

**PLANT SCHERER
CCR SURFACE IMPOUNDMENT
(CCR UNIT AP-1)
MONROE COUNTY, GEORGIA
PART A SECTION 6
GROUNDWATER MONITORING PLAN**

for



**Georgia
Power**

September 2022

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Certification

This Groundwater Monitoring Plan, Georgia Power Company - Plant Scherer Ash Pond AP-1 has been prepared to meet the requirements of the Georgia Solid Waste Management Rule by a qualified groundwater scientist with Golder Associates USA Inc., with the exception of Figure 3, which has been prepared and certified by AECOM. References to the appropriate 391-3-4 Rules are incorporated throughout this document.

I certify that I am a qualified groundwater scientist as defined in 391-3-4-.01, who 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. I further certify that this Groundwater Monitoring Plan was prepared by myself or by a subordinate working under my direction. The design of the groundwater monitoring system was developed in compliance with the Georgia Environmental Protection Division (GA EPD) Rules of Solid Waste Management, Chapter 391-3-4.10(6).

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1.0 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 the site. This plan meets the requirements of GA EPD rules and uses GA EPD's Manual for Ground Water Monitoring dated September 1991 as a guide. Monitoring well and piezometer locations are presented on Figure 1 for Ash Pond 1 (AP-1) at Plant Scherer.

Monitoring will occur in accordance with 391-3-4-.10 of the Georgia Solid Waste Management Rules. If the monitoring requirements specified in this plan conflict with GA EPD rules (391-3-4), the GA EPD rules will take precedent. Plant Scherer AP-1 entered into Assessment Monitoring on May 15, 2018. Based on GA EPD's request on August 20, 2021, and in response to statistically significant levels of cobalt observed in groundwater, Georgia Power **initiated an assessment of corrective measures (ACM) at AP-1 on November 21, 2021.**

In accordance with the United States Environmental Protection Agency (US EPA) Coal Combustion Rule (§257.90), a detection monitoring well network for AP-1 has been installed and certified by a qualified professional engineer. This certification has been 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 the 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.

2.0 GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

Geologic and hydrogeologic conditions for this site are described in a report, *Hydrogeologic Assessment Report Plant Scherer Ash Pond (AP-1)*, prepared by Golder Associates Inc., September 2021. Key elements of this report are summarized below.

2.1 Site Geology

The site is underlain by regolith consisting of residual soils and saprolite overlying fractured, crystalline bedrock. Bedrock at the site consists of interlayered feldspathic biotite gneiss with discontinuous layers and lenses of chlorite/actinolite schist and feldspathic hornblende gneiss/amphibolite. Large, discontinuous lenses or pods of mafic bodies were locally observed to be interlayered with the gneiss near the central and eastern portions of the site.

The metamorphic and igneous rocks that underlie the area have been subjected to physical and chemical weathering which has created a landscape dissected by creeks and streams forming a dendritic drainage pattern. These rocks are deeply weathered due to the humid climate and bedrock is typically overlain by a variably thick blanket of residual soils and saprolite. Because of such variations in rock types and topography, the depth of weathering can vary significantly over short horizontal distances. Based on boring logs, residual soils, primarily sandy silt, silty sand, sandy clay and silty clay, occur as a variably thick blanket overlying bedrock across most of the site. The thickness of the residual soil encountered in the borings is variable, ranging from a minimum of approximately 17 feet to as much as 168 feet, with an average residual soil thickness of about 57 feet. Thickness of saprolitic soils and/or saprolitic rock range in thickness across the site. Large, discontinuous lenses or intrusive mafic and ultramafic bodies were locally observed to be interlayered with the gneiss near the northern, central and

eastern portions of the site and south of Lake Juliette. There is also a gabbro in the south-central area of the site (see Figure 3 of the HAR).

2.2 Site Hydrogeology

Groundwater occurs within the regolith - fractured bedrock settings of Georgia Piedmont. The water-table occurs within the undifferentiated overburden consisting of saprolite (i.e., residual soils and weathered rock). This is a shallow, transient saturated zone in which groundwater is primarily stored within regolith and is generally unconfined. Groundwater flow occurs through the porous saprolite and is recharged by precipitation stored in residual soils and typically discharges into major streams and rivers. The fractured (crystalline) bedrock includes the upper bedrock and competent bedrock with open fractures sufficient to yield water to a well. Open fractures are the primary conduit for groundwater flow through bedrock because the rocks lack primary porosity. Recharge to bedrock aquifer systems comes from water stored in the saturated regolith, which functions as a sponge of sorts, slowly allowing groundwater to infiltrate the bedrock through areas of enhanced permeability. This rate of infiltration is very slow, as indicated by dating of groundwater in other areas in the Piedmont exceeding 60 years.

Local complexities in groundwater flow within this aquifer are influenced by topographic and related top of rock variations on site, which produces an uppermost aquifer surface that is generally a subdued reflection of topography. Groundwater flow is north toward unnamed tributaries to Berry Creek, east toward Berry Creek and the Ocmulgee River, and south toward the Recycle Pond and Lake Juliette as shown on Figure 2.

Topographically higher areas west of AP-1 represent the only upgradient locations on the property. The first zone of groundwater saturation is generally present in the regolith; however, the water table at topographic highs may occur in the upper bedrock at higher land elevations.

Based on review of the potentiometric contours, horizontal hydraulic gradient is also variable and reflects topography at the site. The horizontal gradient appears to be steeper around the perimeter of the pond, particularly along the embankment where groundwater flow lines are influenced by the constructed slope for the dam. Field hydraulic conductivity tests (i.e., slug tests) performed in a variety of geologic materials indicate an average hydraulic conductivity on the order of 10^{-4} centimeters per second [(cm/s); Backup data includes 58 slug test measurements across the site with an average of 2.36 feet/day (ft/day); median 1.31 ft/day]. This hydraulic conductivity is generally consistent with regional measurements within Piedmont overburden. In general, groundwater flow is potentially faster through the transitionally weathered zone; however, the magnitude of difference is nominal enough to not be considered relevant at this site.

2.3 Uppermost Groundwater Aquifer

At the site, groundwater within the (saturated) overburden represents the uppermost aquifer. This uppermost aquifer is comprised of both residual soils and transitionally weathered rock and is generally unconfined. It is recharged by precipitation stored in residual soils and typically discharges into major streams and rivers. A series of monitoring wells have been installed within the uppermost aquifer at the site to comprise the detection monitoring well network. These wells are summarized on Table 1.

The bedrock is recharged by groundwater that is stored in the overburden. This groundwater slowly infiltrates underlying bedrock by moving through preferentially weathered discontinuities in the bedrock mass, such as foliation/compositional layering, joints, and faults. Groundwater flow in the bedrock is through inter-connected fractures, and groundwater discharges into streams and rivers where the bedrock fractures intersect a surface

water drainage. Throughout the Piedmont/Blue Ridge physiographic province, weathering and fractures that produce water generally decrease with depth (Golder, 2021).

Local complexities in groundwater flow within this aquifer are influenced by topographic and related top of rock variations on site. The water table surface is a subdued reflection of topography at the site, with groundwater generally flowing radially from the ash pond because it is situated on a topographic high. It appears that groundwater flow is toward the pond from the west and eventually flows north, east and south.

2.4 Groundwater Gradient and Flow Velocity

Hydraulic gradient is calculated as the difference in groundwater elevation (in feet) divided by the distance between two piezometers or wells (in feet). Groundwater elevation data recorded in August 2021 from three piezometer and/or well pairings (SGWC-14/PZ-29S, SGWC-13/PZ-35I, and SGWC-20/PZ-43S), which are located along the groundwater flow path and perpendicular to the potentiometric contours, were used to calculate hydraulic gradients for AP-1.

Average groundwater flow velocities at the site were calculated using hydraulic gradient data, hydraulic conductivity data generated from slug testing results, and an estimated effective porosity of the screened portion of the uppermost aquifer. Based on slug test data, the average hydraulic conductivity for the overburden is approximately 1.31 to 2.36 feet per day (ft/day). An effective porosity of 0.20 was used based on the default values for effective porosity recommended by US EPA for a silty sand-type soil (US EPA, 1996). The hydraulic gradient calculated between well pairs SGWC-14/PZ-29S, SGWC-13/PZ-35I, and SGWC-20/PZ-43S for August 2021 were 0.014, 0.020 and 0.027, as summarized on Table 2.

Calculated (horizontal) flow velocities range from approximately 34 feet per year (ft/yr) to 116 ft/yr during the August 2021 event. These estimated flow velocities are consistent with historical results.

3.0 SELECTION OF WELL LOCATIONS

Groundwater monitoring wells are installed to monitor the uppermost aquifer beneath the site. Locations are selected based on unit configurations, site geologic and hydrogeologic considerations, proximity to unit boundaries, and access to well locations. Locations are chosen to serve as upgradient (SGWA), lateral or downgradient (SGWC) based on groundwater flow direction determined by potentiometric evaluation as well as shallow (PZ-26S), intermediate (PZ-25I) or deep (PZ-27D) to distinguish relative screen depth interval.

Monitoring wells are 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.

The current monitoring well network consists of 25 wells (seven upgradient and 18 downgradient) located around AP-1 targeted to capture groundwater flow away from AP-1 and serve as detection monitoring network in the uppermost aquifer. An assessment monitoring well network has also been established at the site in response to statistically significant levels of cobalt in site groundwater. Table 1 presents a tabulated list of individual detection monitoring and assessment monitoring wells and piezometers with well construction details such as location coordinates, top-of-casing elevation, well depths and screened intervals. A map depicting monitoring well locations for monitoring is included as Figure 1. Any modification that involves the addition of or a change to the detection monitoring network will be made by a minor modification to the permit pursuant to 391-3-4-.02(3)(b)6.

4.0 MONITORING WELL DRILLING, CONSTRUCTION ABANDONMENT AND REPORTING

The existing detection monitoring well network for AP-1 is in place. Existing monitoring wells were installed following 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 for best practices. Each of the monitoring wells and piezometers was surveyed by Jordan Engineering, Inc., with a horizontal accuracy of 0.5 feet and a vertical accuracy of 0.01 feet referenced to Georgia State Plane Coordinate System (Georgia State Plane, West Zone, NAD83) and vertical datum North American Vertical Datum 1988 (NAVD88). The certified surveyor's report is included in Appendix A. Monitoring well logs, for the existing monitoring well network, are included in Appendix A. The following sections describe the methods used for well drilling, construction, abandonment, and reporting for modifications to the well network at the site.

4.1 Drilling

A variety of well drilling methods are available for installing groundwater wells. Drilling methodology may include, but not be limited to: hollow stem augers, direct push, air rotary, mud rotary, or roto sonic techniques. The drilling method will 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 *Region 4 U.S. Environmental Protection Agency (US EPA) Science and Ecosystem Support Division (SESD) Operating Procedure SESDGUID-101-R1* as a general guide for best practices. Drilling equipment shall be decontaminated before use and between borehole locations using the procedures described in the latest version of the *Region 4 U.S. Environmental Protection Agency Science and Ecosystem Support Division Operating Procedure for Field Equipment Cleaning and Decontamination* as a guide. **Drilling and well installation activities will be completed under the direction of a qualified groundwater scientist.**

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

Drilling for any subsurface hydrologic investigation, installation or abandonment of groundwater wells will be performed by driller that has at the time of installation, a performance bond on file with the Water Well Standards Advisory Counsel.

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.

4.2.1 Well Casings and Screens

American Society for Testing Materials (ASTM), National Sanitation 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 appropriate materials may be used for construction with prior written approval from the GA EPD.

4.2.2 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 techniques 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.

4.2.3 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 approximately one to 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 (i.e., 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 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 a cement and bentonite mixture (approximately 94 pounds cement / 3 to 5 pounds bentonite / 6.5 gallons of potable water) placed via tremie pipe from the top of the bentonite seal. During grouting, care will be taken to assure that the bentonite seal is not disturbed by locating the base of the tremie pipe approximately 2 feet above the bentonite seal and injecting grout at low pressure/velocity.

4.2.4 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 cement grout to ground surface, where it will become a concrete apron extending outward with a radius of at least 2 feet from 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 may 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 may be installed around each above-grade groundwater monitoring well. Well construction in high traffic areas will generally be limited unless site conditions warrant otherwise.

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

4.2.5 Well Development

Well development will be conducted under direction of a qualified groundwater scientist. After well construction is completed, wells will be developed by alternately purging and surging until relatively clear discharge water with little turbidity is observed. **The goal will be to achieve a turbidity of less than 5 nephelometric turbidity units (NTUs); however, formation-specific conditions may not allow this target to be accomplished. Development can be discontinued once a measured turbidity of less than 10 NTUs is achieved.** Additionally, the stabilization criteria contained in Appendix C, Groundwater Sampling Procedures, 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 of 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. Development equipment will be decontaminated prior to first use and between wells.

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

Many geologic formations contain clay and silt particles that are small enough to work their way through 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 included in the well installation report.

4.3 Well Abandonment

Monitoring wells will be abandoned using industry-accepted practices and using the Manual for Groundwater Monitoring (1991) and Georgia Water Well Standards Act (1985) as guides. Neat Portland cement or bentonite will be used as appropriate to complete abandonment and seal the well borehole.

Per Georgia Rule 391-3-4-.10(6)(g): Monitoring wells require abandonment and replacement after two consecutive dry sampling events, unless an alternate schedule is approved by the GA EPD. Well abandonment will be performed under the direction of a qualified groundwater scientist. A minor modification will be submitted to the EPD in accordance with Rule 391-3-4.02(3)(b)(6) prior to the installation or decommissioning of monitoring wells.

4.4 Documentation

The following information documenting the construction and development of each well is provided on the boring logs for the existing monitoring system (Appendix A). Within 60 days of the construction and development or abandonment of each groundwater monitoring well, a well installation/abandonment report will be submitted to the GA EPD by a qualified groundwater scientist or engineer. For installed wells, the following minimal information will be provided:

- Well Identification
- Name of drilling contractor and type of drill rig
- Dates of drilling and initial well emplacement
- Drilling method and drilling fluid if used
- Borehole diameter and well casing diameter
- Well depth (± 0.1 ft.)
- Schematic of well with dimensions
- Lithologic logs
- Well casing materials
- Documentation that the driller, at the time the monitoring wells were installed, had a bond on file with the Water Well Standards Advisory Council
- Type of protective well cap and sump dimensions for each well.
- Screen materials and design (i.e., interval in feet below ground surface and elevation)
- Screen length and slot size
- Filter pack material/size and volume (placement narrative)
- Seal emplacement method and type/volume of sealant
- Surface seal and volumes/mix of annular seal material

- Documentation of ground surface elevation (± 0.01 ft.)
- Documentation of top of casing elevation (± 0.01 ft.)
- Well development date
- Well turbidity following development
- Narrative of well development method-specific well development procedure.
- Documentation stating that a Georgia-registered professional surveyor has certified that the horizontal accuracy for the installed monitoring wells is 0.5 feet, and vertical accuracy for elevations to 0.01 feet using a known datum.

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.

5.0 GROUNDWATER MONITORING PARAMETERS AND FREQUENCY

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

Table 3 presents the groundwater monitoring parameters and sampling frequency. A minimum of eight independent samples from each groundwater well will be collected and analyzed for 40 CFR 257, Subpart D, Appendix III and Appendix IV test parameters to establish a background statistical dataset. Subsequently, 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. Assessment monitoring was initiated on May 15, 2018, per GA Chapter 391-3-4-.10(6) Rules for Solid Waste Management.

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 4 the groundwater samples will be analyzed using methods specified in US EPA Manual SW-846, EPA 600/4-79-020, Standard Methods for the Examination of Water and Wastewater (SM18-20), US EPA Methods for the Chemical Analysis of Water and Wastes (MCAWW), American Society for Testing and Materials (ASTM), or other suitable analytical methods approved by the GA EPD. The method used will be able to reach a suitable practical quantification limit to detect natural background conditions at the facility. Field instruments used to measure pH must be accurate and reproducible to within 0.1 Standard Units (S.U.).

6.0 SAMPLE COLLECTION

During each sampling event, samples will be collected and handled in accordance with the procedures specified in Appendix C, Groundwater Sampling Procedures, and Appendix D, Surface Water Sampling Procedures. Sampling procedures were developed using standard industry practice and US EPA Region 4 Field Branches Quality System and Technical Procedures as a guide. Low-flow sampling methodology will be utilized for sample collection. Alternative industry accepted sampling techniques may be used when appropriate with prior GA EPD approval.

For groundwater sampling, positive gas displacement Teflon or stainless-steel bladder pumps will be used for purging. If dedicated bladder pumps are not used, portable bladder pumps or peristaltic pumps (with dedicated or disposable tubing) may be used. **When non-dedicated equipment is used, it will be decontaminated prior to use and between wells. Non-dedicated equipment will be decontaminated in accordance with the US EPA LSASDPROC-205-R#.**

Groundwater wells that are determined to be dry for two consecutive semi-annual sampling events should be replaced, unless an alternate schedule has been approved by GA EPD.

7.0 SURFACE WATER MONITORING PLAN

Following the submittal of the final closure certification, during each semi-annual sampling event, surface water samples will be collected from areas that collect watershed from the cap system of closed AP-1. Sample locations include SW-1 and SW-2. These locations are identified on Figure 3. The surface water monitoring is for the Solid Waste Management Program and is not associated with any existing industrial, industrial stormwater, and/or construction stormwater discharge permitting which are regulated by the National Pollutant Discharge Elimination System (NPDES) requirements of Section 402 of the Clean Water Act. In the event that no flowing water is present at the sampling locations at the time of sampling, it will be noted in the field sampling documents associated with that event and no sample will be collected for that event.

During each sampling event, samples will be collected and handled in accordance with the procedures specified in Appendix D. Surface water samples will be collected and handled in accordance with standard industry practice and U.S. EPA Region IV Science and Ecosystem Support Division Operating Procedure for Surface Water Sampling (SESDFPROC-201-R4; US EPA, 2016). When possible, the sample should be collected directly into the appropriate sample container provided by the analytical laboratory. If the sample location cannot be physically reached, an intermediate collection device may be used (e.g., a “swing sampler” with a 12-foot handle and a single use container) as presented in the current USEPA field guidance document. When non-dedicated equipment is used, it will be decontaminated prior to use and between surface water sampling locations.

Surface water samples will be analyzed for field parameters, pH, temperature, specific conductance, dissolved oxygen, oxidation reduction potential (ORP), and turbidity and Appendix IV constituents and by the methods as listed in Table 5.

Monitoring results from surface water sampling will be incorporated into semi-annual groundwater monitoring reports. Constituent concentrations from the current monitoring event, as well as each of the historical monitoring events will be provided on a data summary table to assess potential impacts of the facility to adjacent surface waters.

8.0 CHAIN-OF-CUSTODY

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

- Sample identification numbers
- Signature of collector
- Date and time of collection

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

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

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

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

9.0 FIELD AND LABORATORY QUALITY ASSURANCE/QUALITY CONTROL

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

Field Equipment Rinse Blanks - Where sampling equipment is not new or dedicated, an equipment rinse blank will be collected at a rate of one blank per 20 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.

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 groundwater monitoring reports. Instruments will be recalibrated as necessary (e.g., when calibration checks indicate significant variability), and any 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 as part of each groundwater report's quality control documentation.

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

10.0 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 the GA EPD within 90 days of receipt and analysis of the groundwater analytical data from the laboratory. At a minimum, semi-annual reports will include:

- 1) A narrative describing sampling activities and findings including a summary of the number of samples collected, the dates the samples were collected and whether the samples were required by the detection or assessment monitoring programs
- 2) A record of field sampling conditions including, well signage, well access, sampling and purging equipment condition and site conditions that may affect sampling will be recorded on a Well Inspection Form (Appendix C). These forms will be included as an appendix to the semi-annual groundwater monitoring reports.
- 3) A brief overview of purging/sampling methodologies
- 4) Discussion of results
- 5) Recommendations for the future monitoring consistent with the Rules
- 6) Potentiometric surface contour map for the aquifer(s) being monitored, signed and sealed by a Georgia-registered PG. or PE.
- 7) 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
- 8) Groundwater flow rate and direction calculations
- 9) Identification of any groundwater wells that were installed or decommissioned during the preceding year, along with a narrative description of why these actions were taken
- 10) 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
- 11) Table of current analytical results for each well, highlighting statistically significant increases and concentrations above maximum contaminant level (MCL)
- 12) Tabular summary of surface water monitoring results including the current monitoring event as well as each of the historical monitoring events. This will be added after final closure certification is submitted.
- 13) If applicable, semi-annual assessment monitoring results
- 14) Any alternate source demonstration completed during the previous monitoring period, if applicable
- 15) Laboratory Reports
- 16) COC documentation
- 17) Field sampling logs including field instrument calibration, indicator parameters and parameter stabilization data
- 18) Documentation of non-functioning wells

- 19) Statistical analyses, including trend analyses (if applicable)
- 20) Plume delineation (if applicable)
- 21) Updated potable water well survey (annually, if applicable)
- 22) Certification by a qualified groundwater scientist.

11.0 STATISTICAL ANALYSES

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 determine statistical limits. 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 the groundwater protection standards. These statistical analyses methods are consistent with the Unified Guidance (EPA, 2009).

According to GA EPD rules (391-3-4-.10(6)(a), which incorporates the statistical analysis requirements of 40 CFR 257.93 by reference), 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 shall be conducted separately for each constituent in each well. As authorized by the rule, statistical tests that may 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 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). 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).

A site-specific statistical analysis plan that provides details regarding the statistical methods to be used will be placed in the site's operating record pursuant to 391-3-4-.10(6). Figure 4 includes a flowchart that depicts the process that will be followed to develop the site-specific plan. Figure 5 presents the logic that will be used to calculate site-specific statistical limits and test compliance results against those limits.

12.0 REFERENCES

American Society for Testing and Materials (ASTM)

Georgia (GA) Department of Natural Resources Environmental Protection Division, Rules of Solid Waste Management, Chapter 391-3-4-.10(6), Georgia Environmental Protection Division.

Georgia Water Well Standards Act (1985)

Golder Associates Inc., *Hydrogeologic Assessment Report, Plant Scherer Ash Pond 1 (AP-1)*, Golder Associates Inc., September 2021.

Manual for Groundwater Monitoring (1991)

National Environmental Laboratory Accreditation Program (NELAP)

Region 4 U.S. Environmental Protection Agency Science and Ecosystem Support Division, Operating Procedure for Design and Installation of Monitoring Wells

Region 4 U.S. Environmental Protection Agency, Field Branches Quality System and Technical Procedures

Southern Company Services Earth Science and Environmental Engineering, Combustion By-Products Disposal Facility Site Acceptability Report, 2007.

U.S. Environmental Protection Agency, *Soil Screening Guidance: User's Guide*, Second Edition, EPA/540/R-96-018, July 1996.

U.S. Environmental Protection Agency, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, (EPA 530-R-09-007), March 2009.

U.S. Environmental Protection Agency, Laboratory Services and Applied Science Division, Field Equipment Cleaning and Decontamination, (LSASDPROC-205-R4), June 22, 2020; or current version.

U.S. Environmental Protection Agency, Science and Ecosystem Support Division, Surface Water Sampling, (SESDPROC-201-R4), December 14, 2016.

U.S. Environmental Protection Agency, 40 CFR 257, Subpart D, 80 Fed. Reg. 21468 (April 17, 2015).

U.S. Environmental Protection Agency, Manual SW-846, EPA 600/4-79-020, Standard Methods for the Examination of Water and Wastewater (SM18-20),

U.S. Environmental Protection Agency, Methods for the Chemical Analysis of Water and Wastes (MCAWW).

Tables

TABLE 1
SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA
 Georgia Power - Plant Scherer AP-1
 Juliette, GA

Well ID	Hydraulic Location	Screened Matrix	NAD 83 Northing ^[1]	NAD 83 Easting ^[1]	Top of Casing Elevation (feet NAVD88) ^[2]	Ground Surface Elevation at Concrete Pad (feet NAVD88)	Ground Surface Elevation (feet NAVD88) ^[2]	Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD88) ^[2]	Bottom of Screen Elevation (feet NAVD88) ^[2]	Screen Length (feet)	Date of Installation	Average Hydraulic Conductivity (cm/sec)	Kh/Kv	Groundwater Elevation August 16, 2021
AP-1 MONITORING WELL NETWORK															
SGWA-1	Upgradient	Overburden	1119233.10	2399899.81	546.83	544.27	544.1	50.9	503.57	493.57	10	2/11/2015	5.57E-05	Kv	506.87
SGWA-2	Upgradient	Bedrock	1119237.67	2399908.19	546.94	544.20	544.0	95.8	458.55	448.55	10	2/17/2015	1.25E-04	Kh	506.83
SGWA-3	Upgradient	Overburden	1120224.15	2399296.64	545.83	543.03	542.9	50	502.88	492.88	10	11/18/2015	1.74E-05	Kh	512.48
SGWA-4	Upgradient	Overburden	1121477.05	2401124.64	547.66	544.96	544.8	60.5	494.31	484.31	10	11/17/2015	3.06E-05	Kh	501.84
SGWA-5	Upgradient	Overburden	1118088.42	2397426.26	508.48	505.93	505.7	30	485.53	475.53	10	11/18/2015	1.33E-04	Kh	493.03
SGWC-6	Downgradient	Overburden	1122167.18	2401979.98	510.49	507.87	507.7	25	492.67	482.67	10	11/12/2015	1.75E-05	Kh	497.58
SGWC-7	Downgradient	Bedrock	1122668.61	2402259.75	506.40	503.65	503.5	35	478.45	468.45	10	11/11/2015	4.55E-04	Kh	494.17
SGWC-8	Downgradient	Overburden/Bedrock	1122865.98	2402979.50	514.28	511.68	511.5	40	481.48	471.48	10	11/11/2015	7.84E-04	Kh	493.10
SGWC-9	Downgradient	Overburden	1122634.64	2403455.19	510.62	507.88	507.6	35	482.63	472.63	10	11/6/2015	1.48E-04	Kh	489.25
SGWC-10	Downgradient	Overburden	1121895.85	2404046.92	509.41	506.80	506.6	30	486.60	476.60	10	11/5/2015	3.73E-05	Kh	490.24
SGWC-11	Downgradient	Overburden	1121542.11	2404332.12	511.47	508.77	508.6	40	478.62	468.62	10	10/29/2015	5.78E-05	Kh	490.85
SGWC-12	Downgradient	Overburden	1121576.75	2405009.92	500.53	497.80	497.7	47.6	460.70	450.70	10	10/30/2015	4.77E-05	Kh	483.69
SGWC-13	Downgradient	Overburden	1121274.85	2405761.20	482.71	480.17	479.9	35	454.92	444.92	10	11/4/2015	1.32E-04	Kh	477.80
SGWC-14	Downgradient	Overburden	1120966.13	2406329.89	476.72	473.52	473.3	35.3	448.52	438.52	10	2/24/2015	4.56E-03	Kv	465.99
SGWC-15	Downgradient	Overburden	1120191.20	2407093.92	482.75	479.76	479.7	45.2	444.86	434.86	10	2/26/2015	3.39E-03	Kv	453.46
SGWC-16	Downgradient	Overburden	1119221.42	2407155.89	460.31	457.18	457.0	39.2	428.23	418.23	10	3/3/2015	2.07E-03	Kh	434.57
SGWC-17	Downgradient	Overburden	1118308.77	2407267.44	418.00	415.13	414.9	24.5	400.83	390.83	10	3/11/2015	1.30E-03	Kh	416.45
SGWC-18	Downgradient	Overburden	1116947.75	2406931.32	513.29	510.41	510.3	44.5	476.21	466.21	10	3/17/2015	1.64E-03	Kh	BTOP
SGWC-19	Downgradient	Overburden	1116024.59	2406097.05	478.94	476.13	475.8	34.6	451.63	441.63	10	3/18/2015	3.81E-04	Kv	462.39
SGWC-20	Downgradient	Overburden	1116020.73	2405307.67	504.60	501.69	501.5	25	486.49	476.49	10	11/19/2015	7.94E-05	Kh	489.81
SGWC-21	Downgradient	Overburden	1115409.88	2404197.33	487.67	484.92	484.7	24.9	470.17	460.17	10	5/6/2015	--	--	486.07
SGWC-22	Downgradient	Overburden	1115540.08	2403001.81	518.02	515.51	515.4	50.1	478.91	468.91	10	1/22/2015	5.10E-04	Kh	490.47
SGWC-23	Downgradient	Bedrock	1116693.80	2402131.07	523.10	520.17	520.0	49.7	480.72	470.72	10	2/3/2015	3.12E-03	Kv	492.00
SGWA-24	Upgradient	Overburden	1118121.96	2400743.52	492.38	489.47	489.3	40	461.62	451.62	10	2/10/2015	--	--	477.15
SGWA-25	Upgradient	Overburen	1120555.28	2400857.08	526.49	523.45	523.2	45.0	488.60	478.60	10	2/18/2015	1.32E-03	Kv	499.53

