or extend any provision or condition of this bond except as herein expressly stated.

This rider is effective December 21, 2017
(MONTH-DAY-YEAR)

Signed and Sealed December 21, 2017
(MONTH-DAY-YEAR)

Michael C. Rice/Cascade Drilling, L.P.
(PRINCIPAL)

By: _____
(PRINCIPAL)

Atlantic Specialty Insurance Company

By: _____
Elizabeth R. Hahn, Attorney-in-Fact

ATLANTIC SPECIALTY INSURANCE COMPANY NEW YORK CORPORATE SEAL 986

S-0443/GE 8/08

XDP

OneBeacon
INSURANCE GROUP

# Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Deanna M. French, Jill A. Wallace, Susan B. Larson, Elizabeth R. Hahn, Jana M. Roy, Scott McGilvray, Mindee L. Rankin, Ronald J. Lange, John R. Claeys, Roger Kaltenbach, Guy Armfield, Scott Fisher**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **sixty million dollars ($60,000,000)** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where 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.

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this eighth day of December, 2014.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

On this eighth day of December, 2014, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.

TARA JANELLE STAFFORD
NOTARY PUBLIC - MINNESOTA
My Commission Expires
January 31, 2020

_____
Notary Public

I, the undersigned, Assistant Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 21 day of December, 2017

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
October 1, 2019

_____
James G. Jordan, Assistant Secretary

# 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, 2017
(MONTH-DAY-YEAR)

and ending on June 30, 2018
(MONTH-DAY-YEAR)

Amount of bond $10,000.00

Description of bond Water Well Contractors & Drillers

**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 May 04, 2017
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By

D- Ann Kleidosty, Attorney-in-Fact

S-0157/GEEF 11/99

**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. 7710213

American States Insurance Company
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 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, Brooke A. Sharp; Christine Doczy; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle

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 4th day of April, 2017.

FIRST NATIONAL INSURANCE COMPANY OF AMERICA INCORPORATED 1928 NEW HAMPSHIRE
GENERAL INSURANCE COMPANY OF AMERICA INCORPORATED 1923 NEW HAMPSHIRE
SAFECO INSURANCE COMPANY OF AMERICA INCORPORATED 1953 NEW HAMPSHIRE
AMERICAN STATES INSURANCE COMPANY INCORPORATED 1929 INDIANA

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

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 4th day of April, 2017, 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.

TERESA PASTELLA COMMONWEALTH OF PENNSYLVANIA NOTARY PUBLIC

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions 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 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 4th day of May, 2017.

FIRST NATIONAL INSURANCE COMPANY OF AMERICA INCORPORATED 1928 NEW HAMPSHIRE
GENERAL INSURANCE COMPANY OF AMERICA INCORPORATED 1923 NEW HAMPSHIRE
SAFECO INSURANCE COMPANY OF AMERICA INCORPORATED 1953 NEW HAMPSHIRE
AMERICAN STATES INSURANCE COMPANY INCORPORATED 1929 INDIANA

By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Bond Number 1001126889

# Performance Bond For Drillers

Name of Driller Phillip Pitts and Stan White

Know All Men By These Presents

That we Phillip Pitts and Stan White and _____ Thompson Engineering, Inc. any and all employees, officers and partners (collectively hereinafter, **Principal**), and we American Contractors Indemnity Company, duly organized under the laws of the State of California (hereinafter, **Surety**), are held and firmly bound unto the Director of the Environmental Protection Division, Department of Natural Resources, State of Georgia (**Director**) and his or her Successor or Successors in office, as **Obligee**, in the full sum of **FIFTEEN THOUSAND DOLLARS ($15,000.00)** for the payment of which will and truly to be made, the Principal and Surety bind ourselves, our heirs, administrators, successors and assigns, jointly and severally, by these presents.

WHEREAS, the Water Well Standards Act of 1985 (O.C.G.A. §§ 12-5-120 *et seq.*) (the Act) requires that a Driller, as that term is defined by the Act, have a performance bond with the Director to ensure compliance with the Act; and WHEREAS the above bound Principal is subject to the terms and provisions of said Act.