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AP-1 ASSESSMENT MONITORING WELL NETWORK															
PZ-13S	Downgradient	Overburden	1121957.03	2404227.47	520.51	517.68	517.5	45.3	482.58	472.58	10	4/1/2015	2.21E-03	Kh	488.96
PZ-14S	Downgradient	Overburden	1121852.80	2404820.56	512.13	509.03	508.7	44.9	474.18	464.18	10	3/26/2015	1.06E-02	Kh	486.17
PZ-17I	Downgradient	Bedrock	1120190.27	2407107.37	483.03	480.20	479.9	97.3	393.20	383.20	10	2/27/2015	3.08E-03	Kh	453.81
PZ-39S	Downgradient	Overburden	1120178.43	2407470.49	474.58	471.99	471.8	76.4	405.79	395.79	10	8/21/2018	--	--	438.18
PZ-40I	Downgradient	Bedrock	1116960.39	2406934.72	512.55	510.19	510.1	83.4	437.09	427.09	10	8/15/2018	--	--	472.87
PZ-41S	Downgradient	Overburden	1116799.18	2407124.98	491.50	488.66	488.6	45.0	453.56	443.56	5	8/16/2018	--	--	460.90
PZ-42I	Downgradient	Bedrock	1116013.79	2405294.12	503.18	500.65	500.5	105.0	414.45	404.45	10	8/21/2018	--	--	491.81
PZ-43S	Downgradient	Overburden	1115598.12	2405507.16	504.03	501.34	501.2	55	460.69	450.69	10	8/17/2018	--	--	479.08
PZ-44I	Downgradient	Bedrock	1121515.40	2404330.23	510.36	507.91	507.9	114	403.86	393.86	10	9/5/2018	--	--	490.30
PZ-69I	Downgradient	Bedrock	1121906.36	2404051.36	508.85	506.44	506.0		410.00	400.00	10	1/13/2022	--	--	NA
PIEZOMETERS															
PZ-2I	Downgradient	Bedrock	1115544.85	2402990.76	517.56	515.06	514.8	84.4	440.91	430.91	10	1/27/2015	1.11E-04	Kv	489.92
PZ-3S	Downgradient	Overburden	1116085.04	2402533.80	517.29	514.57	514.4	50	474.77	464.77	10	1/29/2015	--	--	488.50
PZ-5I	Downgradient	Bedrock	1117484.15	2401816.71	523.26	520.73	520.6	47	484.03	474.03	10	2/4/2015	1.10E-02	Kh	486.46
PZ-9I	Upgradient	Bedrock	1120562.72	2400862.76	526.57	523.61	523.3	80.2	453.51	443.51	10	2/19/2015	4.71E-04	Kh	499.99
PZ-10S	Downgradient	Overburden	1122338.03	2401768.92	517.53	514.78	514.4	34.9	489.88	479.88	10	5/5/2015	3.79E-03	Kh	496.90
PZ-11S	Downgradient	Overburden	1123169.22	2402767.44	529.31	526.19	526.0	45.9	490.54	480.54	10	4/6/2015	1.67E-03	Kh	492.30
PZ-12S	Downgradient	Overburden	1122684.90	2403618.46	517.69	514.64	514.5	44.4	480.54	470.54	10	4/1/2015	4.22E-03	Kh	488.07
PZ-14I	Downgradient	Bedrock	1121866.36	2404822.43	512.89	510.03	509.7	95.2	424.93	414.93	10	3/25/2015	6.15E-04	Kh	486.23
PZ-15S	Downgradient	Overburden	1121486.96	2405558.59	500.60	497.59	497.4	40.1	467.74	457.74	10	4/28/2015	3.79E-03	Kh	481.05
PZ-19I	Downgradient	Bedrock	1118588.47	2407251.56	417.76	414.74	414.5	71.9	353.04	343.04	10	3/4/2015	6.01E-03	Kh	413.77
PZ-19S	Downgradient	Overburden	1118587.24	2407241.54	417.80	414.79	414.5	25	399.94	389.94	10	3/4/2015	6.43E-04	Kh	413.19
PZ-20I	Downgradient	Bedrock	1118318.15	2407273.36	417.41	414.46	414.3	79.6	345.11	335.11	10	3/10/2015	3.96E-04	Kh	414.43
PZ-21S	Downgradient	Overburden	1117639.19	2407006.52	473.74	470.85	470.6	23.4	457.60	447.60	10	3/12/2015	5.78E-04	Kh	463.08
PZ-25S	Downgradient	Overburden	1121848.11	2404567.52	528.24	525.78	525.5	55	480.78	470.68	10	5/25/2016	--	--	488.35
PZ-25I	Downgradient	Overburden	1121837.80	2404573.04	528.39	526.02	525.8	125	410.97	400.97	10	5/24/2016	--	--	488.11

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PIEZOMETERS - continued															
PZ-26S	Downgradient	Overburden	1121696.65	2405733.23	491.65	489.17	489.1	45	454.27	444.27	10	6/1/2016	--	--	474.56
PZ-27D	Downgradient	Bedrock	1121558.94	2406023.17	475.43	472.659	472.4	125	367.61	347.61	20	6/17/2016	--	--	472.92
PZ-27S	Downgradient	Overburden	1121565.33	2406028.25	475.80	473.175	473.1	45	438.33	428.33	10	5/26/2016	--	--	469.79
PZ-28I	Downgradient	Bedrock	1121394.06	2406373.94	484.18	481.587	481.4	70	422.84	412.84	10	6/3/2016	4.54E-04	Kh	465.18
PZ-29S	Downgradient	Overburden	1121269.19	2406618.29	491.31	488.704	488.5	45.0	453.70	443.70	10	5/26/2016	--	--	460.32
PZ-30I	Downgradient	Bedrock	1121073.53	2407078.99	478.31	475.712	475.6	85.3	400.46	390.46	10	6/2/2016	--	--	448.01
PZ-31I	Downgradient	Bedrock	1121204.03	2407445.73	466.89	464.163	464.0	75.1	399.06	389.06	10	6/2/2016	--	--	437.07
PZ-32D	Downgradient	Bedrock	1121089.64	2407719.37	465.42	462.561	462.4	126.0	366.56	336.56	30	6/1/2016	--	--	435.45
PZ-32S	Downgradient	Overburden	1121089.22	2407698.44	465.06	462.52	462.3	55.0	417.47	407.47	10	6/1/2016	--	--	439.05
PZ-33I	Downgradient	Overburden	1121245.25	2409064.05	469.38	466.547	466.4	76.0	400.65	390.65	10	6/8/2016	--	--	426.32
PZ-34S	Downgradient	Overburden	1121331.59	2409288.37	443.67	441.08	440.8	45.5	405.53	395.53	10	6/4/2016	--	--	423.79
PZ-35I	Downgradient	Overburden	1121598.57	2406058.33	474.40	474.72	474.6	55.5	429.27	419.27	10	6/22/2016	--	--	469.71
PZ-36I	Downgradient	Bedrock	1120410.99	2407256.25	481.52	478.96	478.9	95.5	393.56	383.56	10	6/5/2016	--	--	449.11
PZ-36S	Downgradient	Overburden	1120401.04	2407248.04	482.35	479.50	479.4	55.4	434.40	424.40	10	8/22/2018	--	--	446.83
PZ-37I	Downgradient	Overburden/Bedrock	1121178.48	2408419.19	482.18	479.68	479.5	71.2	418.48	408.48	10	6/2/2016	--	--	434.00
PZ-38I	Downgradient	Overburden	1121475.86	2406352.98	482.24	482.38	482.2	74.0	418.43	408.43	10	6/23/2016	--	--	466.72
PZ-45D	Downgradient	Bedrock	1125296.24	2400250.55	512.33	509.94	509.7	165	399.74	344.74	55	3/9/2020	--	--	485.22
PZ-46D	Downgradient	Overburden/Bedrock	1123512.22	2400923.25	450.28	447.37	447.1	53.5	423.57	393.57	30	3/17/2020	--	--	437.77
PZ-47D	Downgradient	Bedrock	1126623.42	2404366.80	410.01	406.91	406.8	25.1	396.66	381.66	15	3/11/2020	--	--	400.27
PZ-48S	Downgradient	Overburden	1125014.71	2405779.92	444.33	441.45	441.3	61	390.55	380.55	10	3/4/2020	--	--	410.43
PZ-49D	Downgradient	Bedrock	1123429.73	2410615.29	367.41	365.13	364.9	106	288.88	258.88	30	3/6/2020	--	--	360.72
PZ-49S	Downgradient	Overburden	1123434.46	2410605.99	367.89	365.29	365.2	25.5	350.19	340.19	10	3/7/2020	--	--	359.45
PZ-50D	Upgradient	Bedrock	1103125.91	2408306.87	473.78	470.70	470.7	100	380.66	370.66	10	3/18/2020	--	--	451.43
PZ-51D	Upgradient	Bedrock	1119239.99	2399955.07	546.04	543.47	543.2	126	427.17	417.17	10	3/8/2020	--	--	506.56
PZ-52	Downgradient	Overburden	1122822.91	2403622.69	521.84	519.68	519.4	77	452.43	442.43	10	3/17/2020	--	--	487.53
PZ-53	Downgradient	Overburden	1121932.34	2404813.43	516.64	513.81	513.6	45	478.61	468.61	10	3/19/2020	--	--	486.12

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PIEZOMETERS - continued															
PZ-54	Downgradient	Overburden	1121509.71	2406555.15	492.96	490.27	490.2	45	455.17	445.17	10	3/19/2020	--	--	461.13
PZ-55	Downgradient	Overburden	1121931.60	2409132.43	447.21	444.25	444.2	36	418.15	408.15	10	3/20/2020	--	--	422.19
PZ-56	Downgradient	Bedrock	1123524.68	2409037.21	433.68	431.10	430.8	46	395.10	385.10	10	3/19/2020	--	--	393.58
PZ-57	Downgradient	Overburden/Bedrock	1123405.64	2407361.88	439.51	436.55	436.4	59	387.45	377.45	10	3/19/2020	--	--	404.88
PZ-58	Downgradient	Overburden	1123299.43	2405207.09	492.21	489.35	489.3	46	453.25	443.25	10	3/16/2020	--	--	449.71
PZ-59S	Downgradient	Overburden	1125213.65	2407658.45	385.93	383.13	382.8	24	368.83	358.83	10	3/20/2020	--	--	380.32
PZ-59D	Downgradient	Bedrock	1125229.89	2407668.93	385.86	383.16	382.9	69	328.86	313.86	15	3/27/2020	--	--	380.17
PZ-60D	Downgradient	Bedrock	1124410.72	2408242.87	389.34	386.53	386.4	99.7	317.03	286.73	30	3/29/2020	--	--	380.72
PZ-60S	Downgradient	Overburden	1124400.44	2408243.59	389.88	386.66	386.4	20	376.36	366.36	10	3/31/2020	--	--	383.09
PZ-61	Downgradient	Overburden/Bedrock	1122537.21	2408531.43	439.27	436.84	436.8	49.45	397.34	387.34	10	4/11/2020	--	--	419.78
PZ-62	Downgradient	Overburden	1122370.34	2406175.11	501.32	498.45	498.3	52.25	456.00	446.00	10	4/9/2020	--	--	461.46
PZ-63	Downgradient	Bedrock	1123955.38	2404060.61	501.54	499.12	498.9	40	468.87	458.87	10	4/12/2020	--	--	482.46
PZ-64	Downgradient	Bedrock	1123724.36	2406404.18	479.52	476.09	476.0	70	416.99	406.99	10	4/8/2020	--	--	433.19
PZ-65	Downgradient	Overburden	1121937.16	2407733.04	432.42	429.77	429.6	30.25	409.57	399.57	10	4/11/2020	--	--	415.48
PZ-66D	Downgradient	Bedrock	1124644.48	2409028.45	427.60	424.64	424.4	266	-	-	open borehole	4/2/2020	--	--	379.19
PZ-66	Downgradient	Bedrock	1124664.10	2409115.98	421.24	418.68	418.4	60	373.38	358.38	15	5/8/2020	--	--	386.12
PZ-67D	Downgradient	Bedrock	1125764.81	2408259.40	428.48	424.86	424.7	301	-	-	open borehole	4/1/2020	--	--	379.33
PZ-67	Downgradient	Overburden	1125782.26	2408248.89	425.94	423.37	423.2	39.75	393.47	383.47	10	4/25/2020	--	--	401.31
PZ-68	Downgradient	Overburden	1125116.59	2407181.92	395.55	392.34	392.1	20	382.14	372.14	10	4/15/2020	--	--	387.59
LPZ-01	Upgradient	Overburden/Bedrock	1117001.58	2398513.19	553.29	550.47	550.0	65.8	495.97	485.97	10	11/10/2015	--	--	496.71
LPZ-02	Upgradient	Overburden	1119972.34	2398004.93	514.52	511.42	511.1	20.0	501.07	491.07	10	11/20/2015	--	--	511.22
LPZ-03	Upgradient	Overburden	1117883.86	2398657.00	515.45	512.55	512.2	35.0	487.15	477.15	10	11/18/2015	3.92E-06	Kv	506.04
LPZ-04	Upgradient	Overburden	1115962.59	2397083.47	461.24	458.31	458.1	32.0	440.11	430.11	10	11/19/2015	4.51E-08	Kv	446.46
LPZ-05	Upgradient	Overburden	1115328.95	2399698.53	524.51	521.81	521.5	53	479.41	469.41	10	11/5/2015	--	--	478.69

TABLE 1
SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA
 Georgia Power - Plant Scherer AP-1
 Juliette, GA

Well ID	Hydraulic Location	Screened Matrix	NAD 83 Northing ^[1]	NAD 83 Easting ^[1]	Top of Casing Elevation (feet NAVD88) ^[2]	Ground Surface Elevation at Concrete Pad (feet NAVD88)	Ground Surface Elevation (feet NAVD88) ^[2]	Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD88) ^[2]	Bottom of Screen Elevation (feet NAVD88) ^[2]	Screen Length (feet)	Date of Installation	Average Hydraulic Conductivity (cm/sec)	Kh/Kv	Groundwater Elevation August 16, 2021
GYPSUM CELL 1															
GWC-1	Downgradient	Overburden	1120077.85	2411555.32	374.95	371.77	371.6	34.85	346.91	336.91	10	10/28/2009	--	--	364.94
GWC-2	Downgradient	Overburden	1119816.59	2411493.53	380.22	377.02	376.9	54.88	332.12	322.12	10	10/8/2009	1.10E-04	Kh	365.97
GWC-3	Downgradient	Overburden	1119613.99	2411202.86	410.44	407.36	407.1	46.39	370.70	360.70	10	10/29/2009	--	--	372.47
GWC-4	Downgradient	Overburden	1119255.96	2411041.82	411.75	408.50	408.4	39.91	378.70	368.70	10	11/21/2009	--	--	379.40
GWC-5	Downgradient	Overburden	1118897.72	2411025.88	396.69	393.37	393.3	30.66	372.84	362.84	10	10/22/2009	--	--	376.38
GWC-6	Downgradient	Bedrock	1118575.69	2410872.56	415.80	412.48	412.4	45.10	377.52	367.52	10	10/21/2009	8.21E-04	Kh	377.36
GWC-7	Downgradient	Overburden	1118243.67	2410645.91	418.27	414.51	414.4	54.78	369.84	359.84	10	10/20/2009	--	--	375.72
GWC-8A	Downgradient	Overburden	1117917.32	2410375.16	401.62	398.65	398.6	45.00	364.30	354.30	10	3/29/2017	--	--	378.57
GWC-9	Downgradient	Overburden	1117955.40	2410167.75	386.18	383.21	382.8	16.88	376.02	366.02	10	11/4/2009	2.57E-04	Kh	378.85
GWC-10	Downgradient	Overburden	1118306.77	2410018.28	392.87	389.49	388.9	31.68	367.50	357.50	10	11/3/2009	--	--	381.61
GWC-11	Downgradient	Overburden	1118648.98	2409778.84	402.33	399.21	398.8	31.10	377.81	367.81	10	11/3/2009	--	--	383.64
GWC-12	Downgradient	Overburden	1118977.87	2409554.57	412.89	409.66	409.2	34.40	384.94	374.94	10	11/3/2009	--	--	387.08
GWC-13	Downgradient	Overburden	1119338.68	2409390.95	419.77	416.71	416.5	40.06	386.52	376.52	10	11/2/2009	--	--	389.17
GWC-14	Downgradient	Overburden	1119655.05	2409111.75	403.60	400.41	400.2	24.13	386.09	376.09	10	11/4/2009	--	--	390.54
GWA-15	Upgradient	Overburden	1120009.40	2409282.43	415.01	412.00	411.7	26.20	395.51	385.51	10	11/4/2009	8.02E-04	Kh	403.12
GWA-16	Upgradient	Overburden	1120248.68	2409579.75	444.24	441.01	440.9	54.48	396.71	386.71	10	10/13/2009	--	--	411.57
GWA-17	Upgradient	Overburden	1120210.57	2409946.73	445.84	442.92	442.8	43.72	409.27	399.27	10	9/28/2009	--	--	416.82
GWC-18	Downgradient	Overburden	1119998.73	2410261.85	439.66	436.40	436.3	57.03	389.49	379.49	10	9/29/2009	2.24E-04	Kh	406.90
GWC-19	Downgradient	Overburden	1119645.70	2410713.20	430.20	426.34	426.3	54.10	382.45	372.45	10	10/2/2009	--	--	393.54
GWC-20	Downgradient	Overburden	1119950.51	2411195.38	426.30	423.03	423.0	69.40	363.85	353.85	10	10/6/2009	--	--	382.32

TABLE 1
SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA
 Georgia Power - Plant Scherer AP-1
 Juliette, GA

Well ID	Hydraulic Location	Screened Matrix	NAD 83 Northing ^[1]	NAD 83 Easting ^[1]	Top of Casing Elevation (feet NAVD88) ^[2]	Ground Surface Elevation at Concrete Pad (feet NAVD88)	Ground Surface Elevation (feet NAVD88) ^[2]	Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD88) ^[2]	Bottom of Screen Elevation (feet NAVD88) ^[2]	Screen Length (feet)	Date of Installation	Average Hydraulic Conductivity (cm/sec)	Kh/Kv	Groundwater Elevation August 16, 2021
PAC ASH CELL															
GWA-21	Upgradient	Overburden	1120675.73	2409462.70	422.58	419.81	419.7	17.82	412.04	402.04	10	6/29/2010	--	--	417.18
GWA-22	Upgradient	Overburden/Bedrock	1120962.12	2409473.22	444.50	442.01	442.0	40.00	412.29	402.29	10	6/30/2010	--	--	419.85
GWC-29	Downgradient	Overburden	1119875.58	2408717.95	399.64	396.98	396.9	24.36	382.78	372.78	10	6/28/2010	9.04E-04	Kh	394.04
GWA-45	Upgradient	Overburden	1120669.03	2407889.56	451.08	448.33	448.3	32.72	425.99	415.99	10	6/23/2010	2.33E-04	Kh	435.99
GWA-46	Upgradient	Overburden	1120783.23	2408235.69	461.13	458.37	458.3	44.17	424.38	414.38	10	6/23/2010	--	--	429.06
GWA-47	Upgradient	Overburden	1120862.63	2408585.01	465.77	463.03*	462.9	51.33	421.74	411.74	10	6/22/2010	--	--	427.25
GWA-48	Upgradient	Overburden	1120953.42	2408939.48	461.73	459.00	458.8	61.22	407.74	397.74	10	6/22/2010	--	--	425.13
GWA-49	Upgradient	Overburden	1121030.08	2409288.38	432.88	430.16	429.9	38.08	401.81	391.81	10	6/21/2010	2.52E-04	Kh	421.30
GWC-50	Downgradient	Overburden	1119917.51	2408956.10	407.16	404.44	404.3	33.64	380.88	370.88	10	6/28/2010	--	--	398.42
GWC-51	Downgradient	Overburden	1119835.51	2408436.95	410.15	407.37	407.3	23.95	393.78	383.78	10	7/27/2010	--	--	401.57
GWC-52	Downgradient	Overburden	1119972.34	2408203.99	417.13	414.43	414.4	30.17	394.53	384.53	10	6/24/2010	7.27E-04	Kh	407.14
GWC-53	Downgradient	Overburden	1120319.65	2407943.05	435.83	433.10	432.9	30.07	412.84	402.84	10	6/23/2010	--	--	425.05

TABLE 1
SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA
 Georgia Power - Plant Scherer AP-1
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CELL 3															
GWC-30	Downgradient	Overburden/Bedrock	1119366.69	2408976.35	394.49	392.19	392.0	19	384.04	374.04	10	1/24/2020	--	--	386.98
GWC-31	Downgradient	Overburden	1118970.00	2409062.02	392.78	390.13	390.0	19.3	380.68	370.68	10	1/23/2020	--	--	385.52
GWC-32	Downgradient	Overburden	1118749.53	2409084.83	410.03	407.25	406.9	36	381.95	371.95	10	1/21/2020	--	--	385.44
GWC-33A	Downgradient	Overburden	1118458.68	2409359.58	393.96	391.32	390.9	24	376.87	366.87	10	1/25/2020	--	--	383.51
GWC-34	Downgradient	Overburden	1118248.26	2409680.41	389.29	386.48	386.2	19	377.23	367.23	10	1/13/2020	--	--	381.43
GWC-35	Downgradient	Overburden	1117860.46	2409906.21	387.90	385.35	385.1	21	375.10	365.10	10	1/12/2020	--	--	382.20
GWC-36	Downgradient	Overburden	1117561.29	2409681.44	425.12	422.52	422.0	45.4	386.62	376.62	10	1/10/2020	--	--	392.31
GWC-37	Downgradient	Overburden	1117239.70	2409636.56	429.80	427.38	427.2	43	395.23	385.23	10	1/8/2020	--	--	405.56
GWC-38	Downgradient	Overburden	1116786.45	2409533.11	418.68	416.23	416.0	39	386.98	376.98	10	1/7/2020	--	--	406.06
GWA-39	Upgradient	Bedrock	1116967.57	2408671.68	457.62	454.59	454.2	59.0	405.24	395.24	10	12/20/2019	--	--	429.51
GWA-40	Upgradient	Overburden	1117365.24	2408730.04	463.84	461.25	461.2	44.8	427.15	417.15	10	12/18/2020	--	--	430.44
GWA-41	Upgradient	Overburden	1118096.97	2408412.15	434.12	431.70	431.4	39	403.75	393.75	10	1/26/2020	--	--	423.27
GWA-42	Upgradient	Overburden	1118500.68	2408233.53	405.19	402.57	402.2	18.8	393.37	383.37	10	1/27/2020	--	--	399.83
GWA-43	Upgradient	Overburden	1118861.38	2408484.42	400.94	398.42	398.1	19	389.12	379.12	10	1/26/2020	--	--	396.47
GWA-44A	Upgradient	Overburden	1119296.99	2408569.76	399.62	396.83	396.5	19.9	386.58	376.58	10	1/27/2020	--	--	395.46
GWA-54	Upgradient	Bedrock	1117751.40	2408588.52	451.49	448.78	448.6	50	409.83	399.83	10	12/21/2020	--	--	426.70

- Notes:**
 ft = feet; feet bgs = feet below ground surface; ft BTOC = feet below top of casing; BTOC = Below top of pump; Kh = horizontal hydraulic conductivity; Kv = vertical hydraulic conductivity; NA = Not Available
 (1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet.
 (2) Vertical elevations are in feet relative to the North American Vertical Datum (NAVD) 1988.
 (3) Total well depth accounts for sump if data provided on well construction logs.
 (4) Survey data provided by Jordan Engineering, Inc., July 2020.
 (5) - = not applicable

TABLE 2
HORIZONTAL GROUNDWATER VELOCITY CALCULATIONS - AUGUST 2021
 Georgia Power - Plant Scherer AP-1
 Juliette, GA

Flow Paths	Groundwater Elevation (feet msl)	ΔH (feet) ²	ΔL (feet) ³	Hydraulic Gradient ($\Delta h/\Delta l$)	Average Hydraulic Conductivity, K (feet per day) ⁵	Assumed Effective Porosity (n_e)	Average Linear Groundwater Velocity	
							(feet per day) ⁴	(feet per year) ⁴
AP-1 August 2021								
SGWC-14/PZ-29S	465.99	5.67	400	0.014	1.31 to 2.36	0.2	0.09 to 0.17	34 to 61
	460.32							
SGWC-13/PZ-35I	477.80	8.09	400	0.020	1.31 to 2.36	0.2	0.13 to 0.24	48 to 87
	469.71							
SGWC-20/PZ-43S	489.81	10.73	400	0.027	1.31 to 2.36	0.2	0.18 to 0.32	64 to 116
	479.08							

Notes:

1. ΔH = Change in groundwater elevation
2. ΔL = Distance along flow path
3. $I = \Delta H / \Delta L$
4. Velocity = $(I * K)/n_e$
5. Hydraulic conductivity range based on historic aquifer performance tests (revised 3/2017)
6. Effective porosity based on default values for effective porosity recommended by USEPA for a silty sand-type soil (USEPA, 1996)

TABLE 3
GROUNDWATER MONITORING PARAMETERS AND FREQUENCY
 Georgia Power - Plant Scherer AP-1
 Juliette, Georgia

MONITORING PARAMETERS		GROUNDWATER MONITORING	
		BACKGROUND	SEMI-ANNUAL EVENTS
FIELD PARAMETERS	Temperature	x	x
	pH	x	x
	Turbidity	x	x
	Dissolved Oxygen	x	x
Appendix III (Detection Monitoring)	Boron	x	x
	Calcium	x	x
	Chloride	x	x
	Fluoride	x	x
	pH (field)	x	x
	Sulfate	x	x
	Total Dissolved Solids	x	x
Appendix IV (Assesment Monitoring)	Antimony	x	x
	Arsenic	x	x
	Barium	x	x
	Beryllium	x	x
	Cadmium	x	x
	Chromium	x	x
	Cobalt	x	x
	Fluoride	x	x
	Lead	x	x
	Lithium	x	x
	Mercury	x	x
	Molybdenum	x	x
	Selenium	x	x
	Thallium	x	x
Radium 226+228	x	x	

Note: Assessment sampling frequency and parameter list determined in accordance with Georgia Chapter 391-3-4.10(6)

TABLE 4
ANALYTICAL METHODS
 Georgia Power - Plant Scherer AP-1
 Juliette, Georgia

PARAMETERS	EPA METHOD NUMBER
APPENDIX III	
Boron	EPA 6010D/6020B
Calcium	EPA 6010D/6020B
Chloride	EPA 300.0/300.1/9250/9251/9253/9056A
Fluoride	EPA 300.0/300.1/9214/9056A
pH	150.1 field
Sulfate	EPA 9035/9036/9038/300.0/300.1/9056A
Total Dissolved Solids (TDS)	EPA 160/2540C
APPENDIX IV	
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	EPA 300.0/300.1/9214/9056/9214
Lead	EPA 7420/7421/6010D/6020B
Lithium	EPA 6010D/6020B
Mercury	EPA 7470A
Molybdenum	EPA 6010D/6020B
Selenium	EPA 7740/7741A/6010D/6020B
Thallium	EPA 7840/7841/6010D/6020B
Radium 226 and 228 combined	EPA 903/9320/9315

Notes:

The water Samples will be tested for total metals by following the SW-846, EPA Methods or the most current approved EPA methods.