NOW, THEREFORE, the conditions of this obligation are such that if the above bound Principal shall fully and faithfully perform the duties and in all things comply with the procedures and standards set forth in the Act as now and hereafter amended, and the rules and regulations promulgated pursuant thereto, including but not limited to the correction of any violation of such procedures and standards upon discovery, irrespective of whether such discovery is made before completion of any well subject to this bond, then this obligation shall be void; otherwise it shall remain in full force and effect.

And Surety, for value received, agrees that no amendment to existing laws, rules or regulations, or adoption of new laws, rules or regulations shall in anyway discharge its obligation on this bond, and does hereby waive notice of any such amendment, adoption or modification.

This bond shall be effective from the 1st day of November, 2018 and shall continue in effect until June 30, 2019, unless sooner terminated by mutual agreement of Principal and Surety, provided that no such termination may be made unless sixty (60) days' prior written notice is made to the Director. In the event of such termination, the rights of the Director as Obligee and beneficiaries under this bond which arose prior to such termination shall continue.

IN WITNESS THEREOF the Principal and Surety have caused these present to be duly signed and sealed, this the 26th day of February, 2019.

**Principal**
Thompson Engineering, Inc.

Print name: Chad R. Brown
Title: CLO + Secretary

Seal:

THOMPSON ENGINEERING, INC. CORPORATE SEAL ALABAMA

**Surety**
American Contractors Indemnity Company

Print name: Dewey Brashier
Title: Attorney-in-Fact

Seal:

Revised March 2017

TOKIO MARINE HCC

# POWER OF ATTORNEY

**AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING COMPANY**
**UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY**

KNOW ALL MEN BY THESE PRESENTS: That American Contractors Indemnity Company, a California corporation, Texas Bonding Company, an assumed name of American Contractors Indemnity Company, United States Surety Company, a M aryland corporation and U.S. Specialty Insurance Company, a Texas corporation (collectively, the "Companies"), do by these presents make, constitute and appoint:

Jim E. Brashier, Troy P. Wagener, Loren Richard Howell, Jr., Dewey Brashier,
Kathleen B. Scarborough, Susan Skrmetta, John W. Nance

its true and lawful Attorney(s)-in-fact, each in their separate capacity if more than one is named above, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver **any and all bonds, recognizances, undertakings or other instruments or contracts of suretyship to include riders, amendments, and consents of surety, providing the bond penalty does not exceed** ******Unlimited****** Dollars (***unlimited***). This Power of Attorney shall expire without further action on April 23rd, 2022. This Power of Attorney is granted under and by authority of the following resolutions adopted by the Boards of Directors of the Companies:

*Be it Resolved,* that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

*Attorney-in-Fact* may be given full power and authority for and in the name of and on behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings, including any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts, and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

*Be it Resolved,* that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, The Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 1st day of June, 2018.

**AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING OMPANY**
**UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY**

State of California

County of Los Angeles

By: _____
Daniel P. Aguilar, Vice President

*A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document*

On this 1st day of June, 2018, before me, Sonia O. Carrejo, a notary public, personally appeared Daniel P. Aguilar, Vice President of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (seal)

SONIA O. CARREJO
Notary Public - California
Los Angeles County
Commission # 2239479
My Comm. Expires Apr 23, 2022

I, Kio Lo, Assistant Secretary of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Companies, which is still in full force and effect; furthermore, the resolutions of the Boards of Directors, set out in the Power of Attorney are in full force and effect.

In Witness Whereof, I have hereunto set my hand and affixed the seals of said Companies at Los Angeles, California this 26th day of February, 2019.

Corporate Seals
Bond No. 1001126889

Agency No. 17033

_____
Kio Lo, Assistant Secretary

HCCSMANPOA06/2018

visit tmhcc.com/surety for more information

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 Andrew P. Larsen
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

# Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Deanna M. French, Susan B. Larson, Elizabeth R. Hahn, Jana M. Roy, Scott McGilvray, Mindee L. Rankin, Ronald J. Lange, John R. Claeys, Roger Kaltenbach, Guy Armfield, Scott Fisher, Andrew P. Larsen, Nicholas Fredrickson, William M. Smith, Derek Sabo, Charla M. Boadle**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **unlimited** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where 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.

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this twenty-seventh day of April, 2020.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

On this twenty-seventh day of April, 2020, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.

ALISON DWAN NASH-TROUT
NOTARY PUBLIC - MINNESOTA
My Commission Expires
January 31, 2025

_____
Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 12 day of April, 2021.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
January 31, 2025

_____
Kara Barrow, Secretary

Please direct bond verifications to surety@intactinsurance.com

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. 800033976

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 06/30/2021
(MONTH-DAY-YEAR)

and ending on 06/30/2023
(MONTH-DAY-YEAR)

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

Description of bond Performance Bond for Water Well Contractors

**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 12th , 2021
(MONTH-DAY-YEAR)

Atlantic Specialty Insurance Company

By Andrew P. Larsen
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

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. 800033976

dated effective September 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 June 30, 2023
(MONTH-DAY-YEAR)

and ending on June 30, 2025
(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:

**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 13, 2023
(MONTH-DAY-YEAR)

Atlantic Specialty Insurance Company

By _____
ATTORNEY-IN-FACT Carlos A. Albelo

intact INSURANCE

# Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Megan Sivley, Melissa Haddick, Sandra Parker, Orlando Aguirre, Stacy Killebrew, Carlos A. Albelo**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **unlimited** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where 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.

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this first day of January, 2023.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Sarah A. Kolar, General Counsel

STATE OF MINNESOTA
HENNEPIN COUNTY

On this first day of January, 2023, before me personally came Sarah A. Kolar, General Counsel of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and she acknowledged the execution of the same, and being by me duly sworn, that she is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.

ALISON DWAN NASH-TROUT
NOTARY PUBLIC - MINNESOTA
My Commission Expires
January 31, 2026

_____
Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 13th day of April, 2023.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
January 31, 2025