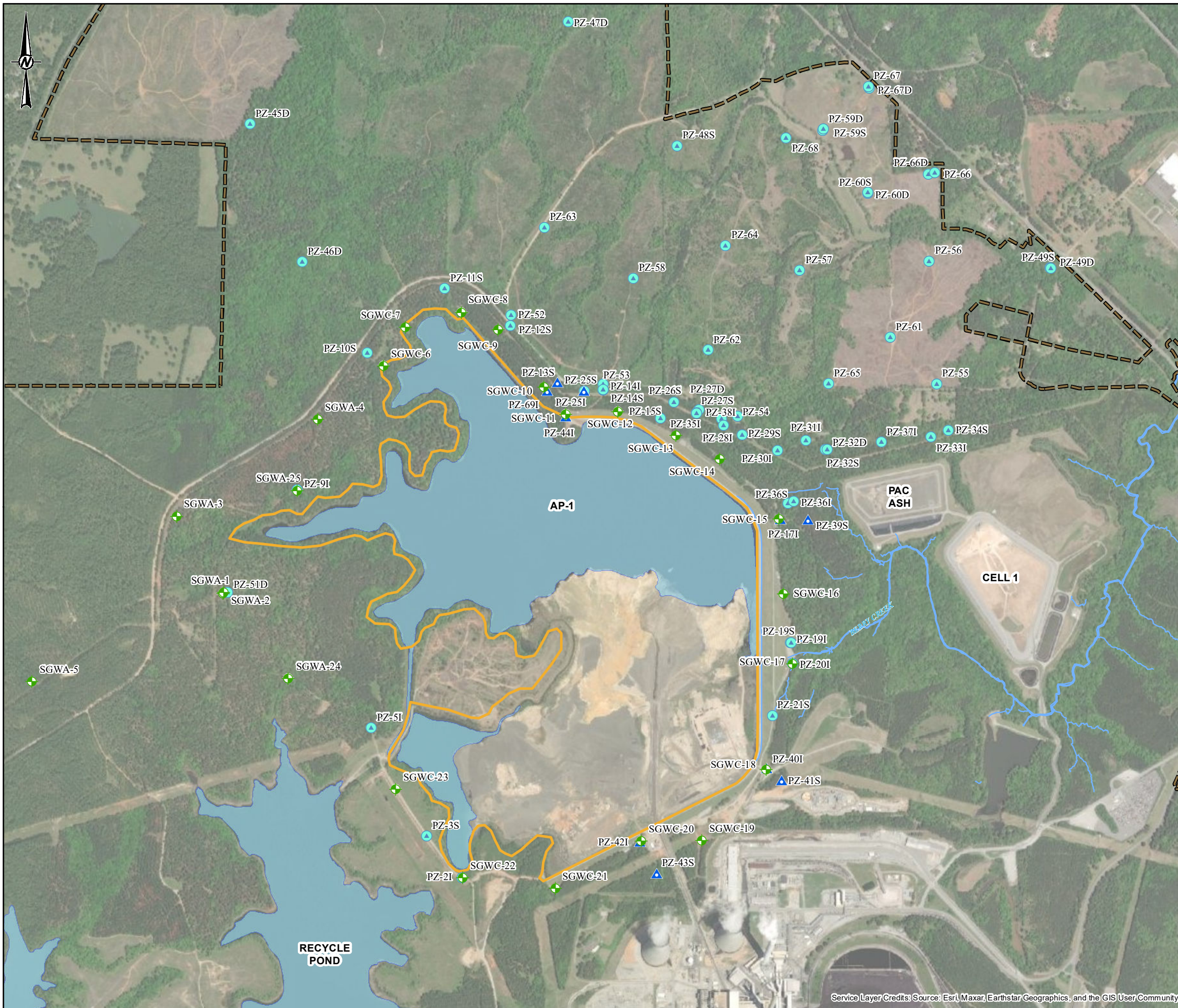
TABLE 5
SURFACE WATER MONITORING PARAMETERS AND FREQUENCY
 Georgia Power Company - Plant Scherer AP-1
 Juliette, Georgia

Analyte	SURFACE WATER SAMPLING LOCATIONS	
	SW-1	SW-2
FIELD MONITORING PARAMETERS		
pH	X	X
ORP	X	X
SPECIFIC CONDUCTANCE	X	X
DISSOLVED OXYGEN	X	X
TEMPERATURE	X	X
TURBIDITY	X	X
APPENDIX IV		
ANTIMONY, TOTAL	X	X
ARSENIC, TOTAL	X	X
BARIUM, TOTAL	X	X
BERYLLIUM, TOTAL	X	X
CADMIUM, TOTAL	X	X
CHROMIUM, TOTAL	X	X
COBALT, TOTAL	X	X
LEAD, TOTAL	X	X
LITHIUM, TOTAL	X	X
MERCURY, TOTAL	X	X
RADIUM (226 + 228)	X	X
SELENIUM, TOTAL	X	X
SILVER, TOTAL	X	X
THALLIUM, TOTAL	X	X

Notes:

1. Surface water sampling will commence following certification of closure construction.
2. Surface water is collected Semi-Annually concurrent with the groundwater sampling event.
3. Any location that is dry at the time of the sampling event will be identified as such.

Figures



LEGEND

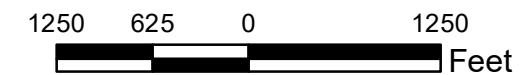
	MONITORING WELL LOCATION
	PIEZOMETER LOCATION
	ASSESSMENT WELL LOCATION
	ASH POND PERMIT BOUNDARY
	PROPERTY BOUNDARY

NOTES

1. MONITORING WELL LOCATIONS PROVIDED BY JORDAN ENGINEERING.
2. PIEZOMETER PZ-50 IS NOT LOCATED WITHIN THE CURRENT VIEW. IT IS SITUATED SOUTH OF LAKE JULIETTE. REFER TO THE BORING LOG FOR LOCATION COORDINATES.

REFERENCE

1. COORDINATE SYSTEM: NAD 1983 STATE PLAN GEORGIA WEST (U.S. FEET).
2. MONITORING WELL AND PIEZOMETER LOCATIONS PROVIDED BY JORDAN ENGINEERING, INC., JULY 2020.



CLIENT
 GEORGIA POWER COMPANY
 PLANT SCHERER
 JULIETTE, GEORGIA



PROJECT
 GROUNDWATER MONITORING PLAN
 PLANT SCHERER ASH POND AP-1

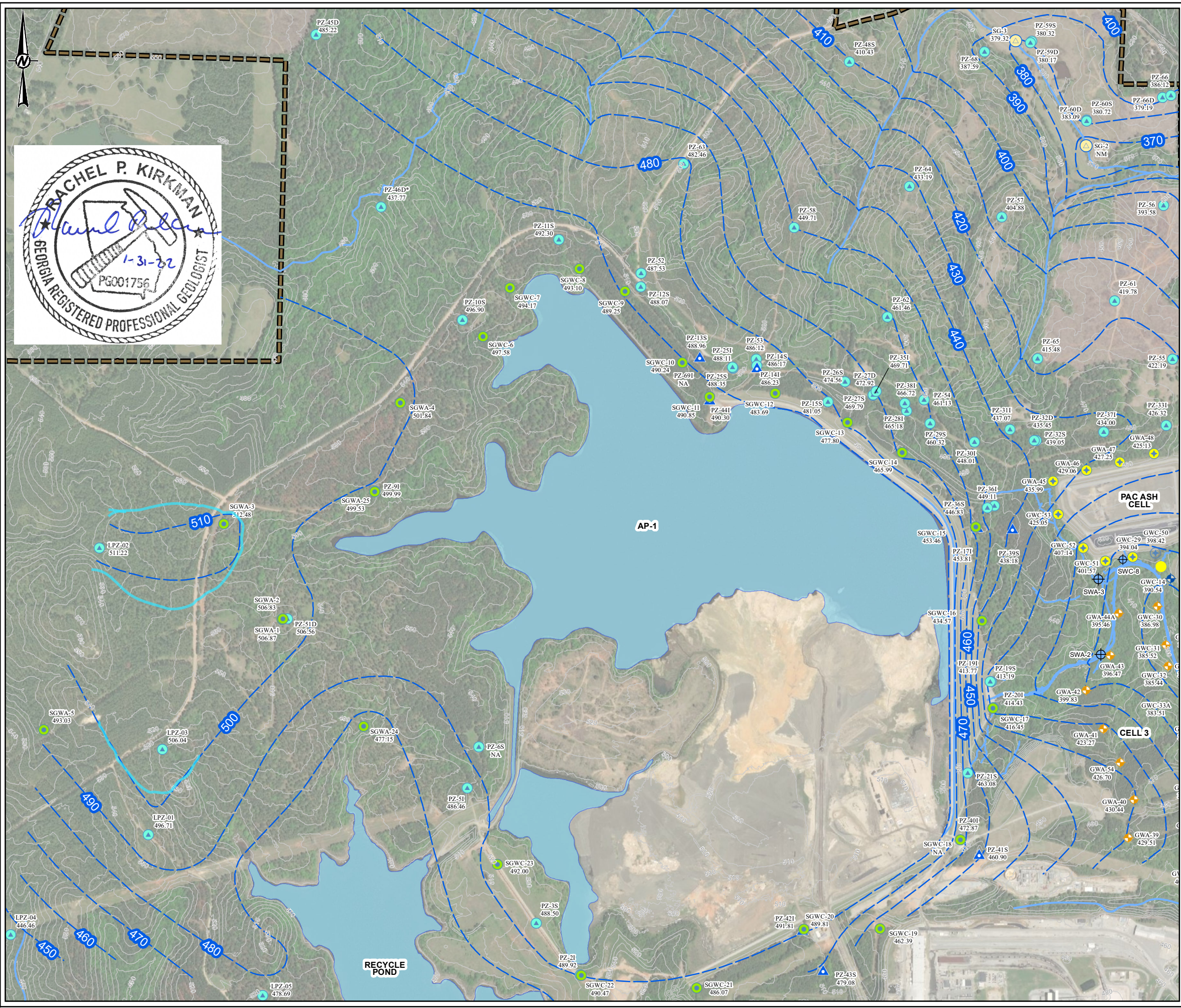
TITLE
**SITE PLAN AND COMPLIANCE
 MONITORING NETWORK**

CONSULTANT	YYYY-MM-DD	2021-06-15
	PREPARED	DJC
	DESIGN	DLP
	CHECKED	DLP
	REVIEWED/APPROVED	RPK

PROJECT No. 166235021 CONTROL 166235021AC001-GIS.mxd Rev. 1 FIGURE 1

Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANS B

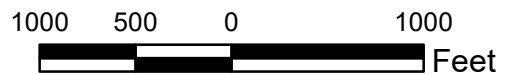


- LEGEND**
- SCHERER ASH POND-CCR MONITORING WELL
 - ⊕ CELL 1 LANDFILL MONITORING WELL
 - ⊕ PAC ASH LANDFILL MONITORING WELL
 - ⊕ CELL 3 MONITORING WELL
 - ▲ PIEZOMETER
 - ⊕ SURFACE WATER SAMPLING LOCATION
 - ⊕ STREAM GAUGE LOCATION
 - ▲ ASSESSMENT WELL LOCATION
 - INFERRED POTENTIOMETRIC SURFACE CONTOUR (FT-NAVD 88)
 - STREAM
 - PROPERTY BOUNDARY
 - PONDS

NA WATER LEVEL ELEVATION NOT AVAILABLE. WATER LEVEL AT SGWC-18 WAS BELOW THE TOP OF THE PUMP. WATER LEVELS AT PZ-69I, GWA-33A AND GWA-41 WERE NOT RECORDED. THESE LOCATIONS WERE INACCESSIBLE AT THE TIME OF RECORDING DUE TO CONSTRUCTION ACTIVITIES.

- NOTES**
1. GROUNDWATER ELEVATION MEASUREMENTS OBTAINED AUGUST 16, 2021 BY GOLDER ASSOCIATES.
 2. GROUNDWATER ELEVATIONS DISPLAYED IN FEET-NORTH AMERICAN VERTICAL DATUM (FT-NAVD 88).
 3. DEEP AND INTERMEDIATE WELL GROUNDWATER ELEVATIONS WERE NOT USED TO GENERATE GROUNDWATER CONTOURS.
 4. PZ-50D IS NOT SHOWN; ITS LOCATION IS BEYOND THE MAPPED LIMITS.

- REFERENCE**
1. COORDINATE SYSTEM: NAD 1983 STATE PLAN GEORGIA WEST (U.S. FEET).
 2. MONITORING WELL/PIEZOMETER LOCATIONS PROVIDED BY JORDAN ENGINEERING.



CLIENT
GEORGIA POWER COMPANY
 PLANT SCHERER
 JULIETTE, GEORGIA

PROJECT
GROUNDWATER MONITORING PLAN
 PLANT SCHERER - ASH POND 1

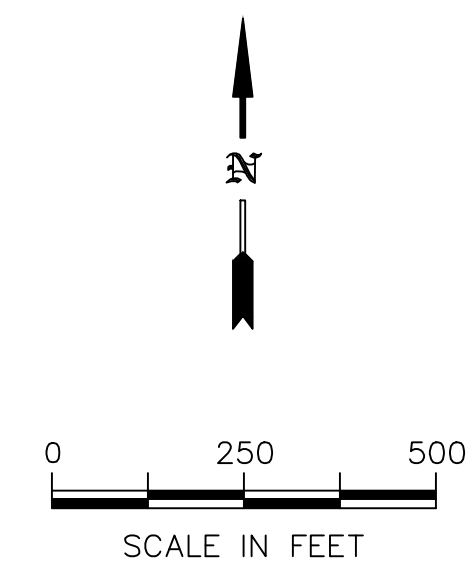
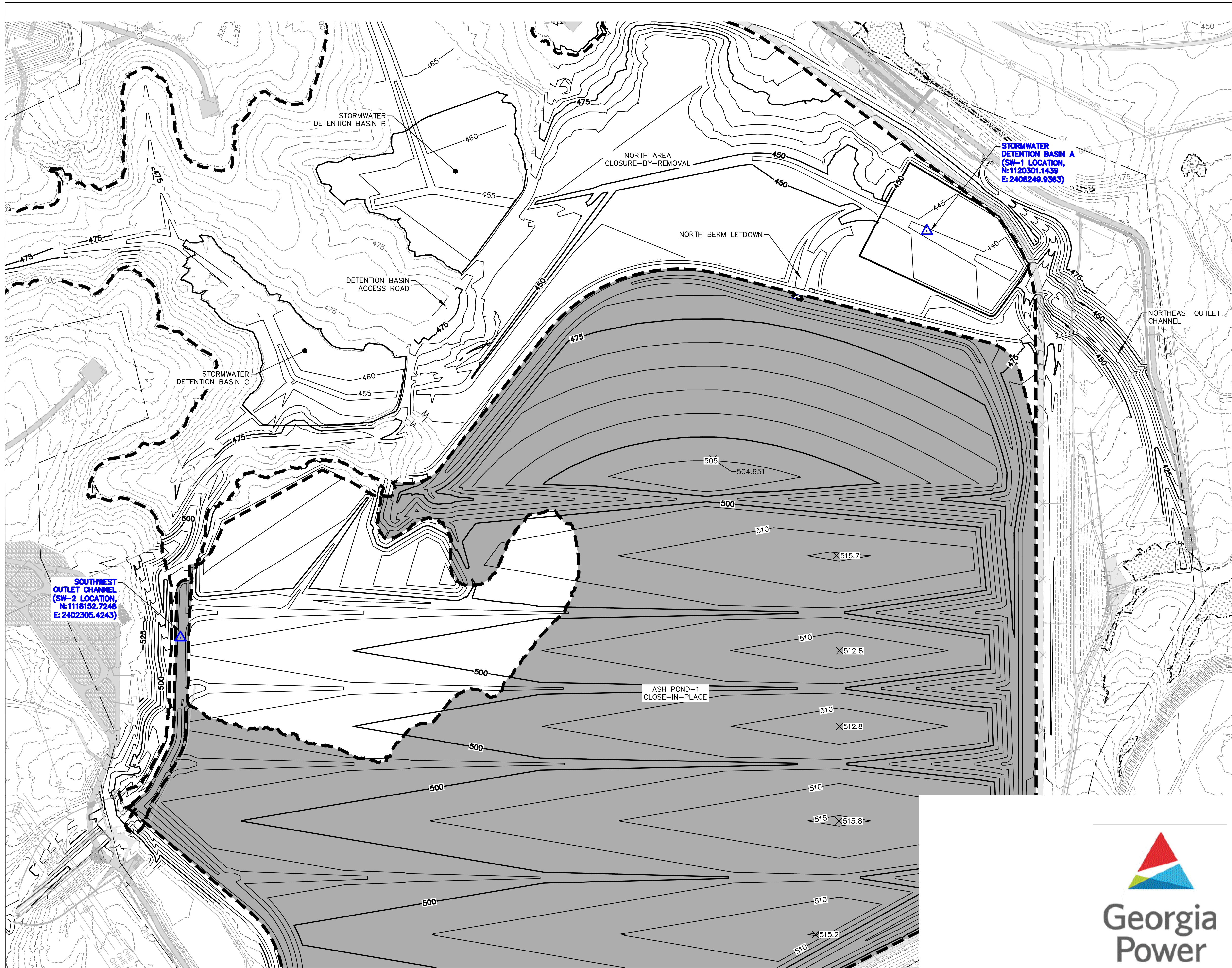
TITLE
POTENTIOMETRIC SURFACE MAP
 AUGUST 16, 2021

CONSULTANT	DATE	REVISION
	YYYY-MM-DD	2021-11-30
	PREPARED	DJC
	DESIGN	DLP
	REVIEW	DLP
	APPROVED	RPK







PROJECT No. 166235021 CONTROL 1662350A1002-GIS.mxd Rev. 0 FIGURE 2

Path: H:\18k-Projects\1662350-Southern Company Services\figma\A\2021_GW_MONITORING_AND_CORRECTIVE_ACTION_REPORT\1662350A1002-GIS.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANSB



LEGEND:

-  LIMITS OF FINAL CLOSURE
-  PROPOSED MAJOR CONTOUR
-  PROPOSED MINOR CONTOUR
-  EXISTING MAJOR CONTOUR
-  EXISTING MINOR CONTOUR
-  SAMPLE LOCATION

POST-CLOSURE SURFACE WATER SAMPLING LOCATIONS

CCR CLOSURE
FOR
GEORGIA POWER
PLANT SCHERER ASH POND-1
MONROE COUNTY, GEORGIA



FIGURE - NOT FOR CONSTRUCTION

(919) 461-1100
WWW.AECOM.COM



5438 WADE PARK BOULEVARD
SUITE 200
RALEIGH, NC 27607

PROJ. NO.: 60563110

DWG. NA EDIT REVISION 1

SCALE: AS SHOWN

DATE: 05/09/2021

FIGURE 3

SITE PERMIT

Overview of regulatory requirements. Statistical Analysis Plan must meet requirements per the Georgia Department of Natural Resources Environmental Protection Division Chapter 391-3-4 Solid Waste Management and the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule, 2015).

Develop site-specific Statistical Analysis Plan. (See Figures 5, 6 & 7)

Plan meets Technical & Regulatory requirements?

OPERATING RECORD

Includes a detailed site-specific Statistical Analysis Plan that meets regulatory requirements. Specifies statistical method, wells, background periods, verification plan and statistical limits.

Update Statistical Limits or Methods
Periodically evaluate Statistical Analysis Plan (after a minimum of 4 new observations)

CLIENT
GEORGIA POWER COMPANY
PLANT SCHERER

PROJECT
GROUNDWATER MONITORING PLAN PLANT
SCHERER ASH POND 1 (AP-1)

CONSULTANT

YYYY-MM-DD 2022-02-18

DESIGNED DLP

PREPARED DJC

CHECKED DLP

REVIEW/APPROVED RPK

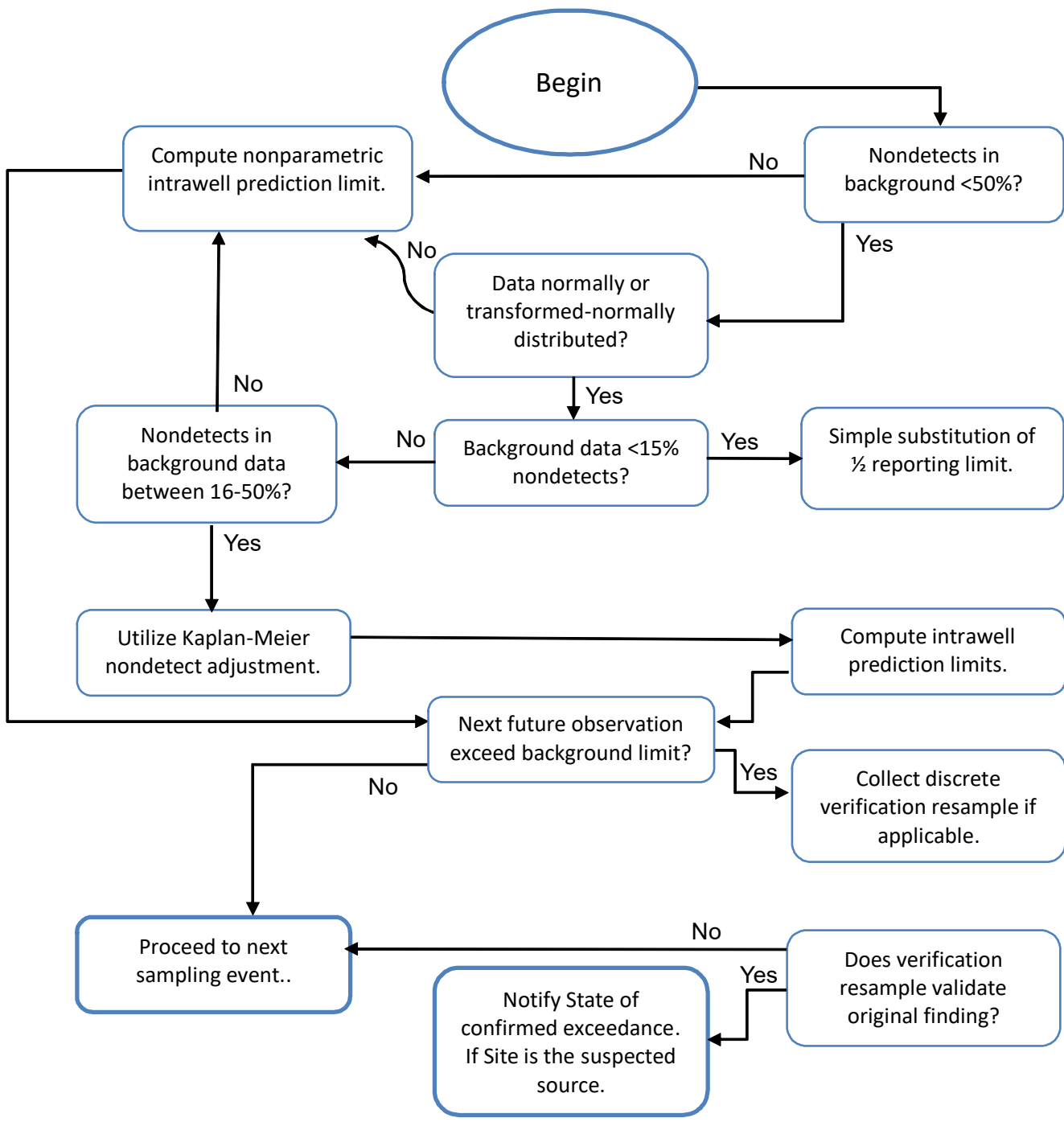


TITLE

STATISTICAL ANALYSIS PLAN OVERVIEW

PROJECT NO.	CONTROL	REV.	FIGURE
GL166235021	GL166235021B001.mxd	0	4

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A



CLIENT
 GEORGIA POWER COMPANY
 PLANT SCHERER

PROJECT
 GROUNDWATER MONITORING PLAN PLANT
 SCHERER ASH POND 1 (AP-1)

CONSULTANT

YYYY-MM-DD 2022-03-09

DESIGNED DLP

PREPARED DJC

CHECKED DLP

REVIEW/APPROVED RPK



TITLE

**DECISION LOGIC WITH INTERWELL
 PREDICTION LIMITS**

PROJECT NO.
 GL166235021

CONTROL
 GL166235021B004.mxd

REV.
 0

FIGURE
 5

APPENDIX A

Monitoring System Details

A1 MONITORING WELL CONSTRUCTION LOGS

A2 PIEZOMETER CONSTRUCTION LOGS

A3 DRILLER BONDS

A4 CERTIFIED WELL SURVEY REPORT

APPENDIX A

AP-1 Monitoring Well Logs



LOG OF TEST BORING

BORING SGWA-1/PZ-08S

PAGE 1 OF 2

ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/11/2015 COMPLETED 2/11/2015 SURF. ELEV. 544.1 COORDINATES: N 1119233.10 E 2399899.81
 CONTRACTOR Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger; HQ Rock Core
 DRILLED BY T. Milam LOGGED BY B. Smelser CHECKED BY L. Millet ANGLE _____ BEARING _____
 BORING DEPTH 50.9 ft. GROUND WATER DEPTH: DURING 35 ft. COMP. 37.3 ft. DELAYED 37.2 ft. after 24 hrs.
 NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
5		Silty Clay (CL) - dark red (2.5YR 3/6) residuum dry, very stiff, trace mica			SPT N=22bpf(@3.5ft.)
10		- mottled dark reddish brown (2.5YR 3/4) and red (10R 4/8) residuum dry, stiff, micaceous, trace residual quartz and sand			SPT N=13bpf(@8.5ft.)
15		Sandy Silt (ML) - mottled reddish yellow (5YR 6/8) and red (10R 4/8) saprolite moist, medium stiff, trace muscovite, biotite, residual quartz			SPT N=8bpf(@13.5ft.)
20		- mottled red (2.5YR 4/8) and light red / moderate reddish orange (10R 6/6) saprolite moist, stiff, trace medium sand, muscovite, biotite, residual quartz, hornblende			SPT N=10bpf(@18.5ft.)
25		- yellow (10YR 7/8) saprolite moist, medium stiff			SPT N=7bpf(@23.5ft.)

(Continued Next Page)



LOG OF TEST BORING

BORING SGWA-1/PZ-08S
 PAGE 2 OF 2
 ECS38467

SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUP\SPC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZIDRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	COMMENTS
		Sandy Silt (ML) (Cont')			
30		Sandy Elastic Silt (MH) - mottled light red (2.5YR 6/8) and reddish yellow (7.5YR 6/8) saprolite moist, stiff, trace muscovite, biotite, residual quartz, hornblende			SPT N=11bpf(@28.5ft.)(LL=55; PI=13; FC = 51.3%; Gravel = 0%) (MC = 58.3%; UW(d) = 64.4pcf; PERM. = 5.57E-5cm/sec)
35		Silty Sand (SM) - mottled reddish yellow (5YR 6/8) and red (10R 4/8) saprolite moist, medium dense, very fine to fine grained, with residual quartz, muscovite, biotite, hornblende			SPT N=11bpf(@33.5ft.)
40		- strong brown (7.5YR 5/8) saprolite wet, medium dense, very fine to fine grained			SPT N=19bpf(@38.5ft.)
45		- strong brown (7.5YR 5/8) saprolite wet, medium dense, very fine to fine grained			SPT N=12bpf(@43.5ft.)
50		- gray (7.5YR 5/1) saprolite wet, medium dense, very fine to fine grained, micaceous, with residual quartz, feldspar, muscovite, biotite, weathered rock fragments			SPT N=14bpf(@48.5ft.)
		Bottom of borehole at 50.9 feet.			
55					



RECORD OF WELL CONSTRUCTION

WELL: SGWA-1/PZ-08S
PAGE 1 OF 2
ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

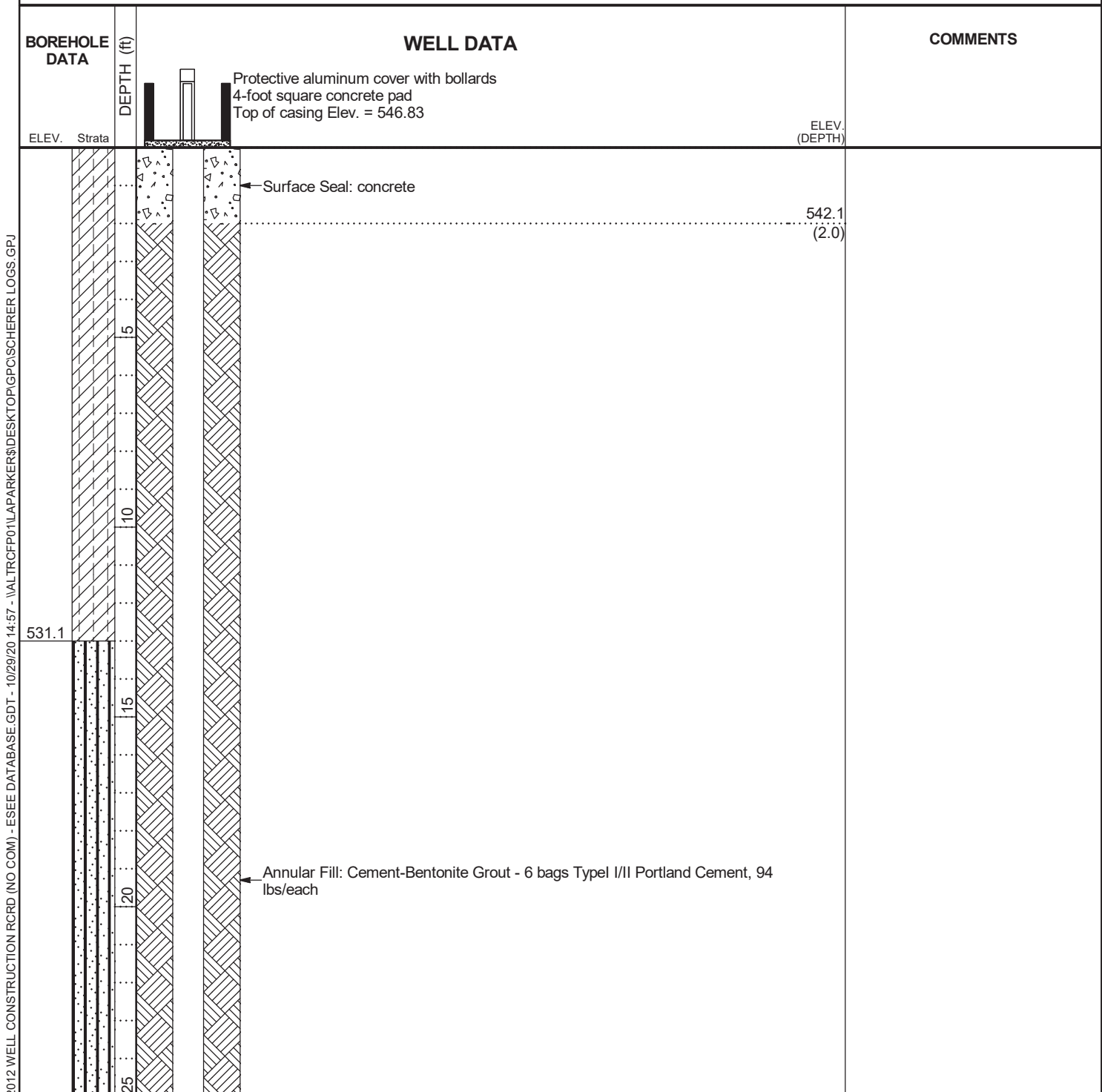
DATE STARTED 2/11/2015 COMPLETED 2/11/2015 GROUND ELEVATION 544.1 ft COORDINATES N 1119233.1 E 2399899.81

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY B. Smelser CHECKED BY L. Millet BORING DEPTH 50.9 ft.

GROUND WATER DEPTH: DURING 35 ft. COMP. 37.3 ft. DELAYED 37.2 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPCISCHERER LOGS.GPJ

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: SGWA-1/PZ-08S
PAGE 2 OF 2
ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 546.83	ELEV. (DEPTH)
516.1	30		
511.1	35		
	40	← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each ← Filter: Unimin FilterSil - 6 Bags #1A, 50 lbs/each	507.5 (36.6) 505.5 (38.6)
	45	← Well: 2" OD PVC (SCH 40) ← Screen: 10 ft. pre-pack	503.6 (40.5)
493.2	50	← Sump: 0.40 ft.	493.6

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



LOG OF TEST BORING

BORING SGWZ-2/PZ-081

PAGE 1 OF 3

ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

DATE STARTED 2/12/2015 COMPLETED 2/17/2015 SURF. ELEV. 544.0 COORDINATES: N 1119237.67 E 2399908.19

CONTRACTOR Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger; HQ Rock Core

DRILLED BY T. Milam LOGGED BY B. Smelser CHECKED BY L. Millet ANGLE _____ BEARING _____

BORING DEPTH 95.8 ft. GROUND WATER DEPTH: DURING 38.5 ft. COMP. 37.5 ft. DELAYED 37.3 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
5		Silty Clay (CL) - mottled dark red (10R 3/6) and brownish yellow (10YR 6/8) residuum dry, very stiff, trace mica			SPT N=28bpf(@3.5ft.)
10		Sandy Silt (ML) - variegated dark red (10R 3/6) and dusky red (10R 3/2) residuum dry, stiff, trace clay and mica			SPT N=15bpf(@8.5ft.)
15		- mottled red (2.5YR 5/8) and brownish yellow (10YR 6/8) residuum dry, stiff			SPT N=10bpf(@13.5ft.)
20		- mottled strong brown (7.5YR 4/6) and dusky red / dark reddish brown (10R 3/4) saprolite moist, stiff, micaceous, trace muscovite and residual quartz			SPT N=10bpf(@18.5ft.)
25		- mottled strong brown (7.5YR 5/8) and dark red (10R 3/6) saprolite moist, medium stiff, micaceous, trace muscovite, biotite, residual quartz, hornblende			SPT N=7bpf(@23.5ft.)
30		Silty Sand (SM) - mottled reddish yellow (7.5YR 6/8) and very dark brown / dusky yellowish brown (10YR 2/2) saprolite moist, loose, very fine to fine grained, micaceous, trace muscovite, biotite, residual quartz, hornblende			SPT N=8bpf(@28.5ft.)

(Continued Next Page)



LOG OF TEST BORING

BORING SGWA-2/PZ-081
 PAGE 2 OF 3
 ECS38467

SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
35		Silty Sand (SM) (Con't) - mottled reddish yellow (7.5YR 6/8) and red (10R 4/8) saprolite moist, loose, very fine to fine grained				SPT N=6bpf(@33.5ft.)
40		- mottled greenish gray (10Y 5/1), grayish olive green (5GY 3/2) and red (10R 4/8) saprolite wet, medium dense, very fine to fine grained, trace mica, residual quartz, feldspar, hornblende				SPT N=13bpf(@38.5ft.)
45		- mottled greenish gray (10Y 5/1), grayish olive green (5GY 3/2) and brownish yellow / dark yellowish orange (10YR 6/6) saprolite wet, medium dense, very fine to fine grained, trace residual quartz, feldspar, chlorite, biotite				SPT N=18bpf(@43.5ft.)
50		- mottled reddish yellow (7.5YR 6/8) and very dark greenish gray (10BG 3/1) saprolite wet, medium dense, very fine to fine grained, trace residual quartz, feldspar, chlorite, muscovite, biotite				SPT N=14bpf(@48.5ft.)
55		- mottled white / yellowish gray (5Y 8/1) and very dark brown / dusky yellowish brown (10YR 2/2) saprolite wet, medium dense, very fine to fine grained, trace residual quartz, feldspar, muscovite, biotite, chlorite				SPT N=26bpf(@53.5ft.)
60		- mottled yellow (10YR 7/6) and very dark greenish gray (10BG 3/1) saprolite wet, medium dense, very fine to fine grained, trace medium residual quartz grains, feldspar, biotite, muscovite, hornblende				SPT N=26bpf(@58.5ft.)
65		- mottled very dark bluish gray (5PB 3/1) and white (10R 8/1) saprolite wet, very dense, very fine to coarse grained, trace red staining, weathered rock fragments, residual quartz, feldspar, hornblende, biotite, chlorite, muscovite				SPT N=95bpf(@63.5ft.)
70		Silt (ML) - brown (7.5YR 4/4) saprolite wet, hard, with partially weathered rock fragments				SPT N=37bpf(@68.5ft.)

(Continued Next Page)



LOG OF TEST BORING

BORING SGWA-2/PZ-081
 PAGE 3 OF 3
 ECS38467

SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZDRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak	Moderate	Strong	HCL REACTION	COMMENTS
75		PARTIALLY WEATHERED ROCK - hard to very hard, highly weathered, partially weathered rock fragments						
80		GNEISS - white (N9) and light gray (N7) fine to coarse grain, very soft to soft, highly to completely weathered, inclined, intensely fractured, moderate-angle fractures (30 - 45d) along schistosity, abundant pyrite throughout, orangish-red oxidation along fractures						
85		- black (N1) and dark gray (N3) fine to coarse grain, very soft to soft, highly to completely weathered, inclined, 17 moderate-angle fractures (30 - 45d) along foliation, interbedded with thin layers of Biotite Gneiss, with quartz, feldspar, pyrite, biotite, hornblende, periodic zones of oxidation, no apparent zones of healing						
90		- white (N9) and light gray (N7) fine to coarse grain, very soft to soft, highly to completely weathered, inclined, 23 moderate-angle fractures (30 - 45d) along foliation, very intensely fractured 93.5' - 95.0' bgs, interbedded Amphibolite, heavy oxidation, with quartz, biotite, muscovite, hornblende, pyrite, no apparent healing, feldspar and quartz crystallization in fractures						
95								
Bottom of borehole at 95.8 feet.								
100								
105								
110								



RECORD OF WELL CONSTRUCTION

WELL: SGWA-2/PZ-08I
PAGE 1 OF 3
ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

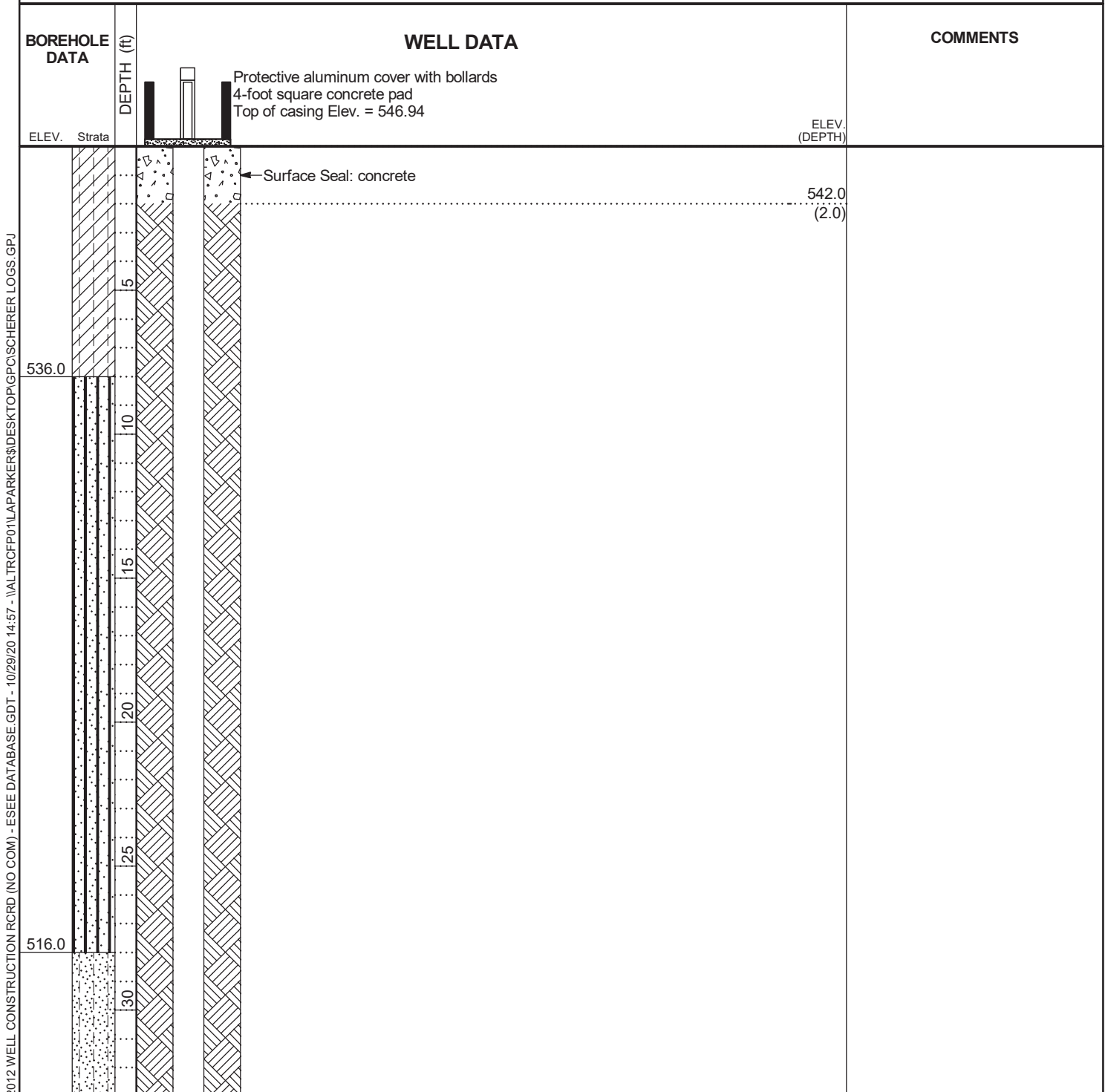
DATE STARTED 2/12/2015 COMPLETED 2/17/2015 GROUND ELEVATION 544 ft COORDINATES N 1119237.67 E 2399908.19

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY B. Smelser CHECKED BY L. Millet BORING DEPTH 95.8 ft.

GROUND WATER DEPTH: DURING 38.5 ft. COMP. 37.5 ft. DELAYED 37.3 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPCISCHERER LOGS.GPJ

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: SGWA-2/PZ-081
PAGE 2 OF 3
ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA

DEPTH (ft)

WELL DATA

COMMENTS

ELEV. Strata

(CONTINUED)

ELEV.
(DEPTH)

Protective aluminum cover with bollards
4-foot square concrete pad
Top of casing Elev. = 546.94

← Annular Fill: Cement-Bentonite Grout - 8 bags Typel I/II Portland Cement, 94 lbs/each

476.0

35
40
45
50
55
60
65
70

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: SGWA-2/PZ-08I
PAGE 3 OF 3
ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 546.94	ELEV. (DEPTH)
471.0	75		
465.0	80	← Annular Seal: bentonite pellets - 0.75 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	465.9 (78.1)
	85	← Filter: Unimin FilterSil - 1 Bag #1A, 50 lbs/each	460.8 (83.2)
	90	Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	458.6 (85.4)
448.2	95	Sump: 0.40 ft.	448.6

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ

RECORD OF BOREHOLE SGWA-3/APA-2

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 50.00 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/17/15
 DATE COMPLETED: 11/18/15

NORTHING: 1,120,224.15
 EASTING: 2,399,296.64
 GS ELEVATION: 542.9
 TOC ELEVATION: 545.83 ft

DEPTH W.L.: 32'
 ELEVATION W.L.:
 DATE W.L.: 11/18/15
 TIME W.L.: 08:50

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 16.00 SILTY SAND; orange to red silty sand, fat clay, moist, soft to firm (overburden)						Portland Type I/ Type II/ Gel mix	WELL CASING Interval: -3'-40' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded
540									WELL SCREEN Interval: 40'-50' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC
5		5.00: Shelby Tube Collected: 5'-6'							FILTER PACK Interval: 37'-50" Type: #1 sand/ Prepack Filter
535			SM						FILTER PACK SEAL Interval: 35'-37" Type: 3/8" Bentonite Pellets
10									ANNULUS SEAL Interval: 0'-36" Type: Portland Type I/Type II/Gel Mix
530									WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum
15									DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
525		16.00 - 40.00 CLAYEY SILT; no quartz, <5% black weathered minerals, deeply weathered biotite gneiss, saprolite, foliation not apparent, white, orange and brown, moist, soft to firm			526.9 16.00				
20		20.00: Shelby Tube Collected: 20'-22'							
520									
25									
515			MH						
30									
510									
35		35.00: Shelby Tube Collected: 35'-37'							
505								3/8" Bentonite - Pellets	
40		40.00 - 45.00 foliated texture observed, saprolite			502.9 40.00				
500									
45		Log continued on next page			497.9			0.010" slot	

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ | PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vernon Scott

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



RECORD OF BOREHOLE SGWA-3/APA-2

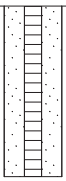
SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 50.00 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/17/15
 DATE COMPLETED: 11/18/15

NORTHING: 1,120,224.15
 EASTING: 2,399,296.64
 GS ELEVATION: 542.9
 TOC ELEVATION: 545.83 ft

DEPTH W.L.: 32'
 ELEVATION W.L.:
 DATE W.L.: 11/18/15
 TIME W.L.: 08:50

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
45		45.00 - 50.30 light brown clayey silt interbedded with white to black foliations, deeply weathered biotite gneiss, saprolite, orange-brown to light brown clay, moist to wet		|||||	45.00				screen #1 sand 	WELL CASING Interval: -3'-40' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded WELL SCREEN Interval: 40'-50' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 37'-50" Type: #1 sand/ Prepack Filter FILTER PACK SEAL Interval: 35'-37" Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-36" Type: Portland Type I/Type II/Gel Mix WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
49.5										
50		Boring completed at 50.00 ft			492.6 50.30					
55										
60										
65										
70										
75										
80										
85										
90										

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vernon Scott

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



RECORD OF BOREHOLE SGWA-4/APA-3

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 67.0 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/17/15
 DATE COMPLETED: 11/17/15

NORTHING: 1,121,477.05
 EASTING: 2,401,124.64
 GS ELEVATION: 544.8
 TOC ELEVATION: 547.66 ft

DEPTH W.L.: 25.71'
 ELEVATION W.L.:
 DATE W.L.: 11/13/15
 TIME W.L.: 13:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 5.00 CLAY (CH); clay, reddish brown, some organic material, trace quartz, trace mica, dry to moist, firm, overburden	CH		539.8				<p>WELL CASING Interval: -3'-50.5' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 50.5'-60.5' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 49'-61.5' Type: #1 sand/ Prepack Filter Quantity:</p> <p>FILTER PACK SEAL Interval: 46.7'-49' Type: 3/8" Bentonite Pellets Quantity:</p> <p>ANNULUS SEAL Interval: 0'-46.7' Type: Portland Type I/Type II/Gel Mix Quantity:</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>
5	540	5.00 - 10.00 CLAYEY SILT; silt with some clay, reddish brown to yellow saprolite, micaceous, trace quartz, trace biotite, trace weathered rock, dry, firm	MH		5.00				
10	535	10.00 - 15.00 silt, mottled brown/yellow/red/orange saprolite, trace clay, trace quartz, trace mica, some large biotite deposits, moist to wet Shelby Tube Collected: 10'-12'			534.8	10.00			
15	530	15.00 - 20.00 silt, mottled brown/yellow/orange saprolite, trace quartz, trace mica, trace biotite, trace clay, soft, moist to wet Shelby Tube Collected: 17'-19'			529.8	15.00			
20	525	20.00 - 25.00 mottled orange/brown/yellow silty saprolite, larger biotite deposits, trace quartz and weathered rock, soft, moist to wet			524.8	20.00			
25	520	25.00 - 30.00 silt and fine sand, trace quartz (angular ~5-10mm diameter), trace weathered rock, micaceous, mottled orange/reddish/yellow/black saprolite, dry, firm			519.8	25.00			
30	515	30.00 - 35.00 mottled orange/yellow/reddish/black silty saprolite, black streaking, trace quartz, trace clays, micaceous, moist, firm			514.8	30.00			
35	510	35.00 - 40.00 mottled orange/yellow/white silty saprolite, biotite, mica, trace quartz, trace clay, moist, firm			509.8	35.00			
40	505	40.00 - 67.00 SILTY SAND; brown/grey/white/orange silty saprolite, trace quartz, micaceous, fine grains, moist, firm Shelby Tube Collected: 40'-42'	SM		504.8	40.00			
45	500	Log continued on next page							

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_PIEDMONT.GDT 11/16/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vernon Scott

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



RECORD OF BOREHOLE SGWA-4/APA-3

SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 67.0 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/17/15
 DATE COMPLETED: 11/17/15

NORTHING: 1,121,477.05
 EASTING: 2,401,124.64
 GS ELEVATION: 544.8
 TOC ELEVATION: 547.66 ft

DEPTH W.L.: 25.71'
 ELEVATION W.L.:
 DATE W.L.: 11/13/15
 TIME W.L.: 13:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
45		40.00 - 67.00 SILTY SAND; brown/grey/white/orange silty saprolite, trace quartz, micaceous, fine grains, moist, firm Shelby Tube Collected: 40'-42' (Continued)							<p>WELL CASING Interval: -3'-50.5' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 50.5'-60.5' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 49'-61.5' Type: #1 sand/ Prepack Filter Quantity:</p> <p>FILTER PACK SEAL Interval: 46.7'-49' Type: 3/8" Bentonite Pellets Quantity:</p> <p>ANNULUS SEAL Interval: 0'-46.7' Type: Portland Type I/Type II/Gel Mix Quantity:</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>
50	495	50.00 - 55.00 grey/white/brown/orange silty saprolite, medium grain, mica, iron pyrite, trace quartz, trace biotite, moist, firm			494.8	50.00			
55	490	55.00 - 60.00 grey/white/brown/orange silty saprolite, medium grain sand, mica, iron pyrite, trace quartz, trace biotite, some clay lenses, moist, very firm	SM		489.8	55.00			
60	485	60.00 - 63.00 SANDY SILT; fine to medium sand, grey, saturated, saprolite	SM		484.8	60.00			
65	480	63.00 - 67.00 grey, saprolite biotite gneiss, trace thin clay lenses, grey, very firm			481.8	63.00			
		Boring completed at 60.50 ft			477.8	67.00			

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_PIEDMONT.GDT 11/16/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vernon Scott

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



RECORD OF BOREHOLE SGWA-5/APA-4

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 30.00 ft
 LOCATION: Carrollton, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/18/15
 DATE COMPLETED: 11/18/15

NORTHING: 1,118,088.42
 EASTING: 2,397,426.26
 GS ELEVATION: 505.7
 TOC ELEVATION: 508.48 ft

DEPTH W.L.: 15.23'
 ELEVATION W.L.:
 DATE W.L.: 11/18/15
 TIME W.L.: 16:05

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	505	0.00 - 5.00 CLAY; red/brown overburden, changes to mottled orange/red/brown/white soils, trace biotite and mica, dry to moist	CH		500.7				Portland Type I/ Type II/ Gel mix	WELL CASING Interval: -3'-20.1' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded WELL SCREEN Interval: 20.2'-30.2' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 18'-30.2' Type: #1 sand/ Prepack Filter FILTER PACK SEAL Interval: 15.7'-18' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-15.7' Type: Portland Type I/Type II/Gel Mix WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
5	500	5.00 - 8.00 mottled orange/brown/white clay, trace quartz and biotite, dry to moist, firm, saprolite				497.7				
		8.00 - 10.00 CLAYEY SAND; dry mottled orange/white fine grained saprolite, firm and non cohesive	SC		8.00					
10	495	10.00 - 12.00 mottled red/orange/white saprolite, trace quartz and biotite, some large quartz pieces				495.7				
		12.00 - 14.00 mottled orange/brown/red saprolite, some clay, micaceous, moist				493.7				
		14.00 - 15.00 brown/orange/grey clayey sand, silt, iron pyrite, mica, trace biotite, moist				491.7				
15	490	15.00 - 16.50 grey/brown/white saprolite, fine to medium grain sand, trace quartz, trace iron pyrite and mica, moist				14.00 490.7				
		16.50 - 17.00 band of orange/brown/grey clayey sand, weathered biotite, wet				15.00 489.2				
		17.00 - 22.00 SILT; grey/white/orange saprolite, trace mica, iron pyrite, medium grained sand, moist				488.7				
20	485		ML		17.00				3/8" Bentonite Pellets	
		22.00 - 25.00 mottled orange/black/dark brown/grey/white saprolite, trace quartz, mica and iron pyrite, foliated and weathered, quartz and deeply weathered biotite layers, wet				483.7				
		25.00 - 27.00 white/grey.brown medium grained, mottled saprolite with interbedded quartz layers, trace rose quartz and iron pyrite, micaceous, wet				22.00 480.7				
25	480	27.00 - 28.00 brown/orange/grey/white saprolite, micaceous, medium grained sand, wet				27.00 477.7				
		28.00 - 30.00 brown, medium grained saprolite with orange and white layers, weathered biotite, trace clay, trace quartz, mica and iron pyrite, foliated, wet				28.00 475.7				
30	475	Boring completed at 30.00 ft								
35	470								0.010" slot screen #1 sand	
40	465									
45										

BOREHOLE RECORD: SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vernon Scott

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



RECORD OF BOREHOLE SGWC-6/APC-1

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 25.00 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/12/15
 DATE COMPLETED: 11/12/15

NORTHING: 1,122,167.18
 EASTING: 2,401,979.98
 GS ELEVATION: 507.7
 TOC ELEVATION: 510.49 ft

DEPTH W.L.: 11.4'
 ELEVATION W.L.:
 DATE W.L.: 11/12/15
 TIME W.L.: 15:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 5.00 SILTY CLAY (CL)/OVERBURDEN; clay with silt and very fine sand, trace quartz, mica and angular rock pieces, reddish-brown fill, black streaking, dry to moist, firm	MH	|||||	502.7			<p style="font-size: small;">Portland Type I/ Type II/ Gel mix</p> <p style="font-size: small;">3/8" Bentonite Pellets</p> <p style="font-size: small;">#1 sand</p> <p style="font-size: small;">0.010" slot screen</p>	<p>WELL CASING Interval: -3'-15' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 15'-25' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 12.9'-25' Type: #1 sand/ Prepack Filter</p> <p>FILTER PACK SEAL Interval: 10.1'-12.9' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-10.1' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>
5		5.00 - 10.00 CLAYEY SILT (MH)/SAPROLITE; mottled red/brown/orange saprolite with lenses of silty clay, trace mica and quartz, black streaking, moist, firm Shelby Tube Collected: 7'-9'	MH	|||||	5.00				
10		10.00 - 15.00 mottled orange/brown/reddish/yellow saprolite, trace quartz and weathered rock, micaceous, black streaking, wet, firm		|||||	497.7				
15		15.00 - 20.00 SILTY SAND/SAPROLITE; mottled orange/brown/white/yellow saprolite, trace quartz and weathered rock, micaceous, trace clay, medium grain, moist to wet, firm Shelby Tube Collected: 15'-17'	SM	|||||	15.00				
20		20.00 - 25.00 mottled brown/grey/orange saprolite with trace clay, silty gravel with medium grained sands, trace quartz and weathered rock, micaceous, wet		|||||	487.7				
25		Boring completed at 25.00 ft			482.7				