_____
Kara Barrow, Secretary

Please direct bond verifications to surety@intactinsurance.com

| Well ID | Casing Northing | Casing Easting | Top of Casing Elevation | Nail on Pad Northing | Nail on Pad Easting | Nail on Pad Elevation |
|---|---|---|---|---|---|---|
| PZ-1 | 1240249.8630 | 2022319.9310 | 856.72 | 1240249.9700 | 2022320.5080 | 853.91 |
| PZ-4 | 1242592.0290 | 2023595.9140 | 889.01 | 1242592.3380 | 2023596.5490 | 886.13 |
| PZ-6 | 1244382.8880 | 2024661.3940 | 915.15 | 1244383.1700 | 2024661.9960 | 912.30 |
| PZ-8 | 1245514.5910 | 2026807.2980 | 867.29 | 1245514.7420 | 2026806.5550 | 864.65 |
| PZ-10 | 1242058.4080 | 2028554.2850 | 832.02 | 1242059.0170 | 2028553.7330 | 829.26 |
| PZ-11 | 1240578.8710 | 2026933.0880 | 823.09 | 1240579.6810 | 2026932.6430 | 820.21 |
| PZ-12 | 1240837.9640 | 2026731.0050 | 818.74 | 1240838.5000 | 2026731.0470 | 816.17 |
| PZ-15 | 1240457.6050 | 2025105.3770 | 826.86 | 1240456.9660 | 2025105.5600 | 824.59 |
| PZ-16 | 1239419.7700 | 2023662.2240 | 800.70 | 1239419.1270 | 2023662.3410 | 798.05 |
| PZ-17 | 1239270.0160 | 2023086.5000 | 831.01 | 1239269.7540 | 2023086.3130 | 828.54 |
| PZ-18 | 1239569.5150 | 2022299.1990 | 814.51 | 1239569.7940 | 2022300.1040 | 812.10 |
| PZ-20 | 1243496.8600 | 2030132.7300 | 787.30 | 1243495.6070 | 2030132.0520 | 784.45 |
| WAMW-1 | 1241843.6600 | 2028944.6250 | 782.66 | 1241844.0310 | 2028943.9790 | 780.05 |
| WAMW-2 | 1241547.5560 | 2028806.2670 | 770.82 | 1241547.1220 | 2028805.7030 | 768.39 |
| WGWA-1 | 1250656.0950 | 2035580.7080 | 782.93 | 1250656.4090 | 2035580.1280 | 780.37 |
| WGWA-2 | 1251556.3950 | 2035590.1080 | 758.23 | 1251556.3970 | 2035589.4980 | 755.77 |
| WGWA-3 | 1240848.2140 | 2022350.0950 | 828.91 | 1240848.0950 | 2022350.8040 | 826.63 |
| WGWA-4 | 1240879.5820 | 2022339.6570 | 834.34 | 1240879.8680 | 2022340.9730 | 831.33 |
| WGWA-5 | 1241997.9440 | 2022368.8480 | 902.15 | 1241998.0000 | 2022369.7100 | 899.28 |
| WGWA-6 | 1241932.0170 | 2022360.5840 | 897.13 | 1241931.8200 | 2022361.6140 | 894.62 |
| WGWA-7 | 1243338.6270 | 2023843.8080 | 897.33 | 1243337.9640 | 2023843.4880 | 894.49 |
| WGWA-18 | 1244592.5610 | 2025580.7050 | 878.02 | 1244592.1320 | 2025580.1320 | 875.47 |
| WGWC-8 | 1242929.4040 | 2029644.5810 | 780.08 | 1242928.7100 | 2029644.4410 | 777.70 |
| WGWC-9 | 1242801.1220 | 2029115.7520 | 812.03 | 1242800.5100 | 2029116.3540 | 809.33 |
| WGWC-10 | 1240971.9590 | 2026725.6080 | 812.38 | 1240971.3740 | 2026725.3710 | 809.61 |
| WGWC-11 | 1240860.1770 | 2025773.3940 | 823.96 | 1240859.5740 | 2025772.9470 | 821.44 |
| WGWC-12 | 1240827.6760 | 2025755.9870 | 823.04 | 1240827.1900 | 2025755.4920 | 820.57 |
| WGWC-13 | 1240610.9290 | 2024585.9120 | 809.78 | 1240610.3180 | 2024586.1010 | 807.32 |
| WGWC-14A | 1240604.5360 | 2024599.6310 | 810.94 | 1240603.9380 | 2024598.3360 | 808.20 |
| WGWC-15 | 1240483.1620 | 2023912.9150 | 804.69 | 1240483.1680 | 2023912.2850 | 802.03 |
| WGWC-16 | 1240480.4570 | 2023903.7730 | 804.21 | 1240480.3010 | 2023903.1200 | 801.72 |
| WGWC-17 | 1240052.0560 | 2022623.8220 | 816.00 | 1240052.0140 | 2022623.1790 | 813.36 |
| WGWC-19 | 1241851.5120 | 2028949.1850 | 783.42 | 1241851.9040 | 2028948.5970 | 780.60 |

| Benchmark | Northing | Easting | Elevation |
|---|---|---|---|
| BM-W1 | 1243475.416 | 2029633.083 | 804.08 |
| BM-W2 | 1251565.596 | 2035853.723 | 747.75 |

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: 06/03/2020-06/10/2020. 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-W1 & BM-W2 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL


06/16/2020

| Well ID | Casing Northing | Casing Easting | Top of Casing Elevation | Nail on Pad Northing | Nail on Pad Easting | Nail on Pad Elevation | |
|---|---|---|---|---|---|---|---|
| PZ-22 | 1243350.7570 | 2029769.4340 | 807.95 | 1243351.5210 | 2029768.3170 | 804.88 | PZ-22 has been renamed WGWC-20 |
| PZ-23D | 1242139.5320 | 2028520.8680 | 834.32 | 1242138.6260 | 2028521.5100 | 831.89 | |
| PZ-23S | 1242139.3280 | 2028512.6500 | 834.41 | 1242138.3710 | 2028513.3390 | 831.79 | PZ-23S has been renamed WGWC-21 |
| PZ-24 | 1241695.2460 | 2028116.0540 | 810.37 | 1241694.5570 | 2028117.2730 | 807.00 | PZ-24 has been renamed WGWC-22 |
| PZ-25S | 1240769.7850 | 2027414.5750 | 823.80 | 1240770.8890 | 2027414.3720 | 820.50 | PZ-25S has been renamed WGWC-23 |
| PZ-26D | 1239919.4530 | 2024146.3480 | 804.93 | 1239920.5460 | 2024145.9060 | 802.31 | |
| PZ-26S | 1239916.6790 | 2024139.8210 | 804.80 | 1239917.8130 | 2024139.2740 | 802.22 | PZ-26S has been renamed WGWC-24 |
| PZ-27D | 1240190.9250 | 2023620.3600 | 809.28 | 1240191.2500 | 2023619.0790 | 806.22 | |
| PZ-27S | 1240184.1820 | 2023616.6900 | 808.98 | 1240184.5500 | 2023615.5290 | 805.98 | PZ-27S has been renamed WGWC-25 |
| PZ-28 | 1240066.0150 | 2022624.7330 | 816.18 | 1240066.0550 | 2022623.6960 | 813.57 | |
| PZ-29D | 1244304.8990 | 2028853.2900 | 805.24 | 1244304.4270 | 2028852.7910 | 805.77 | PZ-29D is being renamed WGWC-37D |
| PZ-29S | 1244317.1290 | 2028839.6800 | 805.30 | 1244316.6610 | 2028839.1970 | 805.80 | PZ-29S is being renamed WGWC-37S |

| Benchmark | Northing | Easting | Elevation |
|---|---|---|---|
| BM-W1 | 1243475.416 | 2029633.083 | 804.08 |

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: 11/04/2020-11/05/2020. 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-W1 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL


11/17/2020

**GEL ENGINEERING OF NC INC**

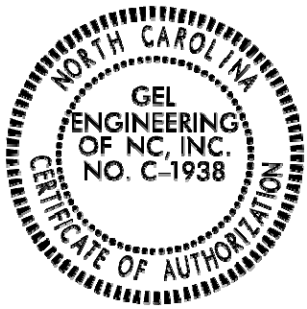
**Plant Wansley Monitoring Wells**

Field Surveys: 10/11/2022

| Well ID | Casing Northing | Casing Easting | Top of Casing Elevation | Nail or Pad Northing | Nail or Pad Easting | Nail or Pad Elevation | Description |
|---|---|---|---|---|---|---|---|
| WGWC-26D | 1243343.658 | 2029758.846 | 808.23 | 1243344.161 | 2029757.977 | 805.06 | NAIL |
| WGWC-27 | 1243215.513 | 2029878.918 | 780.54 | 1243215.002 | 2029879.991 | 778.05 | NAIL |
| CSB-2022-01 | 1243334.918 | 2029756.286 | 804.93 | N/A | N/A | N/A | BORING |
| CSB-2022-02 | 1243337.255 | 2029761.150 | 804.86 | N/A | N/A | N/A | BORING |
| CSB-2022-03 | 1243341.239 | 2029768.805 | 804.81 | N/A | N/A | N/A | BORING |
| | | | | | | | |
| | | | | | | | |
| Benchmark | Northing | Easting | Elevation | | | | |
| BM-W1 | 1243475.416 | 2029633.083 | 804.08 | | | | |
| | | | | | | | |

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: 10/11/2022. FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD '88. EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R10 & R12 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-W1 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL