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ | PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vernon Scott

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



RECORD OF BOREHOLE SGWC-7/APC-2

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 35.00 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/10/15
 DATE COMPLETED: 11/11/15

NORTHING: 1,122,668.61
 EASTING: 2,402,259.75
 GS ELEVATION: 503.5
 TOC ELEVATION: 506.40 ft

DEPTH W.L.: 22'
 ELEVATION W.L.:
 DATE W.L.: 11/11/15
 TIME W.L.: 11:40

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 5.00 CLAYEY SAND (SC)/OVERBURDEN; top soil followed by transitionally weathered rock pieces and silty gravel, transitions to brown/reddish fill with organic material, some clay, firm	SC		498.5					<p>WELL CASING Interval: -3'-25' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 25'-35' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 23'-35' Type: #1 sand/ Prepack Filter</p> <p>FILTER PACK SEAL Interval: 21'-23' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-21' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>
5		5.00 - 10.00 OVERBURDEN/SAND (SW); densely compacted coarse grained sand, some silt, trace clay, micaceous, loose, W<PL	SW		5.00					
10		10.00 - 15.00 COARSE SAND and TRANSITIONALLY WEATHERED ROCK/SAPROLITE (GP); brown/grey/orange deeply weathered rock with some larger pieces, coarse sand, trace mica and iron pyrite, dry to moist	GP		493.5					
15		15.00 - 20.00 SILTY GRAVEL (GM); mottled brown/grey/orange/white weathered rock and saprolite, trace clays and mica, some larger quartz and rock pieces, coarse sand, dry	GM		488.5					
20		20.00 - 25.00 NO RECOVERY; apparent washout			483.5					
25		25.00 - 30.00 ROCK (BR); biotite gneiss, ~45° angle on banding, 1 near vertical healed fracture, 3 near horizontal fractures with possible weathering from water movement	BR		478.5					
30		30.00 - 35.00 biotite gneiss, mica, iron pyrite, some layer quartz pieces, at least 6 apparent fractures with lesser partial fractures along core, some weathering from water apparent			473.5					
35		Boring completed at 35.00 ft				468.5				

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ | PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vernon Scott

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



RECORD OF BOREHOLE SGWC-8/APC-3

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 40.00 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/9/15
 DATE COMPLETED: 11/10/15

NORTHING: 1,122,865.98
 EASTING: 2,402,979.50
 GS ELEVATION: 511.5
 TOC ELEVATION: 514.28 ft

DEPTH W.L.: 25'
 ELEVATION W.L.:
 DATE W.L.: 11/10/15
 TIME W.L.: 13:45

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	510	0.00 - 5.00 SANDY SILT; brown silt with clay changing to sandy silt, fine-grained, trace clay, dry, overburden	ML	[Graphic: Fine-grained silt]	506.5				<p>WELL CASING Interval: -3'-30' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 30'-40' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 27.5'-40' Type: #1 sand/ Prepack Filter</p> <p>FILTER PACK SEAL Interval: 25.6'-27.5' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-25.6' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>
5	505	5.00 - 10.00 SILTY GRAVEL; silty sand, trace quartz and rock pieces, mottled orange/brown/yellow/grey, non-cohesive, trace clay and weathered rock fragments, densely compacted, fin grained, dry, saprolite	GM	[Graphic: Silty gravel]	5.00				
10	500	10.00 - 15.00 grey gravelly sand and silt with large pieces of gneiss, biotite gneiss at 12' with several near horizontal fractures and chemical weathering, changing back to micaceous, fine-medium silty sand, saprolite	GP	[Graphic: Gravelly sand]	501.5				
15	495	15.00 - 20.00 GRAVELLY SAND/SILT (GP); grey, gravelly fine sand/silt, weathered rock with pieces of quartz, trace pyrite and mica, weathered soil, trace clay, fine-medium grain, brown/grey/orange, dry, saprolite	GP	[Graphic: Gravelly sand]	496.5				
20	490	20.00 - 25.00 CLAYEY SILT; mottled brown/grey/orange saprolite, densely compacted, medium-coarse grain silt, trace clay, mica and black streaking, trace quartz and weathered rock, dry-moist, saprolite	MH	[Graphic: Clayey silt]	491.5				
25	485	25.00 - 30.00 TRANSITIONALLY WEATHERED ROCK/SILTY SAND; with gravel, mica, biotite quartz, iron pyrite, feldspar, some coarse grain sands, trace clay, wet	TWR	[Graphic: Transitionally weathered rock]	486.5				
30	480	30.00 - 35.00 gravel and coarse grained sand, large quartz pieces, mica, iron pyrite, densely compacted brown/grey/orange, moist-wet	TWR	[Graphic: Gravel and coarse sand]	481.5				
35	475	35.00 - 40.00 BEDROCK (BR); biotite gneiss, gravelly coarse sand, large quartz pieces, brown/orange/grey, moist-wet	BR	[Graphic: Bedrock]	476.5				
40	470	Boring completed at 40.00 ft			471.5				

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_1_PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jeremy Triepke

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



RECORD OF BOREHOLE SGWC-9/APC-4

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 35.00 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/5/15
 DATE COMPLETED: 11/6/15

NORTHING: 1,122,634.64
 EASTING: 2,403,455.19
 GS ELEVATION: 507.6
 TOC ELEVATION: 510.62 ft

DEPTH W.L.: 18'
 ELEVATION W.L.:
 DATE W.L.: 11/6/15
 TIME W.L.: 10:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 5.00 OVERBURDEN; reddish brown fill, micaceous, some organic material, dry-moist, firm (fill)	FILL		502.6				<p>WELL CASING Interval: -3'-25' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 25'-35' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 23'-35' Type: #1 sand/ Prepack Filter</p> <p>FILTER PACK SEAL Interval: 21'-23' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-21' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>
5		5.00 - 10.00 CLAY/SAPROLITE; mottled reddish/brown/orange clay, black streaking, micaceous, dry-moist, firm	CH		5.00				
10		10.00 - 15.00 CLAYEY SILT (MH)/SAPROLITE; mottled orange/red/brown/yellow silt, black streaking, micaceous, fine grained, trace clay, dry-moist, soft	MH		497.6				
15		15.00 - 20.00 mottled brown/orange/grey/white silt, trace clay, micaceous, fine-medium grained, black streaking, moist, soft Shelby Tube Collected: 15'-17'			492.6				
20		20.00 - 25.00 SILT (ML)/SAPROLITE; mottled grey/brown/orange soft saprolite changing to firm grey/white/orange/yellow silt, medium grained, trace clay, trace quartz and weathered rock pieces, black banding, mica and biotite layers, iron pyrite, moist	ML		487.6				
25		25.00 - 30.00 mottled grey/white/brown saprolite, trace quartz and weathered rock, black banding, iron pyrite, moist, firm			482.6				
30		30.00 - 35.00 mottled grey/white/brown/orange saprolite, densely compacted, trace quartz and weathered rock, medium to coarse grained, difficult to determine water content but steam generated during drilling			477.6				
35		Boring completed at 35.00 ft			472.6				

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jeremy Triepke

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



RECORD OF BOREHOLE SGWC-10/APC-5

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 30.00 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/4/15
 DATE COMPLETED: 11/5/15

NORTHING: 1,121,895.85
 EASTING: 2,404,046.92
 GS ELEVATION: 506.6
 TOC ELEVATION: 509.41 ft

DEPTH W.L.: 17'
 ELEVATION W.L.:
 DATE W.L.: 11/5/15
 TIME W.L.: 13:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	505	0.00 - 5.00 CLAY/OVERBURDEN; reddish/brown silty fine grained fill, some rock fragments and organic material, trace clay, micaceous, dry-moist, firm, W<PL	CH		501.6			<p style="font-size: small;">Portland Type I/ Type II/ Gel mix</p> <p style="font-size: small;">3/8" Bentonite Pellets</p> <p style="font-size: small;">0.010" slot screen #1 sand</p>	<p>WELL CASING Interval: -3'-20' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 20'-30' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 18'-30' Type: #1 sand/ Prepack Filter</p> <p>FILTER PACK SEAL Interval: 15.5'-18' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-15.5' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>
5	500	5.00 - 10.00 mottled brown/reddish/orange micaceous fill, changing to saprolite soils with black streaking, trace quartz, moist, firm			5.00				
10	495	10.00 - 15.00 SILTY CLAY (CL)/SAPROLITE; mottled orange/brown/yellow/reddish saprolite, micaceous, trace quartz and angular rock fragments, firm to soft, moist	CL		496.6	10.00			
15	490	15.00 - 20.00 mottled orange/brown/yellow/reddish saprolite, some clay, micaceous, black streaking, trace quartz and weathered rock fragments, soft, wet, ~17"			491.6	15.00			
20	485	20.00 - 25.00 SILTY SAND (SM)/SAPROLITE; mottled orange/brown/reddish/yellow saprolite, trace clay, trace quartz and weathered rock fragments, micaceous, soft, wet	SM		486.6	20.00			
25	480	25.00 - 30.00 mottled brown/grey/orange/white saprolite, fin grained, trace clay, trace quartz and weathered rock fragments, soft, wet			481.6	25.00			
30	475	Boring completed at 30.00 ft			476.6				

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ | PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jeremy Triepke

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



RECORD OF BOREHOLE SGWC-11/APC-6

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 40.00 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 10/28/15
 DATE COMPLETED: 10/29/15

NORTHING: 1,121,542.11
 EASTING: 2,404,332.12
 GS ELEVATION: 508.6
 TOC ELEVATION: 511.47 ft

DEPTH W.L.: 29'
 ELEVATION W.L.: 29'
 DATE W.L.: 10/29/15
 TIME W.L.: 17:50

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 5.00 CLAY (CH)/OVERBURDEN; reddish brown silty overburden, micaceous, dry, firm (fill/topsoil)	CH		503.6			<p style="font-size: small;">Well casing: Schedule 40 PVC, 6" diameter, threaded joints. Well screen: Schedule 40 PVC, 2" diameter, 0.010" slot size, end cap. Filter pack: #1 sand. Filter pack seal: 3/8" Bentonite Pellets. Annulus seal: Portland Type I/Type II Gel mix. Well completion: 4"x4" pad, anodized aluminum casing. Drilling methods: 4-inch Sonic soil/rock drill.</p>	<p>WELL CASING Interval: -3'-30' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 30'-40' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 28'-40' Type: #1 sand</p> <p>FILTER PACK SEAL Interval: 26'-28' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-26' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4"x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>
5		5.00 - 10.00 SILTY CLAY; reddish brown silty clay, micaceous; changes to mottled reddish/light brown/brown, black streaking, trace quartz, dry, firm to soft	CL		5.00				
10		10.00 - 15.00 CLAYEY SILT; clay with some silt, saprolitic at 10'-11', black streaks, micaceous, mottled light brown/brown/reddish/orange, soft, dry to moist	MH		10.00				
15		15.00 - 20.00 CLAY (CL); mottled reddish/brown/orange/light brown saprolite, black streaking, trace clay and quartz, micaceous, possible weathered rock, soft, dry-moist	CL		15.00				
20		20.00 - 22.00 SILTY CLAY/CLAYEY SILT/SAPROLITE (CL-ML); clayey silt lense, trace clay, very soft, wet	CL-ML		20.00				
25		22.00 - 25.00 mottled orange/reddish/light brown/yellow saprolite, black streaks, residual quartz, moist	CL-ML		22.00				
30		25.00 - 30.00 CLAYEY SILT (ML)/SAPROLITE; mottled orange/red/brown/white/grey saprolite, weathered rock fragments, trace clay, black streaking, soft-medium, moist	ML		25.00				
35		30.00 - 35.00 mottled brown/orange/yellow/red with some grey and white saprolite, quartz fragments, some weathered rock pieces, trace clay, soft-medium, moist	ML		30.00				
40		35.00 - 40.50 mottled brown/orange/grey/light brown saprolite, quartz fragments and weathered rock pieces, trace clay, black streaks, wet	ML		35.00				
45		Boring completed at 40.00 ft			40.50				

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jeremy Triepke

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



RECORD OF BOREHOLE SGWC-12/APC-7

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 47.60 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 10/29/15
 DATE COMPLETED: 10/30/15

NORTHING: 1,121,576.75
 EASTING: 2,405,009.92
 GS ELEVATION: 497.7
 TOC ELEVATION: 500.53 ft

DEPTH W.L.: 29'
 ELEVATION W.L.:
 DATE W.L.: 10/30/15
 TIME W.L.: 10:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 2.00 OVERBURDEN/FILL (CH); reddish brown silt and fine grained sand	CH		495.7				<p>WELL CASING Interval: -3'-37' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 37'-47' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 35'-47' Type: #1 sand/ Prepack Filter</p> <p>FILTER PACK SEAL Interval: 32.5'-35' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-32.5' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>	
495		2.00 - 5.00 reddish brown silt with trace clay, micaceous, dry, firm			2.00					
5		5.00 - 10.00 SILTY SAND/SAPROLITE (SM); mottled reddish brown and grey saprolite, micaceous, trace quartz fragments, some clay, dry	SM		492.7					
490					5.00					
10		10.00 - 15.00 CLAYEY SILT; mottled brown/orange/yellow clayey silt, trace quartz and weathered rock fragments, micaceous, firm trending to stiff, dry-moist	MH		487.7					
485					10.00					
15		15.00 - 18.00 mottled brown/orange/yellow clayey silt, trace quartz and weathered rock fragments, micaceous, firm-stiff, moist			482.7					
480					15.00					
20		18.00 - 25.00 SANDY SILT; trace biotite, trace quartz, micaceous, mottled brown/orange/reddish/yellow, firm-stiff, fine grained, loose, black streaks, firm-stiff	ML		479.7					
475					18.00					
25		25.00 - 30.00 mottled brown/orange/yellow sandy clay, fine grained, micaceous, some quartz pieces, greyish white with black streaking, trace weathered rock fragments, coarse sand, moist to wet, soft			472.7					
470					25.00					
30		30.00 - 35.00 SILTY SAND; mottled grey/white/reddish sandy silt, fine to medium grained, micaceous, trace clay, some quartz, trace weathered rock fragments, moist, W<PL	SM		467.7					
465					30.00					
35		35.00 - 40.00 mottled brown/grey/black saprolite, fine grained, micaceous, trace clay, trace quartz and weathered rock fragments, W<PL, soft but densely compacted, wet			462.7					
460					35.00					
40		40.00 - 45.00 mottled grey/white/black/brown saprolite, fine grained, trace quartz and weathered rock fragments, micaceous, black streaks, densely compacted, wet			457.7					
455					40.00					
45		Log continued on next page			452.7					

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jeremy Triepke

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



RECORD OF BOREHOLE SGWC-12/APC-7

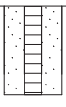
SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 47.60 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 10/29/15
 DATE COMPLETED: 10/30/15

NORTHING: 1,121,576.75
 EASTING: 2,405,009.92
 GS ELEVATION: 497.7
 TOC ELEVATION: 500.53 ft

DEPTH W.L.: 29'
 ELEVATION W.L.:
 DATE W.L.: 10/30/15
 TIME W.L.: 10:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	SAMPLE NO.	TYPE	REC		
					DEPTH (ft)					
45		45.00 - 47.00 black/gray/white/brown fine grained saprolite, tightly compacted, trace biotite and mica, soft, moist-wet		45.00					<p>WELL CASING Interval: -3'-37' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 37'-47' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 35'-47' Type: #1 sand/ Prepack Filter</p> <p>FILTER PACK SEAL Interval: 32.5'-35' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-32.5' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>	
450		Boring completed at 47.60 ft		450.7						
47.60				47.00						
50										
55										
60										
65										
70										
75										
80										
85										
90										

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ | PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jeremy Triepke

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



RECORD OF BOREHOLE SGWC-13/APC-8

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 35.00 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/3/15
 DATE COMPLETED: 11/4/15

NORTHING: 1,121,274.85
 EASTING: 2,405,761.20
 GS ELEVATION: 479.9
 TOC ELEVATION: 482.71 ft

DEPTH W.L.: 22'
 ELEVATION W.L.:
 DATE W.L.: 11/4/15
 TIME W.L.: 13:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 5.00 CLAYEY SILT (MH)/FILL; mottled reddish brown fill, some clay, micaceous, some black streaks and organic material, moist, stiff, W~PL	MH	|||||	474.9				<p style="font-size: small;">Portland Type I/ Type II/ Gel mix</p> <p style="font-size: small;">3/8" Bentonite Pellets</p> <p style="font-size: small;">#1 sand - 0.010" slot screen</p>	<p>WELL CASING Interval: -3'-25' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 25'-35' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 23'-35' Type: #1 sand/ Prepack Filter</p> <p>FILTER PACK SEAL Interval: 21'-23' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-21' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>
5	475	5.00 - 10.00 overburden, reddish brown fill, some clay, trace mica, firm, moist, W<PL			5.00					
10	470	10.00 - 15.00 SILT (ML)/SAPROLITE; mottled reddish/brown/orange saprolite, micaceous, trace quartz fragments, fine grained, soft to firm, W<PL	ML		469.9	10.00				
15	465	15.00 - 20.00 mottled brown/orange/reddish saprolite, micaceous, trace quartz, black streaking, fine grained, moist, firm			464.9	15.00				
20	460	20.00 - 25.00 mottled red/orange/brown/yellow saprolite, micaceous, trace quartz and biotite, fine grained, some clays, soft, wet, W-PL			459.9	20.00				
25	455	25.00 - 30.00 SAPROLITE; mottled brown/orange/yellow saprolite, fine gained, trace clay, trace quarts and biotite, micaceous, black streaking/banding, soft, wet, water noted	MH	|||||	454.9	25.00				
30	450	30.00 - 35.00 mottled brown/grey/white saprolite, trace quartz weathered rock fragments, micaceous, black streaking, firm-stiff			449.9	30.00				
35	445	Boring completed at 35.00 ft				444.9				
40	440									
45	435									

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ | PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jeremy Triepke

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





LOG OF TEST BORING

BORING SGWC-14/PZ-16S
 PAGE 1 OF 2
 ECS38467

SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

DATE STARTED 2/24/2015 COMPLETED 2/24/2015 SURF. ELEV. 473.3 COORDINATES: N 1120966.13 E 2406329.89
 CONTRACTOR Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger
 DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE _____ BEARING _____
 BORING DEPTH 35.3 ft. GROUND WATER DEPTH: DURING 18.5 ft. COMP. 9.91 ft. DELAYED 9.91 ft. after 24 hrs.
 NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
5		Silty Clay (CL) - mottled red (2.5YR 5/8) and light red / moderate reddish orange (10R 6/6) residuum moist, stiff			SPT N=11bpf(@3.5ft.)
10		- mottled red (2.5YR 5/8) and light red / moderate reddish orange (10R 6/6) residuum moist, medium stiff			SPT N=5bpf(@8.5ft.)
15		Silty Sand (SM) - mottled reddish yellow (5YR 7/8) and red (10R 4/8) saprolite moist, medium stiff, with weathered rock fragments, black streaking, trace clay			(MC = 44.4%; UW(d) = 72.8pcf; PERM. = 1.18E-6cm/sec) SPT N=6bpf(@13.5ft.)(LL=63; PI=16; FC = 40.2%; Gravel = 16.3%)
20		- mottled reddish yellow (5YR 6/8) and yellow (10YR 7/6) saprolite wet, medium stiff, with white and black streaking, trace weathered rock fragments			SPT N=6bpf(@18.5ft.)
25		- mottled reddish yellow (5YR 6/8) and yellow (10YR 7/6) saprolite wet, medium stiff, with black streaking, trace weathered rock fragments			SPT N=7bpf(@23.5ft.)

(Continued Next Page)



LOG OF TEST BORING

BORING SGWC-14/PZ-16S

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZIDRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
30		<p>Silty Sand (SM) (Cont)</p> <p>- mottled reddish yellow (5YR 6/8), pale green (10G 6/2) and white (10YR 8/1) saprolite wet, stiff, gravelly, trace weathered rock fragments</p>			<p>SPT N=13bpf(@28.5ft.)(LL=45; PI=7; FC = 26.1%; Gravel = 0%) (MC = 47.4%; UW(d) = 77.9pcf; PERM. = 2.49E-5cm/sec)</p>
35		<p>- mottled grayish olive (10Y 4/2) and pale green (10G 6/2) saprolite wet, hard, trace weathered rock fragments, residual quartz, biotite</p>			<p>SPT N=38bpf(@33.5ft.)</p>
Bottom of borehole at 35.3 feet.					
40					
45					
50					
55					



RECORD OF WELL CONSTRUCTION

WELL: SGWC-14/PZ-16S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

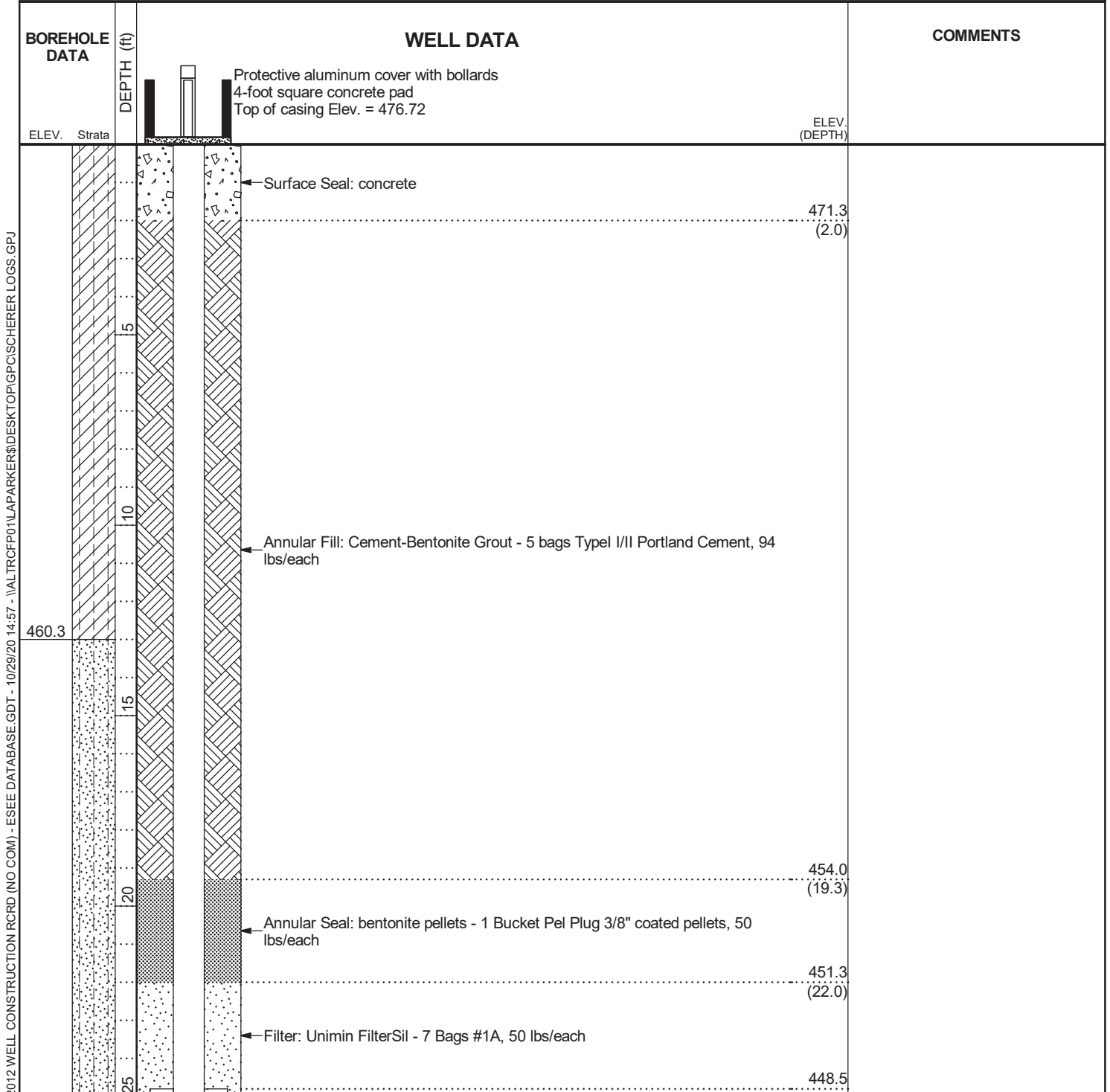
DATE STARTED 2/24/2015 COMPLETED 2/24/2015 GROUND ELEVATION 473.3 ft COORDINATES N 1120966.13 E 2406329.89

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 35.3 ft.

GROUND WATER DEPTH: DURING 18.5 ft. COMP. 9.91 ft. DELAYED 9.91 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01\LPARKER\DESKTOP\GPCISCHERER LOGS.GPJ

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: SGWC-14/PZ-16S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

BOREHOLE DATA		WELL DATA		COMMENTS
ELEV.	Strata	DEPTH (ft)	(CONTINUED)	ELEV. (DEPTH)
438.0		30	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 476.72 Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack Sump: 0.50 ft.	(24.8)
		35		438.5 (34.8)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



LOG OF TEST BORING

BORING SGWC-15/PZ-17S
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

DATE STARTED 2/25/2015 COMPLETED 2/26/2015 SURF. ELEV. 479.7 COORDINATES: N 1120191.20 E 2407093.92
 CONTRACTOR Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger
 DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE _____ BEARING _____
 BORING DEPTH 45.2 ft. GROUND WATER DEPTH: DURING 23.5 ft. COMP. 33.81 ft. DELAYED 31.66 ft. after 24 hrs.
 NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
5		<p>Silt (ML)</p> <p>- mottled red (2.5YR 4/8) and dark reddish brown (2.5YR 2.5/4) residuum moist, very stiff, trace clay</p>				SPT N=18bpf(@3.5ft.)
10		<p>- mottled red (2.5YR 4/8) and yellow (10YR 7/8) saprolite moist, stiff, trace coarse sand</p>				SPT N=10bpf(@8.5ft.)
15		<p>- mottled red (2.5YR 4/8) and yellow (10YR 7/8) saprolite moist, medium stiff, with black streaking, trace residual quartz and mica</p>				SPT N=5bpf(@13.5ft.)
20		<p>- mottled reddish brown (2.5YR 4/3) and dusky red / dark reddish brown (10R 3/4) saprolite moist, medium stiff, with black streaking, trace weathered rock fragments, biotite, muscovite, residual quartz</p>				SPT N=6bpf(@18.5ft.)
25		<p>▽ - mottled reddish brown (2.5YR 4/3) and dusky red / dark reddish brown (10R 3/4) saprolite wet, soft, with black spots, trace weathered rock fragments</p>				SPT N=3bpf(@23.5ft.)

(Continued Next Page)



LOG OF TEST BORING

BORING SGWC-15/PZ-17S
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZIDRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak	Moderate	Strong	HCL REACTION	COMMENTS
30		<p>Silt (ML) (Cont)</p> <p>- mottled light red (2.5YR 6/8) and light red / moderate reddish orange (10R 6/6) saprolite wet, stiff, with black streaking, trace weathered rock fragments</p>					SPT N=9bpf(@28.5ft.)	
35		<p>Sandy Elastic Silt (MH)</p> <p>- mottled reddish brown (2.5YR 4/3) and light red / moderate reddish orange (10R 6/6) saprolite wet, medium stiff, with black streaking, trace weathered rock fragments</p>					<p>SPT N=5bpf(@33.5ft.)(LL=55; PI=23; FC = 54.7%; Gravel = 0%)</p> <p>(MC = 51.6%; UW(d) = 70.3pcf; PERM. = 4.10E-4cm/sec)</p>	
40		<p>Silt (ML)</p> <p>- mottled reddish brown (2.5YR 4/3) and light red / moderate reddish orange (10R 6/6) saprolite wet, medium stiff, trace weathered rock fragments, residual quartz, biotite, muscovite</p>					SPT N=8bpf(@38.5ft.)	
45		<p>- mottled reddish brown (2.5YR 4/3) and light red / moderate reddish orange (10R 6/6) saprolite wet, stiff, with black streaking, trace weathered rock fragments, biotite, muscovite, residual quartz</p>					SPT N=12bpf(@43.5ft.)	
Bottom of borehole at 45.2 feet.								
50								
55								



RECORD OF WELL CONSTRUCTION

WELL: SGWC-15/PZ-17S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/25/2015 COMPLETED 2/26/2015 GROUND ELEVATION 479.7 ft COORDINATES N 1120191.2 E 2407093.92

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 45.2 ft.