10/13/2022





COA - LS003119
Exp. 12/31/2022

**GEL ENGINEERING OF NC INC**

**Plant Wansley Monitoring Wells**

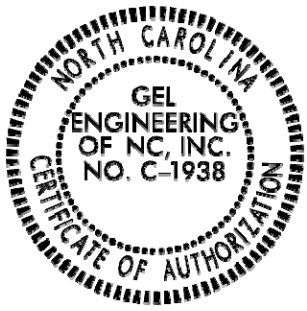
Field Surveys: 8/29/2023

| Well ID | Casing Northing | Casing Easting | Top of Casing Elevation | Nail or Pad Northing | Nail or Pad Easting | Nail or Pad Elevation | Description |
|---|---|---|---|---|---|---|---|
| WGWC-28D | 1243337.128 | 2029751.04 | 808.24 | 1243338.077 | 2029750.31 | 805.36 | NAIL |
| | | | | | | | |
| | | | | | | | |

| Benchmark | Northing | Easting | Elevation |
|---|---|---|---|
| BM-W1 | 1243475.416 | 2029633.083 | 804.08 |
| | | | |

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: 8/29/2023. FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD '88. EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R10 & R12 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-W1 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL

9/5/2023





COA - LS003119
Exp. 12/31/2022

**GEL ENGINEERING OF NC INC**

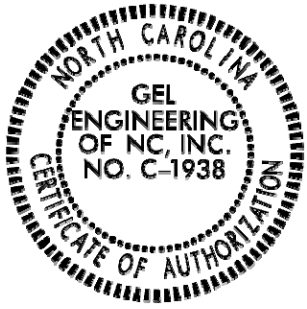
**Plant Wansley Monitoring Wells**

Field Surveys: 7/01/2024

| Well ID | Casing Northing | Casing Easting | Top of Casing Elevation | Nail or Pad Northing | Nail or Pad Easting | Nail or Pad Elevation | Description |
|---|---|---|---|---|---|---|---|
| PZ-30 | 1240592.295 | 2027321.682 | 814.80 | 1240591.324 | 2027321.634 | 812.43 | NAIL |
| PZ-31 | 1239941.772 | 2024324.328 | 810.90 | 1239940.65 | 2024324.993 | 807.86 | NAIL |
| | | | | | | | |
| Benchmark | Northing | Easting | Elevation | | | | |
| BM-W1 | 1243475.416 | 2029633.083 | 804.08 | | | | |
| | | | | | | | |

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: 7/01/2024. FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD '88. EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R12 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-W1 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL

7/1/2024





COA - LS003119
Exp. 12/31/2024

**GEL ENGINEERING OF NC INC**

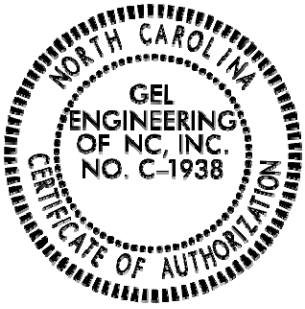
**Plant Wansley Monitoring Wells**

Field Surveys: 11/06/2024

| Well ID | Casing Northing | Casing Easting | Top of Casing Elevation | Nail or Pad Northing | Nail or Pad Easting | Nail or Pad Elevation | Description |
|---|---|---|---|---|---|---|---|
| PZ-32D | 1243211.878 | 2029886.449 | 776.74 | 1243211.283 | 2029887.715 | 777.14 | NAIL |
| PZ-33D | 1243211.758 | 2029886.775 | 776.74 | | | | |
| | | | | | | | |
| Benchmark | Northing | Easting | Elevation | | | | |
| BM-W1 | 1243475.416 | 2029633.083 | 804.08 | | | | |
| | | | | | | | |

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:11/06/2024. FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD '88. EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R12 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-W1 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL

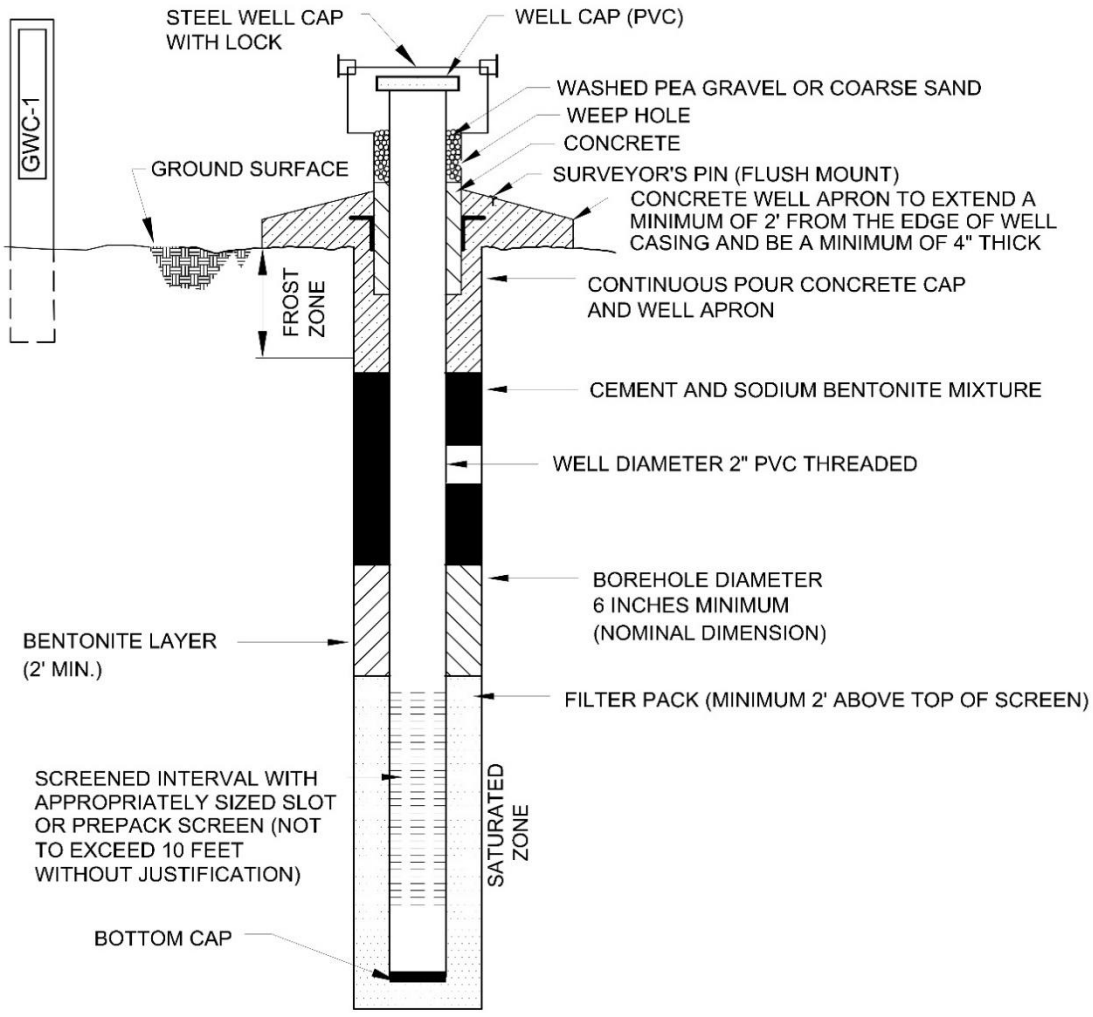
11/7/2024





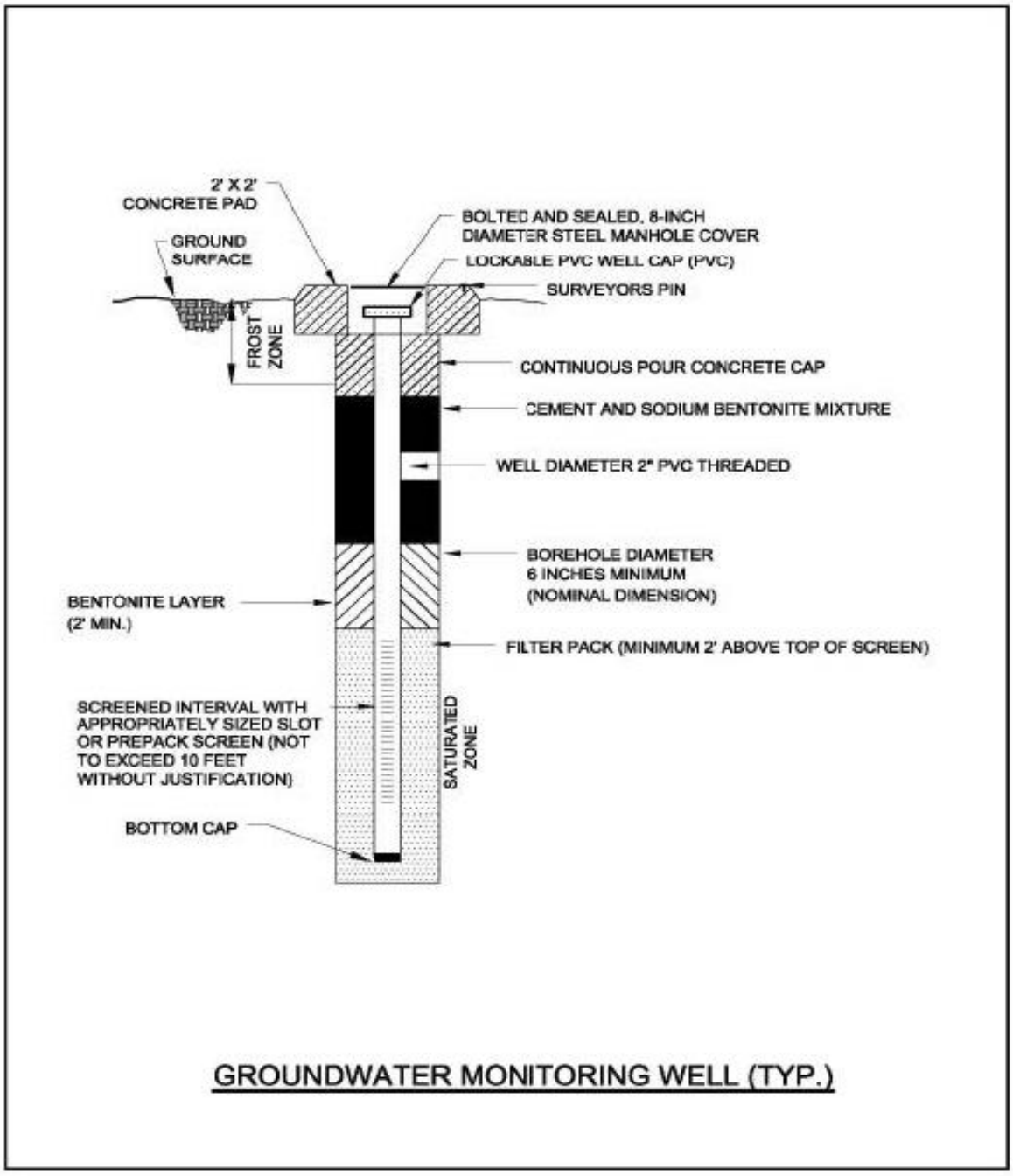
COA - LS003119
Exp. 12/31/2024

# B1. GROUNDWATER MONITORING WELL DETAIL ABOVE-GROUND SURFACE COMPLETION




GROUNDWATER MONITORING WELL (TYP.)

# B2. GROUNDWATER MONITORING WELL DETAIL FLUSH MOUNT SURFACE COMPLETION



# 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-lsasd-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 equipment will be decontaminated before use and between well locations using procedures described in the latest version of the USEPA Region 4 SESD guidance document, *Operating Procedure for Field Equipment Cleaning and Decontamination* (USEPA, SESDGUID-205-R#) as a guide.

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 for Groundwater Sampling* (USEPA, 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.

A brief overview of purging and sampling methodologies, including the type of sampling equipment used will be provided in routine monitoring reports.