GROUND WATER DEPTH: DURING 23.5 ft. COMP. 33.81 ft. DELAYED 31.66 ft. after 24 hrs.

NOTES _____

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. <u>Strata</u></p> <p style="text-align: center;">DEPTH (ft)</p>	<p style="text-align: center;">Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 482.75</p> <p>← Surface Seal: concrete</p> <p style="text-align: right;">ELEV. (DEPTH)</p> <p style="text-align: right;">477.7 (2.0)</p> <p>← Annular Fill: Cement-Bentonite Grout - 6 bags Typel I/II Portland Cement, 94 lbs/each</p>	

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPCISCHERER LOGS.GPJ

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: SGWC-15/PZ-17S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 482.75	
446.7	30	← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	ELEV. (DEPTH) 450.9 (28.8)
441.7	35	← Filter: Unimin FilterSil - 5.5 Bags #1A, 50 lbs/each	447.1 (32.6)
434.5	45	← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	444.9 (34.8)
		← Sump: 0.40 ft.	434.9

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



LOG OF TEST BORING

BORING SGWC-16/PZ-18S
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

DATE STARTED 3/3/2015 COMPLETED 3/3/2015 SURF. ELEV. 457.0 COORDINATES: N 1119221.42 E 2407155.89
 CONTRACTOR Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger
 DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE _____ BEARING _____
 BORING DEPTH 40.2 ft. GROUND WATER DEPTH: DURING 18.5 ft. COMP. 29.95 ft. DELAYED 29.33 ft. after 24 hrs.
 NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZIDRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
5		Silty Clay (CL) - Hand auger 5' for utilities clearance				
10		- mottled red (2.5YR 4/8) and light red / moderate reddish orange (10R 6/6) residuum dry, very stiff, trace roots				SPT N=16bpf(@8.5ft.)
15		Sandy Silt (ML) - mottled red (2.5YR 4/8) and white (10R 8/1) saprolite dry, stiff, with black streaking, trace residual quartz				SPT N=11bpf(@13.5ft.)
20		▽ - mottled reddish yellow (5YR 6/8) and light red / moderate reddish orange (10R 6/6) saprolite wet, soft, trace weathered rock fragments				SPT N=4bpf(@18.5ft.)
25		- mottled reddish yellow (5YR 6/8) and light red / moderate reddish orange (10R 6/6) saprolite wet, medium stiff, with black streaking, trace residual quartz and biotite				SPT N=5bpf(@23.5ft.)

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: SGWC-16/PZ-18S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

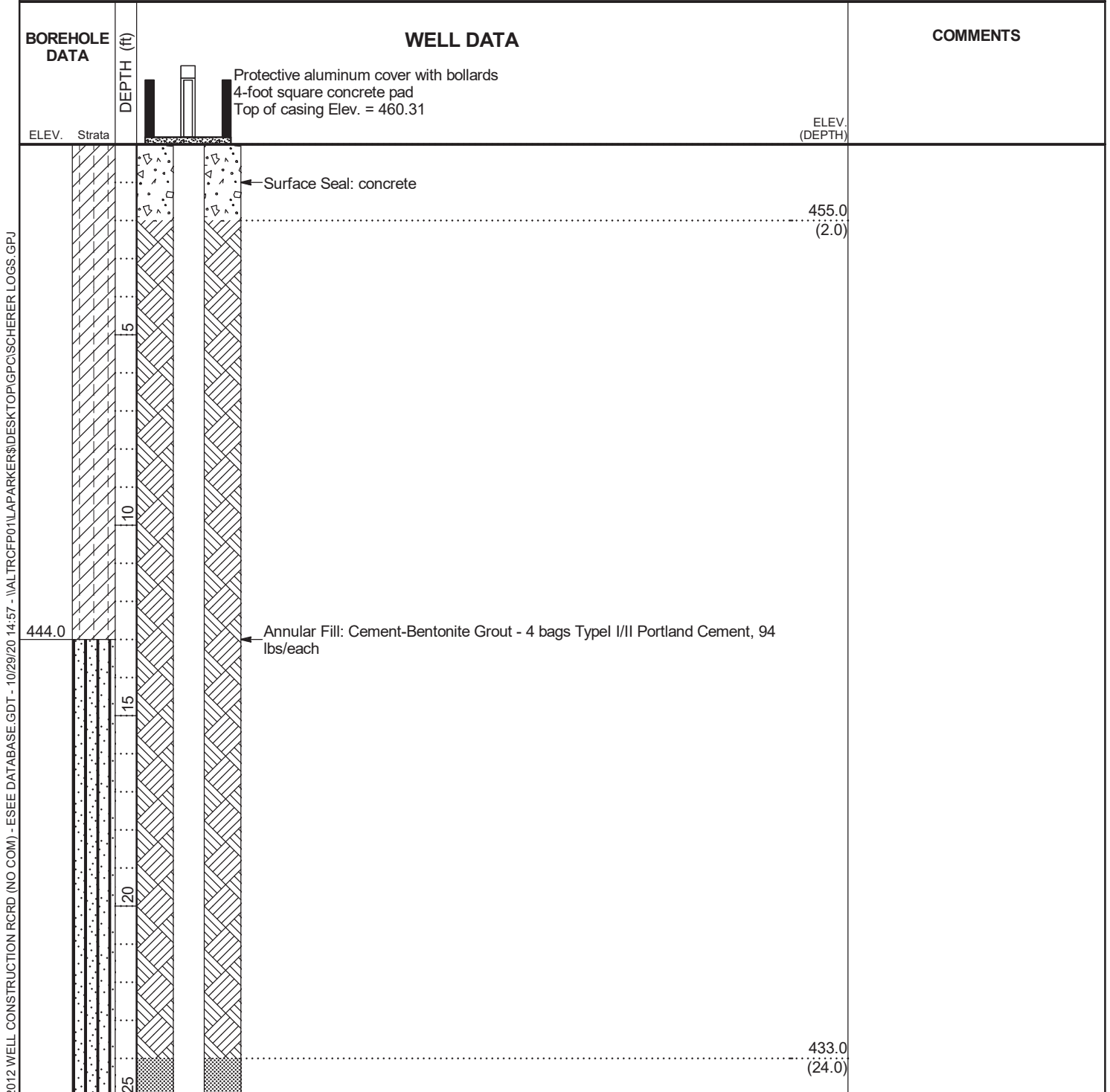
DATE STARTED 3/3/2015 COMPLETED 3/3/2015 GROUND ELEVATION 457 ft COORDINATES N 1119221.42 E 2407155.89

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 40.2 ft.

GROUND WATER DEPTH: DURING 18.5 ft. COMP. 29.95 ft. DELAYED 29.33 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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RECORD OF WELL CONSTRUCTION

WELL: SGWC-16/PZ-18S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 460.31	
416.8	40	Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each Filter: Unimin FilterSil - 6.5 Bags #1A, 50 lbs/each Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack Sump: 0.40 ft.	ELEV. (DEPTH) 430.2 (26.8) 428.2 (26.8) 418.2 (38.8)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHEHER LOGS.GPJ



LOG OF TEST BORING

BORING SGWC-17/PZ-20S
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

DATE STARTED 3/11/2015 COMPLETED 3/11/2015 SURF. ELEV. 414.9 COORDINATES: N 1118308.77 E 2407267.44
 CONTRACTOR Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger
 DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE _____ BEARING _____
 BORING DEPTH 24.5 ft. GROUND WATER DEPTH: DURING 0.5 ft. COMP. 6.1 ft. DELAYED 5.9 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:59 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate		Strong
5		∇ Fat Clay (CL) - Hand auger 5' for utilities clearance				
10		- mottled strong brown (7.5YR 4/6) and red (10R 4/8) residuum wet, hard, with sand, trace roots and weathered rock fragments				SPT N=50bpf(@8.5ft.)
15		Silty Sand (SM) - mottled gray (7.5YR 5/1) saprolite wet, loose, very fine to fine grained, with white speckling and black streaking, trace weathered rock fragments				SPT N=6bpf(@13.5ft.)
20		- mottled gray (7.5YR 5/1) saprolite wet, medium dense, very fine to fine grained, with white speckling and black streaking, trace weathered rock fragments				SPT N=13bpf(@18.5ft.)
25		- mottled very dark gray (7.5YR 3/1) saprolite wet, medium dense, very fine to fine grained, with white speckling and black streaking, trace residual quartz, iron oxide staining, weathered rock fragments				SPT N=18bpf(@23.5ft.)
		Bottom of borehole at 24.5 feet.				



RECORD OF WELL CONSTRUCTION

WELL: SGWC-17/PZ-20S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

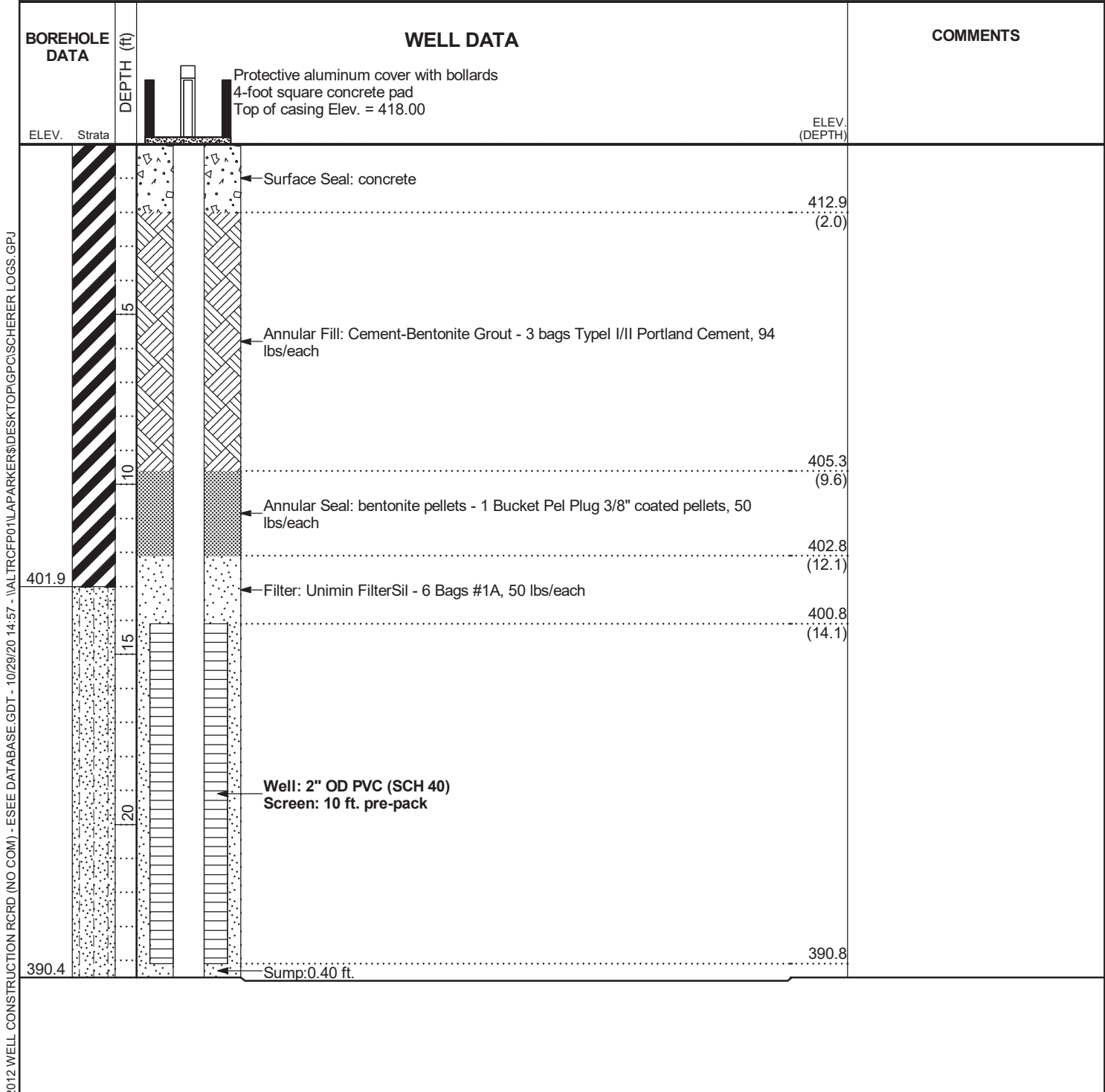
DATE STARTED 3/11/2015 COMPLETED 3/11/2015 GROUND ELEVATION 414.9 ft COORDINATES N 1118308.77 E 2407267.44

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 24.5 ft.

GROUND WATER DEPTH: DURING 0.5 ft. COMP. 6.1 ft. DELAYED 5.9 ft. after 24 hrs.

NOTES _____





LOG OF TEST BORING

BORING SGWC-18/PZ-22S
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

DATE STARTED 3/16/2015 COMPLETED 3/17/2015 SURF. ELEV. 510.3 COORDINATES: N 1116947.75 E 2406931.32
 CONTRACTOR Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger
 DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE _____ BEARING _____
 BORING DEPTH 44.5 ft. GROUND WATER DEPTH: DURING 28.5 ft. COMP. 31.4 ft. DELAYED 31.1 ft. after 24 hrs.
 NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:59 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
5		Lean Clay (CL) - Hand auger 5' for utilities clearance			
10		- mottled brown (7.5YR 5/2) and yellow (10YR 7/6) fill moist, stiff, micaceous			SPT N=9bpf(@8.5ft.)
15		- mottled brown (7.5YR 5/2) and yellow (10YR 7/6) fill moist, medium stiff, micaceous			SPT N=5bpf(@13.5ft.)
20		Silt (ML) - mottled reddish yellow (7.5YR 7/8) and white (10R 8/1) saprolite moist, medium stiff, with black spots, trace weathered rock fragments			SPT N=7bpf(@18.5ft.)
25		- mottled reddish yellow (7.5YR 7/8) and white (10R 8/1) saprolite moist, medium stiff, with black spots, trace weathered rock fragments, residual quartz, biotite, muscovite			SPT N=5bpf(@23.5ft.)

(Continued Next Page)



LOG OF TEST BORING

BORING SGWC-18/PZ-22S

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:59 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZIDRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
		Silt (ML) (Cont)			
30		- mottled reddish yellow (7.5YR 7/8) saprolite wet, medium stiff, black/yellow streaking and spots, trace residual quartz, feldspar, biotite, muscovite			SPT N=5bpf(@28.5ft.)
35		- mottled reddish yellow (7.5YR 7/8) saprolite wet, medium stiff, black/yellow streaking and spots, trace residual quartz, feldspar, biotite, muscovite			SPT N=7bpf(@33.5ft.)
40		- mottled reddish yellow (7.5YR 7/8) and pink (10R 8/3) saprolite wet, stiff, with black streaking, trace residual quartz, feldspar, biotite, muscovite			SPT N=9bpf(@38.5ft.)
45		- mottled reddish yellow (7.5YR 7/8) and white (10R 8/1) saprolite wet, stiff, with black streaking, trace residual quartz, feldspar, hornblende, biotite, muscovite			SPT N=10bpf(@43.5ft.)
		Bottom of borehole at 44.5 feet.			
50					
55					



RECORD OF WELL CONSTRUCTION

WELL: SGWC-18/PZ-22S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 513.29	
			ELEV. (DEPTH)
	30	← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	481.3 (29.0)
	35	← Filter: Unimin FilterSil - 6 Bags #1A, 50 lbs/each	478.1 (32.2)
	40	Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	476.2 (34.1)
		← Sump: 0.40 ft.	466.2
465.8			

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



LOG OF TEST BORING

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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

DATE STARTED 3/18/2015 COMPLETED 3/18/2015 SURF. ELEV. 475.8 COORDINATES: N 1116024.59 E 2406097.05
 CONTRACTOR Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger
 DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE _____ BEARING _____
 BORING DEPTH 34.6 ft. GROUND WATER DEPTH: DURING 13.5 ft. COMP. 15.1 ft. DELAYED 12.1 ft. after 24 hrs.
 NOTES _____

SAMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:59 - S:\WORKGROUP\SPAC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
5		Lean Clay (CL) - Hand auger 5' for utilities clearance				
10		- mottled red (2.5YR 5/8) fill moist, medium stiff, trace mica				SPT N=8bpf(@8.5ft.)
15		Silt (ML) - mottled reddish gray (2.5YR 5/1) and light red / moderate reddish orange (10R 6/6) saprolite wet, medium stiff, black spots, with trace residual quartz				SPT N=5bpf(@13.5ft.)
20		- mottled reddish yellow (7.5YR 7/8) saprolite wet, medium stiff, trace mica				SPT N=6bpf(@18.5ft.)
25		Silty Sand (SM) - mottled white (7.5YR 8/1) and light red / moderate reddish orange (10R 6/6) saprolite wet, medium dense, very fine to fine grained, trace residual quartz, muscovite, biotite				SPT N=10bpf(@23.5ft.)

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LOG OF TEST BORING

BORING SGWC-19/PZ-23S
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:59 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZIDRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak	Moderate	Strong	HCL REACTION	COMMENTS
30		<p>Silty Sand (SM) (Cont)</p> <p>- mottled white (7.5YR 8/1) saprolite wet, medium dense, very fine to fine grained, black streaking, trace weathered rock fragments and mica</p> <p>- mottled white (7.5YR 8/1) saprolite wet, dense, very fine to fine grained, black streaking, trace muscovite, biotite, residual quartz</p>					<p>SPT N=20bpf(@28.5ft.)</p> <p>SPT N=39bpf(@33.5ft.)</p>	
35		Bottom of borehole at 34.6 feet.						
40								
45								
50								
55								



RECORD OF WELL CONSTRUCTION

WELL: SGWC-19/PZ-23S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

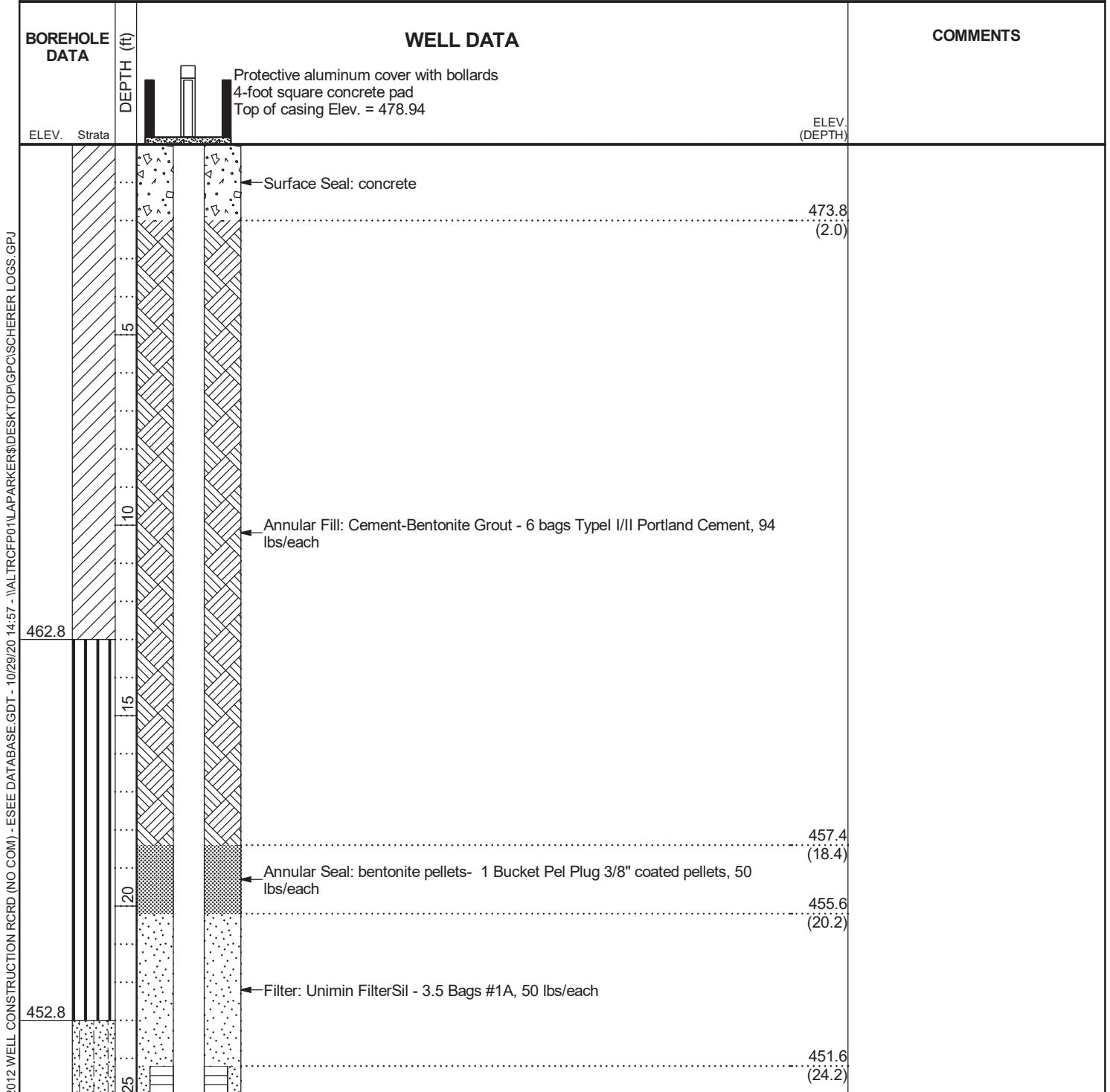
DATE STARTED 3/18/2015 COMPLETED 3/18/2015 GROUND ELEVATION 475.8 ft COORDINATES N 1116024.59 E 2406097.05

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 34.6 ft.

GROUND WATER DEPTH: DURING 13.5 ft. COMP. 15.1 ft. DELAYED 12.1 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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WELL: SGWC-19/PZ-23S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 478.94	ELEV. (DEPTH)
441.2	30	Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack Sump: 0.40 ft.	441.6

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCF001\APARKER\DESKTOP\GPC\SCHERER LOGS.GPJ

RECORD OF BOREHOLE SGWC-20/APC-15

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 25.00 ft
 LOCATION: Juliette, GA

DRILL RIG: C 100 Track Mounted Rig
 DATE STARTED: 11/19/15
 DATE COMPLETED: 11/19/15

NORTHING: 1,116,020.73
 EASTING: 2,405,307.67
 GS ELEVATION: 501.5
 TOC ELEVATION: 504.60 ft

DEPTH W.L.: 8.20'
 ELEVATION W.L.:
 DATE W.L.: 11/20/15
 TIME W.L.: 11:35

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	500	0.00 - 5.00 CLAY (CH)/FILL; clayey silty overburden, red/brown, moist (vacuum cleared by Southern Company Services to 10 feet prior to drilling activities)	CH		496.5				<p style="font-size: small;">Portland Type I/ Type II/ Gel mix</p> <p style="font-size: small;">3/8" Bentonite Pellets</p> <p style="font-size: small;">#1 sand - 0.010" slot screen</p>	<p>WELL CASING Interval: -3'-15' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 15'-25' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 12.7'-25' Type: #1 sand/ Prepack Filter</p> <p>FILTER PACK SEAL Interval: 10.6'-12.7' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-10.6' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4"x4"x4" Protective Casing: Anodized Aluminum</p> <p>DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic</p>
5	495	5.00 - 10.00 clayey silt, red/brown, moist			5.00					
10	490	10.00 - 13.00 CLAYEY SILT (ML)/SAPROLITE; clayey silts, fat clay, trace biotite streaking and mica, red/orange/brown, moist	ML		491.5					
15	485	13.00 - 15.00 FAT CLAY (CH)/SAPROLITE; silt and fine sand with trace quartz, micaceous, trace biotite, red/brown, wet	CH		488.5					
20	480	15.00 - 20.00 SILT/SAPROLITE; clayey silty, mottled saprolite, trace biotite, red/orange/brown, very soft, wet Shelby Tube Collected: 15'-17'	MH		486.5					
25	475	20.00 - 25.00 mottled saprolite, weathered biotite, micaceous, trace quartz, foliation (clayey silt with interbedded fine sand), orange/red/brown, very wet			481.5					
475	470	Boring completed at 25.00 ft			476.5					

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ | PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vernon Scott

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





LOG OF TEST BORING

BORING SGWC-21/PZ-01S
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

DATE STARTED 5/6/2015 COMPLETED 5/6/2015 SURF. ELEV. 484.7 COORDINATES: N 1115409.88 E 2404197.33
 CONTRACTOR Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger
 DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE _____ BEARING _____
 BORING DEPTH 24.9 ft. GROUND WATER DEPTH: DURING 14.4 ft. COMP. 0 ft. DELAYED 2.7 ft. after 24 hrs.
 NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
		Lean Clay (CL) - Hand auger 5' for utilities clearance - mottled red (10R 5/8) and pink / moderate orange pink (5YR 8/4) saprolite moist, soft, micaceous - light gray (10R 7/1) saprolite moist, stiff, micaceous, trace silt			
5					
10					SPT N=4bpf(@8.5ft.)
15					SPT N=14bpf(@13.5ft.)
20		Silt (ML) - light gray (10R 7/1) saprolite very moist, medium stiff, micaceous, trace clay			SPT N=8bpf(@18.5ft.)
25		Silty Sand (SM) - mottled light gray (10R 7/1) and pinkish white / grayish orange pink (10R 8/2) saprolite moist, medium dense, fine to coarse grained, trace weathered rock			SPT N=19bpf(@23.5ft.)
Bottom of borehole at 24.9 feet.					



RECORD OF WELL CONSTRUCTION

WELL: SGWC-21/PZ-01S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

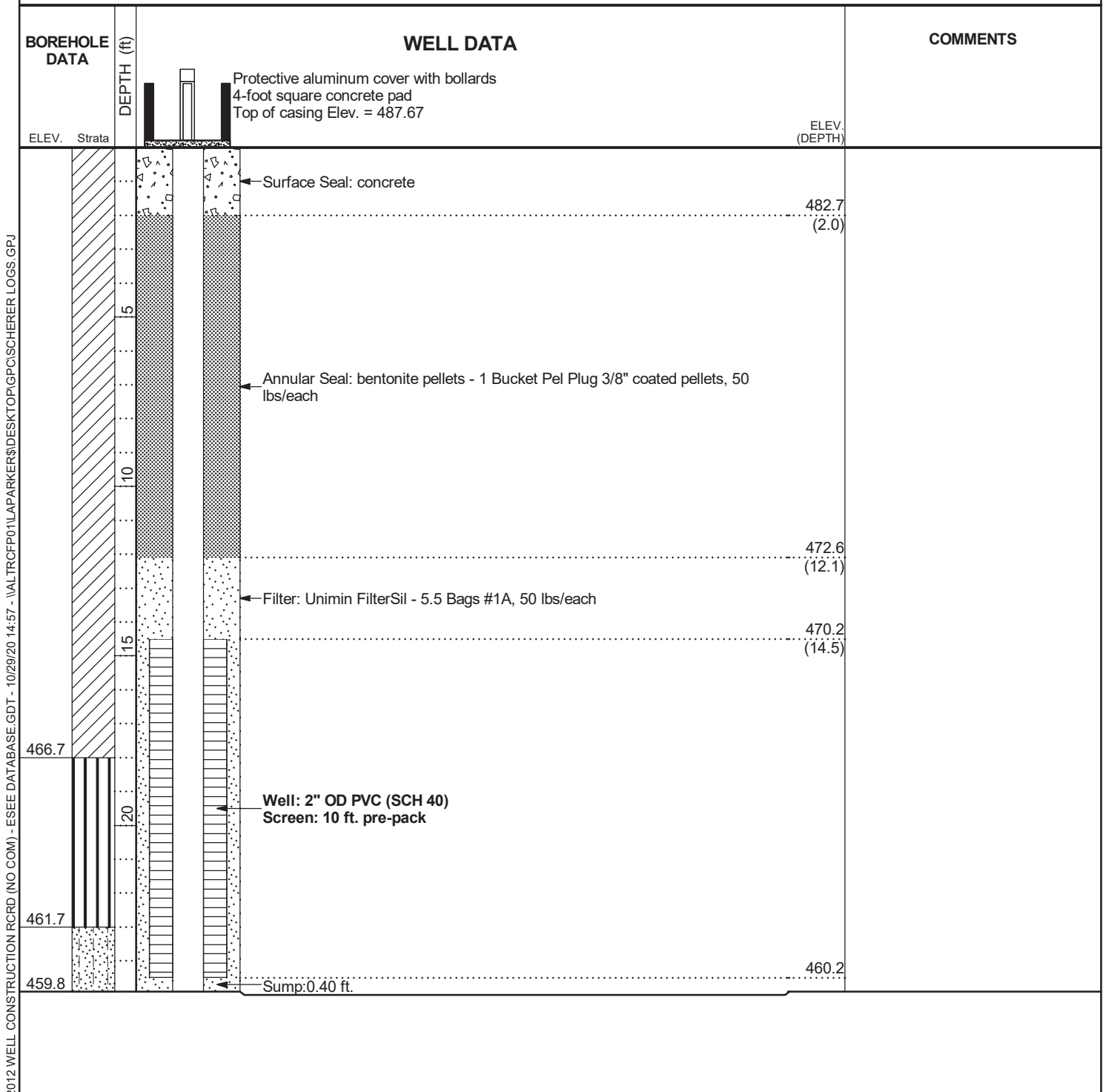
DATE STARTED 5/6/2015 COMPLETED 5/6/2015 GROUND ELEVATION 484.7 ft COORDINATES N 1115409.88 E 2404197.33

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 24.9 ft.

GROUND WATER DEPTH: DURING 14.4 ft. COMP. 0 ft. DELAYED 2.7 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01\LPARKER\DESKTOP\GPC\SCHEHERER LOGS.GPJ



BORING LOG

BORING SGWC-22/PZ-02S

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

DATE STARTED 1/21/2015 COMPLETED 1/22/2015 GROUND ELEVATION 515.4 ft COORDINATES: N 1115540.08 E 2403001.81

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 50.1 ft.

GROUND WATER DEPTH: DURING 25.5 ft. COMP. 25.5 ft. DELAYED 24.51 ft. after 24 hrs.

NOTES _____

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	HCL REACTION	COMMENTS
			Weak Moderate Strong	
5		Lean Clay (CL) - mottled dusky red (5R 3/4), light red / moderate reddish orange (10R 6/6) and pinkish white / grayish orange pink (10R 8/2) fill moist, very stiff		SPT N=21bpf(@3.5ft.)
10		Silt (ML) - mottled dusky red (5R 3/4), pinkish white (7.5YR 8/2) and pale red / moderate orange pink (10R 7/4) residuum moist, very stiff, white banding, micaceous		SPT N=20bpf(@8.5ft.)
15		- mottled dusky red (5R 3/4), very pale brown / very pale orange (10YR 8/2) and very pale brown / very pale orange (10YR 8/2) saprolite moist, stiff, with black spots		SPT N=9bpf(@13.5ft.)
20		- mottled brown (10YR 4/3), light brown (7.5YR 6/4) and white (2.5YR 8/1) saprolite moist, medium stiff		SPT N=8bpf(@18.5ft.)
25		Silty Sand (SM) - mottled brown (10YR 4/3), very pale brown / very pale orange (10YR 8/2) and pale red / moderate orange pink (10R 7/4) saprolite wet, loose, very fine to fine grained, with black spots		SPT N=6bpf(@23.5ft.)

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\APARKER\DESKTOP\GFC\SCHEHERER LOGS.GPJ

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\IAPARKER\DESKTOP\GFC\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	HCL REACTION Weak Moderate Strong	COMMENTS
		<p>▼ Silty Sand (SM)(Con't)</p>		
30		- mottled brown (10YR 4/3), very pale brown / very pale orange (10YR 8/2) and pale red / moderate orange pink (10R 7/4) saprolite wet, medium dense, very fine to fine grained, with black spots		SPT N=12bpf(@28.5ft.)
35		- mottled very pale brown / very pale orange (10YR 8/2), very pale brown / very pale orange (10YR 8/2) and light brownish gray / pale yellowish brown (10YR 6/2) saprolite wet, medium dense, very fine to fine grained, with black spots		SPT N=20bpf(@33.5ft.)
40		- mottled light greenish gray (10BG 7/1), white (7.5YR 8/1) and white (10R 8/1) saprolite wet, dense, very fine to fine grained, micaceous, trace weathered rock fragments		SPT N=42bpf(@38.5ft.)
45		- mottled brown (10YR 4/3), very pale brown / very pale orange (10YR 8/2) and white (10R 8/1) saprolite wet, medium dense, very fine to fine grained, micaceous, with black spots		SPT N=27bpf(@43.5ft.)
50		- mottled brown (10YR 4/3), very pale brown / very pale orange (10YR 8/2) and white (10R 8/1) saprolite wet, dense, very fine to fine grained, micaceous, with black spots		SPT N=43bpf(@48.5ft.)
		Bottom of borehole at 50.1 feet.		
55				



RECORD OF WELL CONSTRUCTION

WELL: SGWC-22/PZ-02S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

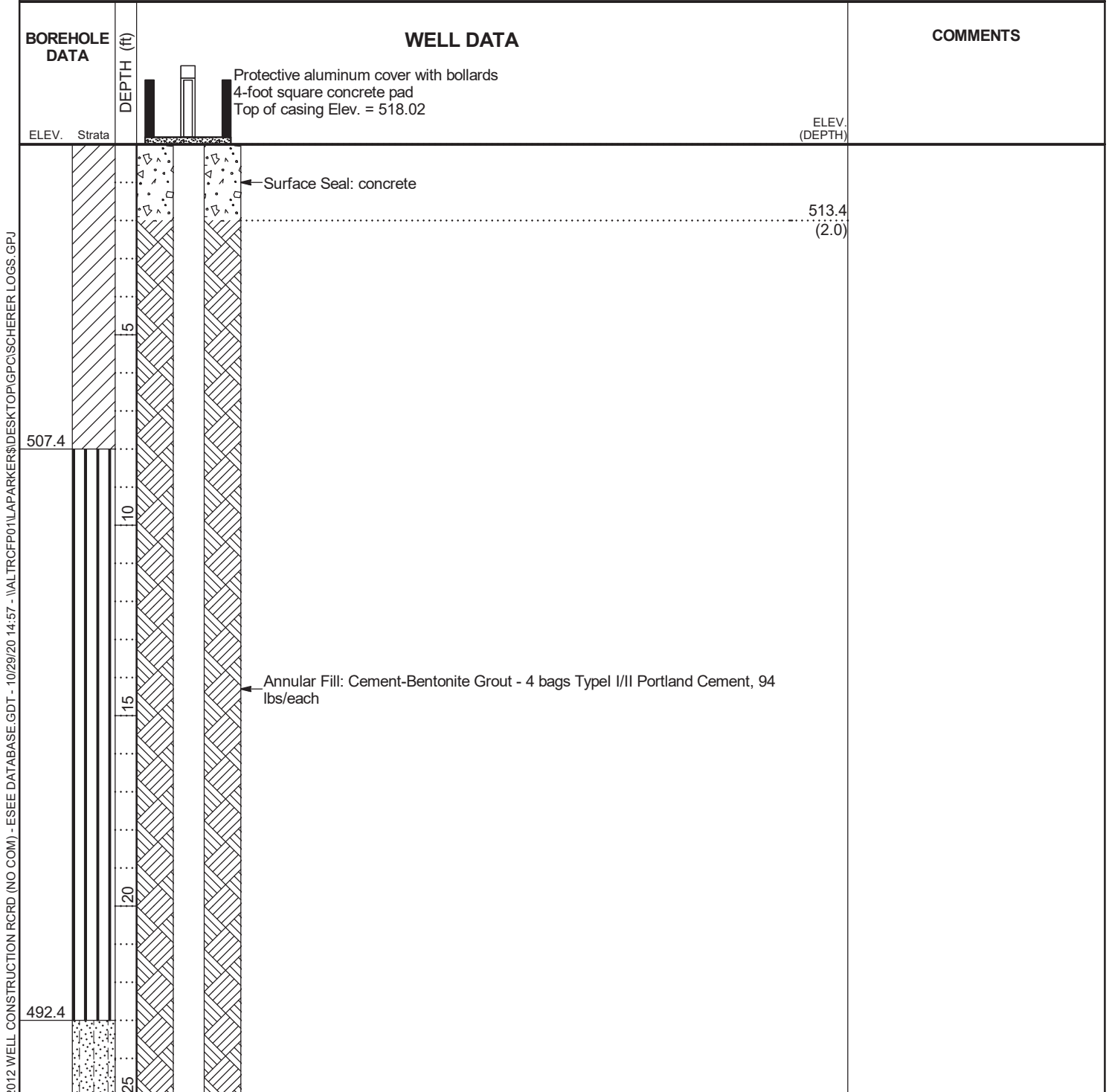
DATE STARTED 1/21/2015 COMPLETED 1/22/2015 GROUND ELEVATION 515.4 ft COORDINATES N 1115540.08 E 2403001.81

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 50.1 ft.

GROUND WATER DEPTH: DURING 25.5 ft. COMP. 25.5 ft. DELAYED 24.51 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHEHER LOGS.GPJ

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RECORD OF WELL CONSTRUCTION

WELL: SGWC-22/PZ-02S

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. Strata</p> <p style="text-align: center;">DEPTH (ft)</p> <p style="text-align: center;">(CONTINUED)</p>	<p>Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 518.02</p> <p>Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each</p> <p>Filter: Unimin FilterSil - 6 Bags #1A, 50 lbs/each</p> <p>Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack</p> <p>Sump: 0.40 ft</p> <p>Backfill:</p>	<p>ELEV. (DEPTH)</p> <p>488.8 (26.6)</p> <p>486.2 (29.2)</p> <p>478.9 (36.5)</p> <p>468.9 (46.5)</p> <p>468.5 (46.9)</p>
<p>465.3</p>		

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCF001\APARKER\DESKTOP\GPC\SCHEHERER LOGS.GPJ



LOG OF TEST BORING

BORING SGWC-23/PZ-041
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

DATE STARTED 1/29/2015 COMPLETED 2/3/2015 SURF. ELEV. 520.0 COORDINATES: N 1116693.80 E 2402131.07
 CONTRACTOR Civil 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 49.7 ft. GROUND WATER DEPTH: DURING 34.9 ft. COMP. 33.1 ft. DELAYED 33.9 ft. after 24 hrs.
 NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
5		Sandy Silt (ML) - mottled red / moderate reddish brown (10R 4/6) and light red / moderate reddish orange (10R 6/6) residuum moist, very stiff, micaceous			SPT N=24bpf(@3.5ft.)
10		Silty Sand (SM) - mottled white (10YR 8/1) saprolite dry, medium dense, very fine to fine grained, with trace coarse subangular grains - mottled white (10YR 8/1) and red / moderate reddish brown (10R 4/6) saprolite dry, medium dense, very fine to fine grained, with trace coarse subangular grains			SPT N=20bpf(@8.5ft.) SPT N=14bpf(@13.5ft.)
20		Sandy Silt (ML) - mottled greenish gray (10BG 5/1) saprolite moist, very stiff, white banding, with trace weathered rock fragments			SPT N=17bpf(@18.5ft.)
25		- mottled greenish gray (10BG 5/1) and light red / moderate reddish orange (10R 6/6) saprolite moist, very stiff, with white streaking, trace weathered rock fragments			SPT N=20bpf(@23.5ft.)

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LOG OF TEST BORING

BORING SGWC-23/PZ-041
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZIDRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
		Sandy Silt (ML) (Con't)			
30		Silty Sand (SM) - mottled greenish gray (10BG 5/1) and light red / moderate reddish orange (10R 6/6) saprolite moist, medium dense, very fine to fine grained, with white streaking and black spots, trace weathered rock fragments and mica			SPT N=17bpf(@28.5ft.)(PL=NP; FC = 32.5%; Gravel = 0%) (MC = 23%; UW(d) = 96pcf; PERM. = 1.65E-4cm/sec)
35		PARTIALLY WEATHERED ROCK - variegated with greenish gray (10BG 5/1) fine to coarse grain, very soft, highly weathered			SPT N=36bpf(@33.5ft.)
40		GRANITIC GNEISS - variegated with very pale brown / grayish orange (10YR 7/4) coarse grain, hard to very hard, slightly to moderately weathered, massive, banded, 2 low angle-fractures (10 - 25d), 3 moderate-angle fractures (30 - 45d), 2 high-angle fractures (65 - 90d), with iron oxide staining, quartz, feldspar, mica			
45		- variegated with dark gray (N3) coarse to medium grain, very soft to soft, moderately to highly weathered, inclined, banded, moderately fractured, 10 low-angle fractures (10 - 30d), 11 moderate-angle fractures (30 - 45d), with iron oxide staining, quartz, amphibole			
50		- variegated with dark gray (N3) coarse to medium grain, very soft to soft, moderately to highly weathered, inclined, banded, moderately fractured, 16 moderate-angle fractures (30 - 45d), 2 high-angle fractures (60 - 90d), with iron oxide staining, quartz, amphibole			
55		Bottom of borehole at 49.7 feet.			



RECORD OF WELL CONSTRUCTION

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

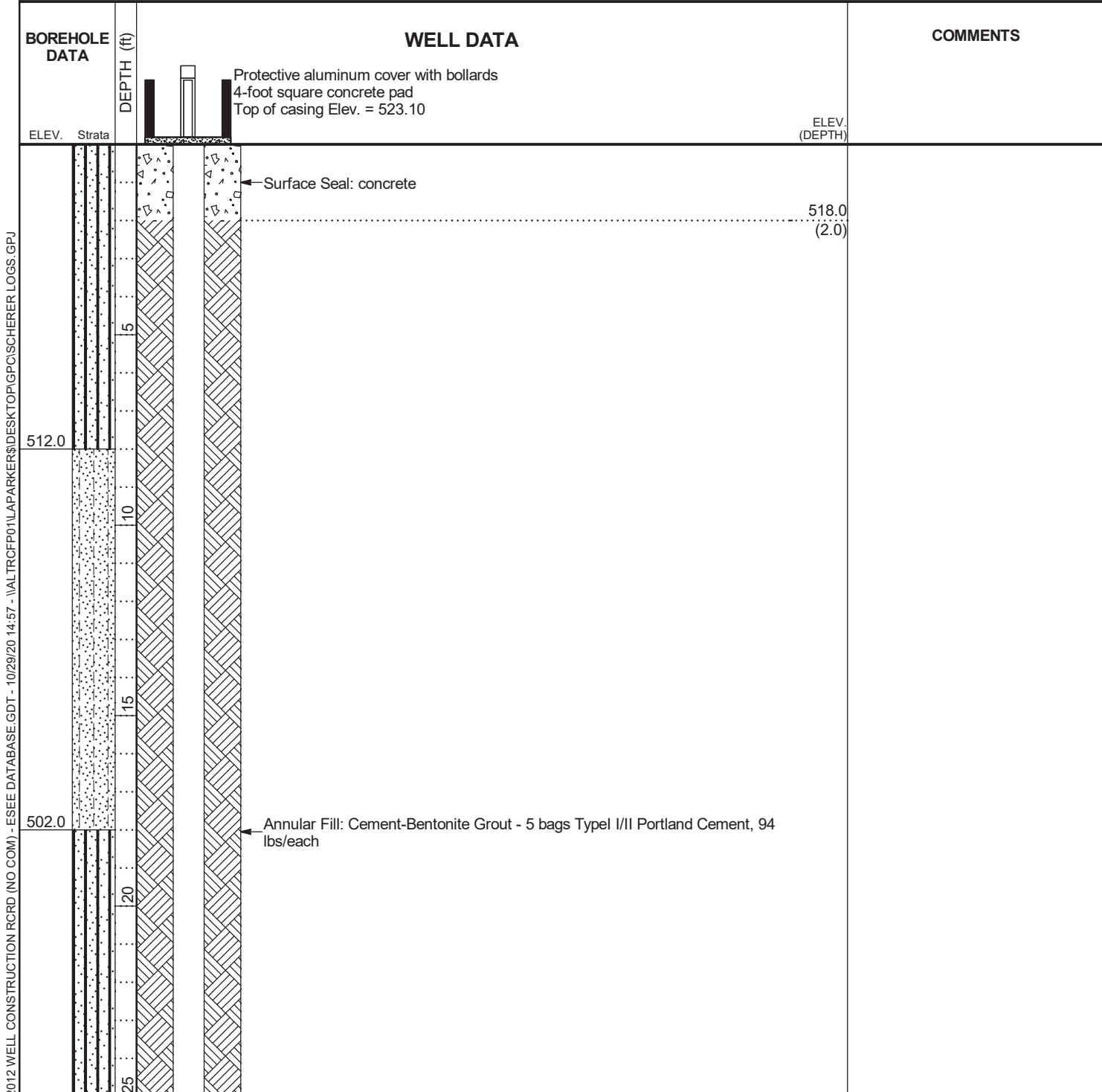
DATE STARTED 1/29/2015 COMPLETED 2/3/2015 GROUND ELEVATION 520 ft COORDINATES N 1116693.8 E 2402131.07

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 49.7 ft.

GROUND WATER DEPTH: DURING 34.9 ft. COMP. 33.1 ft. DELAYED 33.9 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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RECORD OF WELL CONSTRUCTION

WELL: SGWC-23/PZ-04I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 523.10	ELEV. (DEPTH)
492.0	30		
485.0	35	← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	485.9 (34.1)
483.5		← Filter: Unimin FilterSil - 1 Bag #1A, 50 lbs/each	483.5 (36.5)
	40		480.7 (39.3)
	45	← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	
470.3		← Sump: 0.40 ft.	470.7

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPCISCHERER LOGS.GPJ



LOG OF TEST BORING

BORING SGWA-24/PZ-07S

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/10/2015 COMPLETED 2/10/2015 SURF. ELEV. 489.3 COORDINATES: N 1118121.96 E 2400743.52
 CONTRACTOR Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger
 DRILLED BY T. Milam LOGGED BY B. Smelser CHECKED BY L. Millet ANGLE _____ BEARING _____
 BORING DEPTH 40 ft. GROUND WATER DEPTH: DURING 33.5 ft. COMP. 12.1 ft. DELAYED 12.25 ft. after 24 hrs.
 NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUP\SPC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
5		<p>Silt (ML)</p> <p>- mottled strong brown (7.5YR 5/6) and light gray (10YR 7/1) residuum dry, very stiff</p>				SPT N=24bpf(@3.5ft.)
10		<p>- mottled yellowish red (5YR 5/8) and light gray (10YR 7/2) saprolite moist, very stiff, with relict quartz, biotite</p>				SPT N=17bpf(@8.5ft.)
15		<p>- mottled brown (10YR 5/3) saprolite moist, hard, trace sand, relict quartz, biotite</p>				SPT N=32bpf(@13.5ft.)
20		<p>- mottled dark yellowish brown (10YR 4/4) saprolite moist, very stiff, trace coarse silt and sand grains, biotite layering visible</p>				SPT N=21bpf(@18.5ft.)
25		<p>Silty Sand (SM)</p> <p>- brown (7.5YR 5/4) saprolite moist, medium dense, very fine to fine grained, with biotite and relict quartz, trace weathered rock fragments</p>				SPT N=24bpf(@23.5ft.)(LL=32; PI=8; FC = 24.6%; Gravel = 1%)

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LOG OF TEST BORING

BORING SGWA-24/PZ-07S

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZIDRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak	Moderate	Strong	HCL REACTION COMMENTS
30		<p>Silty Sand (SM) (Cont)</p> <p>- mottled yellowish brown (10YR 5/8) and very dark brown / dusky yellowish brown (10YR 2/2) saprolite moist, medium dense, very fine to fine grained, trace biotite layering and zones of platy greenish chlorite</p>					<p>(MC = 13.1%; UW(d) = 119.8pcf; PERM. = 2.49E-5cm/sec)</p> <p>SPT N=18bpf(@28.5ft.)</p>
35		<p>▽ - mottled reddish brown (2.5YR 5/3) and olive brown (2.5Y 4/4) saprolite wet, dense, very fine to fine grained, trace quartz, coarse silt, sand, biotite</p>					<p>SPT N=36bpf(@33.5ft.)</p>
40		<p>- mottled brown (10YR 5/3) and very pale brown (10YR 8/4) saprolite wet, very dense, very fine to fine grained, trace biotite, residual quartz, feldspar</p>					<p>SPT N=50bpf(@38.5ft.)</p>
Bottom of borehole at 40.0 feet.							
45							
50							
55							



RECORD OF WELL CONSTRUCTION

WELL: SGWA-24/PZ-07S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

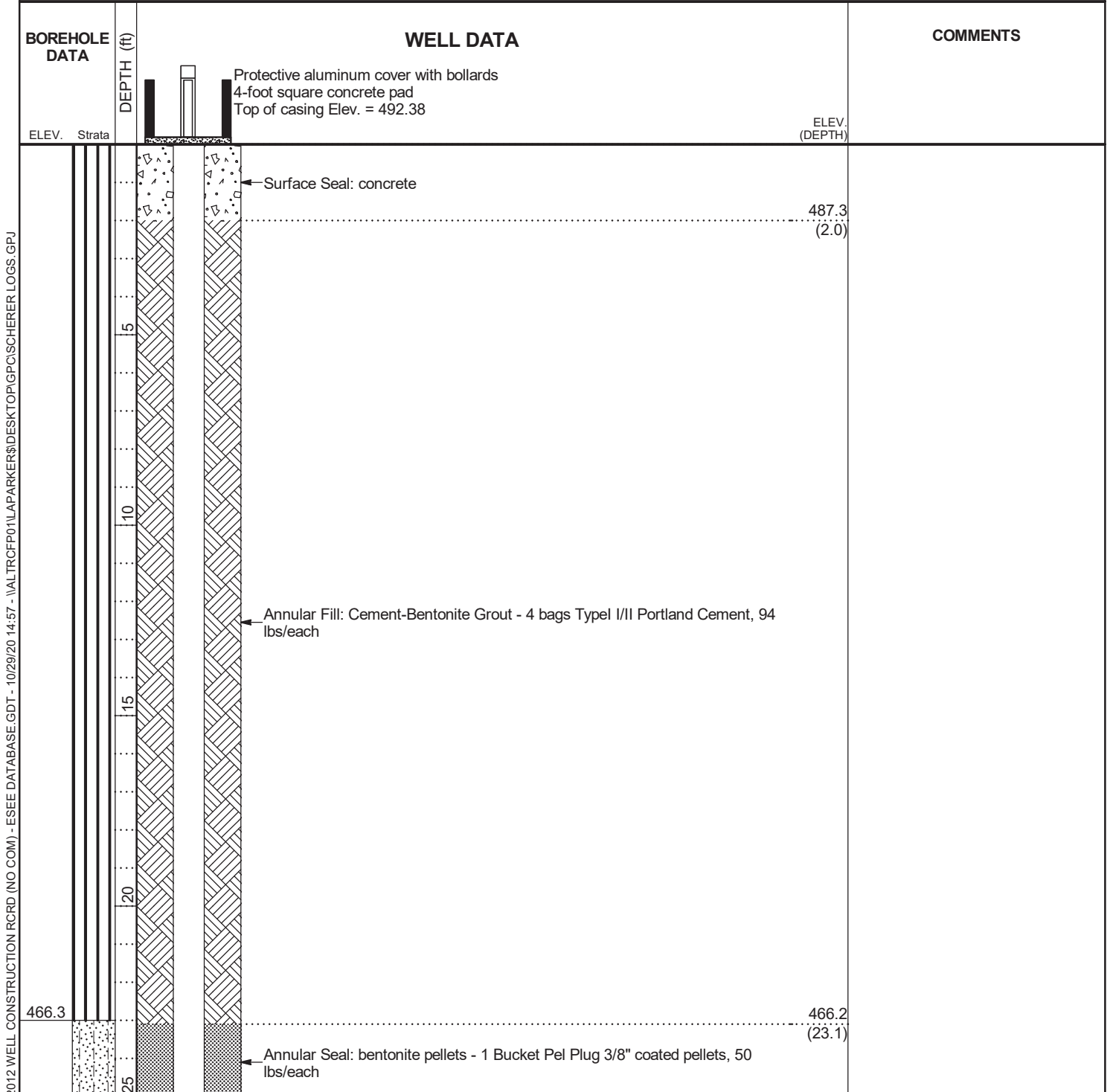
DATE STARTED 2/10/2015 COMPLETED 2/10/2015 GROUND ELEVATION 489.3 ft COORDINATES N 1118121.96 E 2400743.52

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY B. Smelser CHECKED BY L. Millet BORING DEPTH 40 ft.

GROUND WATER DEPTH: DURING 33.5 ft. COMP. 12.1 ft. DELAYED 12.25 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01\LPARKER\DESKTOP\GPC\SCHEHER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 492.38	
			ELEV. (DEPTH)
		← Filter: Unimin FilterSil - 7 Bags #1A, 50 lbs/each	464.2 (25.1)
		← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	461.6 (27.7)
	30		
	35		
		← Sump: 0.40 ft.	451.6 (37.7)
		← Backfill:	451.2 (38.1)
449.3	40		

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



LOG OF TEST BORING

BORING SGWA-25/PZ-09S

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/17/2015 COMPLETED 2/18/2015 SURF. ELEV. 523.2 COORDINATES: N 1120555.28 E 2400857.08
 CONTRACTOR Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger
 DRILLED BY T. Milam LOGGED BY B. Smelser CHECKED BY L. Millet ANGLE _____ BEARING _____
 BORING DEPTH 45 ft. GROUND WATER DEPTH: DURING 33.5 ft. COMP. 25.9 ft. DELAYED 25.5 ft. after 24 hrs.
 NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 6/24/15 07:58 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\SCHERER ASH POND PIEZODRAFT LOGS\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
5		<p>Sandy Silt (ML)</p> <p>- mottled red (2.5YR 4/6) and bluish gray (10B 6/1) residuum moist, stiff, micaceous, trace clay and muscovite</p>				SPT N=10bpf(@3.5ft.)
10		<p>- red (2.5YR 5/8) residuum dry, medium stiff, micaceous, trace clay</p>				SPT N=6bpf(@8.5ft.)
15		<p>- mottled yellowish red / light brown (5YR 5/6) and light reddish brown / light brown (5YR 6/4) residuum dry, medium stiff, trace mica</p>				SPT N=6bpf(@13.5ft.)
20		<p>- mottled yellow (10YR 7/8) and yellow (10YR 7/8) saprolite moist, stiff, micaceous, with muscovite, biotite, hornblende</p>				SPT N=9bpf(@18.5ft.)
25		<p>- mottled strong brown (7.5YR 4/6) and yellow (10YR 7/8) saprolite moist, stiff, micaceous, with muscovite, residual quartz, felspar</p>				SPT N=9bpf(@23.5ft.)

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RECORD OF WELL CONSTRUCTION

WELL: SGWA-25/PZ-09S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/17/2015 COMPLETED 2/18/2015 GROUND ELEVATION 523.2 ft COORDINATES N 1120555.28 E 2400857.08

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY B. Smelser CHECKED BY L. Millet BORING DEPTH 45 ft.

GROUND WATER DEPTH: DURING 33.5 ft. COMP. 25.9 ft. DELAYED 25.5 ft. after 24 hrs.

NOTES _____

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. <u>Strata</u></p> <p style="text-align: center;">DEPTH (ft)</p>	<p>Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 526.49</p> <p>← Surface Seal: concrete</p> <p style="text-align: right;">ELEV. (DEPTH)</p> <p style="text-align: right;">521.2 (2.0)</p> <p>← Annular Fill: Cement-Bentonite Grout - 4 bags Typel I/II Portland Cement, 94 lbs/each</p>	

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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RECORD OF WELL CONSTRUCTION

WELL: SGWA-25/PZ-09S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 526.49	
	ELEV. (DEPTH)		
	30	← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs each	493.1 (30.1)
	35	← Filter: Unimin FilterSil - 6.5 Bags #1A, 50 lbs/each	490.5 (32.7)
	40	← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	488.6 (34.6)
	45	← Sump: 0.40 ft.	478.6
478.2			

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01\LPARKER\DESKTOP\GPC\SCHEHERER LOGS.GPJ

APPENDIX A

AP-1 Piezometer

Well Logs



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 1/22/2015 COMPLETED 1/27/2015 GROUND ELEVATION 514.8 ft COORDINATES N 1115544.85 E 2402990.76

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 84.3 ft.

GROUND WATER DEPTH: DURING 23.51 ft. COMP. 25.61 ft. DELAYED 25.41 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\APARKER\DESKTOP\GFC\ISCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
5		Silty Clay (CL) - mottled dusky red / dark reddish brown (10R 3/4), very pale brown (10YR 7/3) and yellowish brown / moderate yellowish brown (10YR 5/4) fill moist, very stiff			SPT N=20bpf(@3.5ft.)
10		- mottled dusky red / dark reddish brown (10R 3/4), very pale brown (10YR 7/3) and yellow / pale yellowish orange (10YR 8/6) fill moist, very stiff, trace sand			SPT N=29bpf(@8.5ft.)
15		- mottled dusky red / dark reddish brown (10R 3/4) and very pale brown (10YR 7/3) fill moist, stiff			SPT N=10bpf(@13.5ft.)
20		Sandy Silt (ML) - mottled yellow / pale yellowish orange (10YR 8/6), yellow / pale yellowish orange (10YR 8/6) and yellow / pale yellowish orange (10YR 8/6) saprolite moist, stiff, micaceous, with black spots			SPT N=9bpf(@18.5ft.)
25		Silty Sand (SM) - mottled yellow / pale yellowish orange (10YR 8/6), yellow / pale yellowish orange (10YR 8/6) and yellow (10YR 7/8) saprolite wet, medium dense, very fine to fine grained, with black spots, trace rock fragments			SPT N=15bpf(@23.5ft.)(PL=NP; FC = 36.9%; Gravel = 2.2%) (MC = 20.7%; UW(d) = 106.7pcf; PERM. = 8.60E-9cm/sec)
30		- mottled yellow / pale yellowish orange (10YR 8/6), yellow / pale yellowish orange (10YR 8/6) and yellow (10YR 7/8) saprolite wet, medium dense, very fine to fine grained, with black and gray streaks, trace mica and weathered rock fragments			SPT N=12bpf(@28.5ft.)

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

SAMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\VALTRCFP01\IAPARKER\DESKTOP\GFC\ISCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak	Moderate	Strong	HCL REACTION	COMMENTS
		Silty Sand (SM)(Con't)						
35		- mottled brown (10YR 4/3), reddish gray (10R 6/1) and white (2.5Y 8/1) saprolite wet, medium dense, very fine to fine grained, with black spots, trace mica and weathered rock fragments						SPT N=13bpf(@33.5ft.)
40		- mottled light gray (10R 7/1), white (10R 8/1) and white (10YR 8/1) saprolite wet, medium dense, very fine to fine grained, with black spots, trace mica and weathered rock fragments						SPT N=20bpf(@38.5ft.)(PL=NP; FC = 40.2%; Gravel = 0%) (MC = 23.2%; UW(d) = 100.2pcf; PERM. = 6.71E-5cm/sec)
45		- mottled white (10YR 8/1), pinkish white / grayish orange pink (10R 8/2) and yellow / pale yellowish orange (10YR 8/6) saprolite wet, very dense, very fine to fine grained, with black spots, trace weathered rock fragments						SPT N=70bpf(@43.5ft.)
50		- variegated gray (2.5Y 5/1) and white (10R 8/1) saprolite wet, very dense, very fine to fine grained, with rounded white medium grained quartz fragments, trace weathered rock fragments						SPT N=86bpf(@48.5ft.)
55		- mottled gray (10YR 5/1) and white (10R 8/1) saprolite wet, very dense, very fine to fine grained, white streaking with black spots, partially weathered rock fragments						SPT N=77bpf(@53.5ft.)
60		- mottled gray (10YR 5/1) and white (10R 8/1) saprolite wet, very dense, very fine to fine grained, white banding with black spots, partially weathered rock fragments						SPT N=50bpf(@58.5ft.)
65		- Attempted to start coring, no recovery						

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\VALTRCFP01\1APARKER\DESKTOP\GFC\SCHEHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
70		Partially Weathered Rock (PWR) (Con't) - mottled gray (10YR 5/1) and white (10R 8/1) saprolite wet, very dense, very fine to coarse grained, banded white with black spots			SPT N=50bpf (@68.5ft.)
75		BIOTITE GNEISS - dark gray (N3) and grayish black (N2) fine to medium grain, soft to medium hard, moderately to highly weathered, inclined, banded, 3 moderate-angle fractures (30 - 45d), oxidized fractures at 69.3' and 70.6'			
80		- dark gray (N3) and grayish black (N2) medium to coarse grain, medium hard, slightly to moderately weathered, inclined, banded, 1 low-angle fracture (10 - 25d), 14 moderate-angle fractures (30 - 45d), 1 high-angle fracture (70 - 90d)			
85		- dark gray (N3) and grayish black (N2) medium to coarse grain, medium hard, slightly to moderately weathered, inclined, banded, 4 low-angle fractures (10 - 25d), 8 moderate-angle fractures (30 - 45d)			
84.3		Bottom of borehole at 84.3 feet.			
90					
95					
100					
105					



RECORD OF WELL CONSTRUCTION

WELL: PZ-021
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

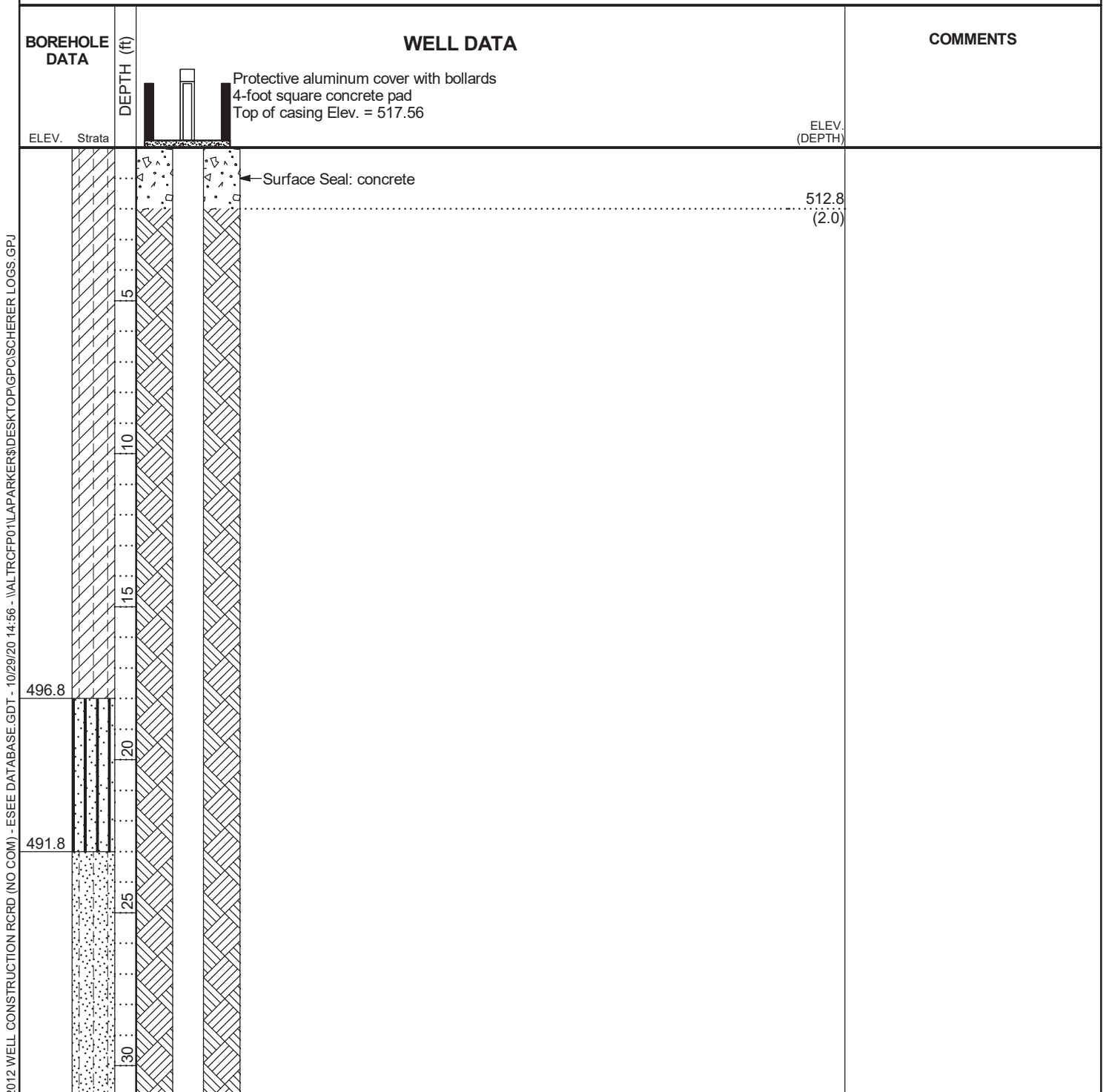
DATE STARTED 1/22/2015 COMPLETED 1/27/2015 GROUND ELEVATION 514.8 ft COORDINATES N 1115544.85 E 2402990.76

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 84.3 ft.

GROUND WATER DEPTH: DURING 23.51 ft. COMP. 25.61 ft. DELAYED 25.41 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:56 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 517.56	ELEV. (DEPTH)
446.8	65	Annular Seal: bentonite pellets - 0.5 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	450.3 (64.5)
	35	Annular Fill: Cement-Bentonite Grout - 9 bags Type I/II Portland Cement, 94 lbs/each	
	40		
	45		
	50		
	55		
	60		

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:56 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ

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RECORD OF WELL CONSTRUCTION

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 517.56	ELEV. (DEPTH)
445.8	70	← Filter: Unimin FilterSil - 5 Bags #1A, 50 lbs/each	445.8 (69.0)
	75		440.9 (73.9)
	180	Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	
430.5		← Sump: 0.40 ft.	430.9

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:56 - \\VALTRCF01\1APARKER\Desktop\GPC\ISCHERER LOGS.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 1/28/2015 COMPLETED 1/29/2015 GROUND ELEVATION 514.4 ft COORDINATES N 1116085.04 E 2402533.8

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 50 ft.

GROUND WATER DEPTH: DURING 48.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\SCHEHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL	COMMENTS
				REACTION	
				Weak Moderate Strong	
5		<p>Sandy Silt (ML)</p> <p>- mottled red / moderate reddish brown (10R 4/6) and light yellowish brown (2.5Y 6/4) fill moist, stiff, clayey, trace mica</p>			SPT N=15bpf(@3.5ft.)
10		<p>- mottled red / moderate reddish brown (10R 4/6) saprolite moist, very stiff, with black spots, trace mica</p>			SPT N=18bpf(@8.5ft.)
15		<p>- mottled white (10YR 8/1) and light yellowish brown (2.5Y 6/4) saprolite moist, stiff, trace mica, weathered rock, residual quartz</p>			SPT N=9bpf(@13.5ft.)
20		<p>- mottled dusky red / dark reddish brown (10R 3/4) and yellow (10YR 7/8) saprolite moist, medium stiff, with black streaks, trace weathered rock fragments</p>			SPT N=8bpf(@18.5ft.)
25		<p>- mottled brown (10YR 5/3), black (10YR 2/1) and white (10YR 8/1) saprolite moist, medium stiff, trace quartz and partially weathered rock fragments</p>			SPT N=5bpf(@23.5ft.)

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
		Sandy Silt (ML)(Con't)			
30		- mottled very pale brown / very pale orange (10YR 8/2) saprolite moist, stiff, white streaking, trace residual quartz and partially weathered rock fragments			SPT N=11bpf(@28.5ft.)
35		- mottled very pale brown / very pale orange (10YR 8/2) and yellow (10YR 7/8) saprolite moist, stiff, white streaking, with partially weathered rock fragments			SPT N=9bpf(@33.5ft.)
40		- mottled very pale brown / very pale orange (10YR 8/2) saprolite moist, very stiff, white and orange streaking with black spots, with partially weathered rock fragments			SPT N=19bpf(@38.5ft.)
45		- mottled light brownish gray / pale yellowish brown (10YR 6/2) and yellowish brown (10YR 5/8) saprolite moist, hard, white and orange streaking, with partially weathered rock fragments			SPT N=34bpf(@43.5ft.)
50		- mottled gray (10YR 5/1) saprolite wet, very hard, white streaking, with partially weathered rock fragments			SPT N=50bpf(@48.5ft.)
		Bottom of borehole at 50.0 feet.			
55					



RECORD OF WELL CONSTRUCTION

WELL: PZ-03S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

DATE STARTED 1/28/2015 COMPLETED 1/29/2015 GROUND ELEVATION 514.4 ft COORDINATES N 1116085.04 E 2402533.8

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 50 ft.

GROUND WATER DEPTH: DURING 48.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. after 24 hrs.

NOTES _____

BOREHOLE DATA

WELL DATA

COMMENTS

ELEV. Strata

DEPTH (ft)

Protective aluminum cover with bollards
4-foot square concrete pad
Top of casing Elev. = 517.29

ELEV.
(DEPTH)

← Surface Seal: concrete

512.4
(2.0)

← Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94 lbs/each

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHEHER LOGS.GPJ

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RECORD OF WELL CONSTRUCTION

WELL: PZ-03S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 517.29	
464.4	50	Sump: 0.40 ft.	464.8
	45	Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	
	40	Filter: Unimin FilterSil - 5 Bags #1A, 50 lbs/each	474.8 (39.6)
	35	Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	477.6 (36.8)
	30		480.2 (34.2)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPCISCHERER LOGS.GPJ



BORING LOG

BORING PZ-05I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/3/2015 COMPLETED 2/4/2015 GROUND ELEVATION 520.6 ft COORDINATES N 1117484.15 E 2401816.71

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 47.2 ft.

GROUND WATER DEPTH: DURING 35.1 ft. COMP. 41.5 ft. DELAYED 36.8 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\ISCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
5		<p>Silt (ML)</p> <p>- mottled red (10R 4/8) and light red / moderate reddish orange (10R 6/6) fill moist, stiff, trace mica, clay, and rock fragments</p>			SPT N=9bpf(@3.5ft.)
10		<p>- mottled white (10YR 8/1) and yellowish brown (10YR 5/8) saprolite moist, stiff, trace sand and rock fragments</p>			SPT N=11bpf(@8.5ft.)
15		<p>- mottled white (10YR 8/1) and yellowish brown (10YR 5/6) saprolite moist, stiff, trace sand and rock fragments</p>			SPT N=10bpf(@13.5ft.)
20		<p>- mottled gray (10YR 6/1) and white (10R 8/1) saprolite moist, stiff, with black streaking, micaceous, trace sand and rock fragments</p>			SPT N=9bpf(@18.5ft.)
25		<p>- mottled white (10YR 8/1) and very dark grayish brown (10YR 3/2) saprolite moist, very stiff, with black streaking, trace mica, sand, and rock fragments</p>			SPT N=25bpf(@23.5ft.)

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
				Weak Moderate Strong	
30		<p>Silt (ML)(Con't)</p> <p>- mottled very pale brown / very pale orange (10YR 8/2) and dark gray (10YR 4/1) saprolite moist, stiff, with black streaking, micaceous, trace rock fragments</p>			SPT N=12bpf(@28.5ft.)
35		<p>- mottled white (10YR 8/1) saprolite moist, very hard, with black streaking, micaceous, trace sand, weathered rock fragments, and residual quartz</p>			SPT N=86bpf(@33.5ft.)
		<p>PARTIALLY WEATHERED ROCK</p> <p>- light gray (N7) fine to coarse grain, soft, highly weathered</p>			
40		<p>GNEISS</p> <p>- variegated with medium gray (N5) medium to coarse grain, hard to very hard, not weathered, inclined, blastoporphyratic, banded, 1 low angle fracture (10 - 20d), with amphibole, quartz, biotite</p>			
45		<p>- variegated with medium gray (N5) medium to coarse grain, hard to very hard, not weathered, inclined, blastoporphyratic, banded, 1 low-angle fracture (10 - 30d), 6 moderate-angle fractures (30 - 45d), with amphibole, quartz, biotite</p>			Lost circulation
		<p>- variegated with medium gray (N5) medium to coarse grain, medium hard to hard, slightly to moderately weathered, inclined, pitted, slightly fractured, 1 low-angle fracture (10 - 30d), with amphibole, quartz, biotite, iron oxide staining</p>			
Bottom of borehole at 47.2 feet.					
50					
55					

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\SCHEHER LOGS.GPJ



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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/3/2015 COMPLETED 2/4/2015 GROUND ELEVATION 520.6 ft COORDINATES N 1117484.15 E 2401816.71

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 47.2 ft.

GROUND WATER DEPTH: DURING 35.1 ft. COMP. 41.5 ft. DELAYED 36.8 ft. after 24 hrs.

NOTES _____

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. <u>Strata</u></p>	<p>Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 523.26</p> <p>Surface Seal: concrete</p> <p>Annular Fill: Cement-Bentonite Grout - 5 bags Typel I/II Portland Cement, 94 lbs/each</p>	<p>ELEV. (DEPTH)</p> <p>518.6 (2.0)</p>

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 523.26	
485.6	30		ELEV. (DEPTH)
484.6	35	← Annular Seal: bentonite pellets - 0.75 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	488.4 (32.2)
		← Filter: Unimin FilterSil - 1 Bag #1A, 50 lbs/each	486.0 (34.6)
	40	Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	484.0 (36.6)
473.4	45	Sump: 0.40 ft.	474.0 (46.6)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ



BORING LOG

BORING PZ-06S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/4/2015 COMPLETED 2/4/2015 GROUND ELEVATION 529 ft COORDINATES N 1117912.01 E 2401936.55

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 54.8 ft.

GROUND WATER DEPTH: DURING 43.15 ft. COMP. 43.15 ft. DELAYED 42.11 ft. after 24 hrs.

NOTES _____

SAMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHEHER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
5		Sandy Silt (ML) - strong brown (7.5YR 5/8) residuum moist, stiff				SPT N=11bpf(@3.5ft.)
10		- yellow (10YR 7/8) residuum moist, stiff				SPT N=14bpf(@8.5ft.)
15		- yellow (10YR 7/8) saprolite moist, very stiff, trace weathered rock fragments				SPT N=16bpf(@13.5ft.)
20		- dark yellowish brown (10YR 4/4) saprolite moist, stiff, trace weathered rock fragments				SPT N=15bpf(@18.5ft.)
25		Silty Sand (SM) - mottled dark grayish brown / dark yellowish brown (10YR 4/2) saprolite moist, medium dense, very fine to fine grained, trace residual quartz, biotite, weathered schist				SPT N=24bpf(@23.5ft.)(LL=41; PI=10; FC = 31.6%; Gravel = 0%) (MC = 28%; UW(d) = 94.1pcf; PERM. = 1.29E-4cm/sec)
30		- mottled dark grayish brown / dark yellowish brown (10YR 4/2) saprolite moist, very dense, very fine to fine grained, trace residual quartz, biotite, weathered schist				SPT N=55bpf(@28.5ft.)

(Continued Next Page)



BORING LOG

BORING PZ-06S

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate		Strong
35		Silty Sand (SM)(Con't) - light greenish gray (10BG 7/1) saprolite moist, very dense, very fine to fine grained, trace biotite, residual quartz, weathered schist				SPT N=50bpf(@33.5ft.)
40		- mottled light greenish gray (10BG 7/1) saprolite moist, very dense, very fine to fine grained, trace moderately weathered schist, biotite, residual quartz				SPT N=50bpf(@38.5ft.)
45		▼ ▼ - dark gray (N3) saprolite moist, very dense, fine to coarse grained, trace biotite, residual quartz, iron oxide staining				SPT N=50bpf(@43.5ft.)
50		Well-graded Sand with Silt (SW-SM) - dark gray (N3) saprolite wet, very dense, very fine to very coarse grained, trace residual quartz, iron oxide staining throughout sample				SPT N=50bpf(@48.5ft.)
55		- dark gray (N3) saprolite wet, very dense, very fine to very coarse grained, trace biotite, residual quartz, iron oxide staining throughout sample				SPT N=50bpf(@53.5ft.)
Bottom of borehole at 54.8 feet.						
60						
65						
70						

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\LA PARKER\DESKTOP\GFC\SCHEHER LOGS.GPJ



RECORD OF WELL CONSTRUCTION

WELL: PZ-06S
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
 LOCATION Plant Scherer

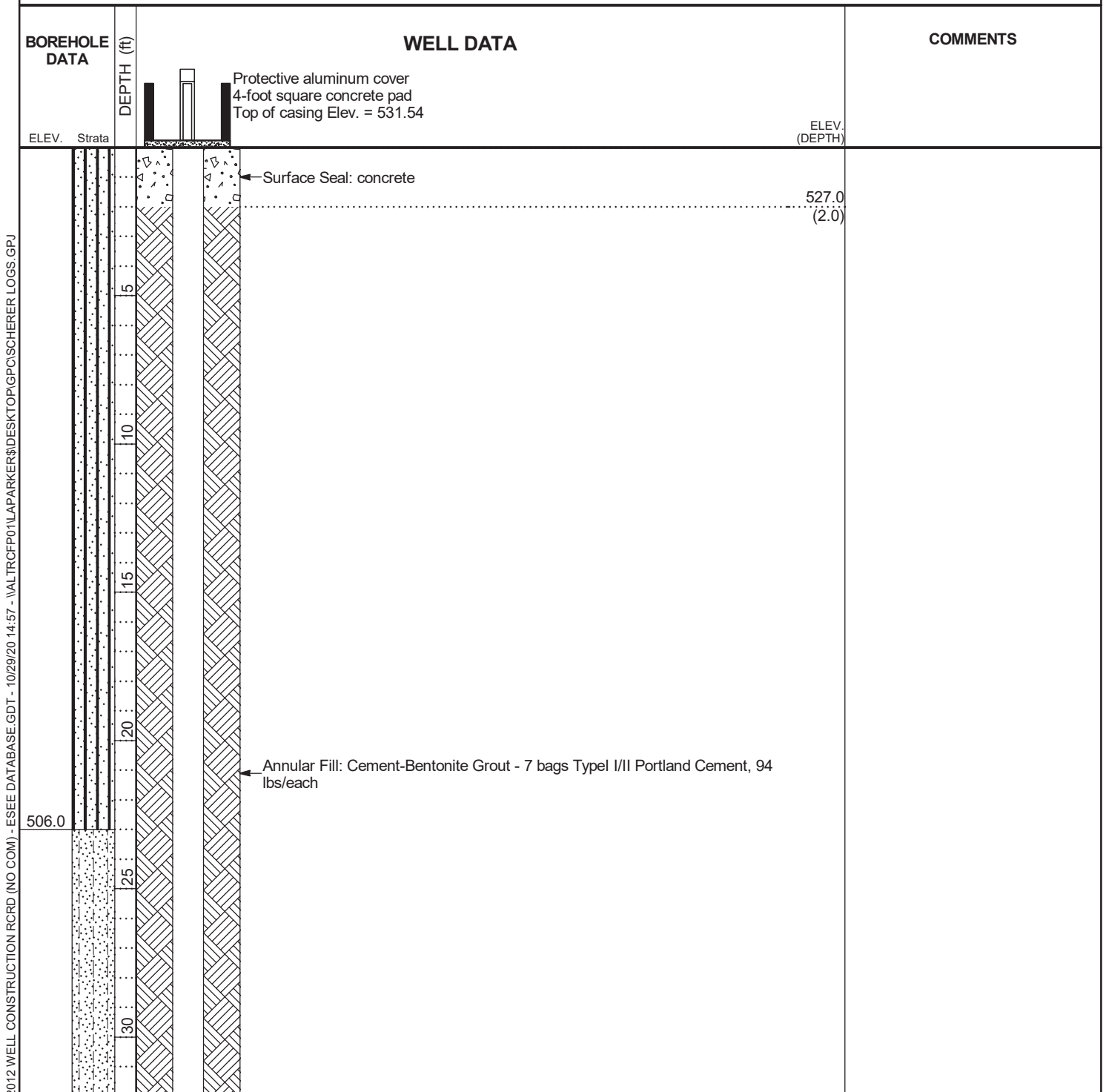
DATE STARTED 2/4/2015 COMPLETED 2/4/2015 GROUND ELEVATION 529 ft COORDINATES N 1117912.01 E 2401936.55

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 54.8 ft.

GROUND WATER DEPTH: DURING 43.15 ft. COMP. 43.15 ft. DELAYED 42.11 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCF001\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ



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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA		WELL DATA		COMMENTS
ELEV.	Strata	DEPTH (ft)		ELEV. (DEPTH)
		(CONTINUED)	Protective aluminum cover 4-foot square concrete pad Top of casing Elev. = 531.54	
		35		
		40		
			Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	488.8 (40.2)
			Filter: Unimin FilterSil - 8 Bags #1A, 50 lbs/each	486.6 (42.4)
		45		484.6 (44.4)
481.0			Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	
		50		
474.2			Sump: 0.40 ft.	474.6

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/18/2015 COMPLETED 2/19/2015 GROUND ELEVATION 523.3 ft COORDINATES N 1120562.72 E 2400862.76

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY B. Smelser CHECKED BY L. Millet BORING DEPTH 80.2 ft.

GROUND WATER DEPTH: DURING 28.5 ft. COMP. 24.6 ft. DELAYED 24.41 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\IAPARKER\DESKTOP\GFC\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
5		Sandy Silt (ML) - red (10R 4/8) residuum moist, stiff, micaceous, trace clay			SPT N=10bpf(@3.5ft.)
10		- yellowish red (5YR 5/8) residuum dry, medium stiff, micaceous, zone of white/light gray rock fragments			SPT N=7bpf(@8.5ft.)
15		- mottled red (2.5YR 5/8) and reddish yellow (5YR 6/8) saprolite moist, medium stiff			SPT N=7bpf(@13.5ft.)
20		- mottled reddish yellow (7.5YR 6/8) and red (2.5YR 5/8) saprolite moist, stiff, micaceous, with muscovite			SPT N=9bpf(@18.5ft.)
25		- mottled reddish yellow (7.5YR 7/8) and red (2.5YR 5/8) saprolite moist, very stiff, micaceous, trace muscovite and biotite			SPT N=18bpf(@23.5ft.)

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\IAPARKER\DESKTOP\GFC\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak	Moderate	Strong	HCL REACTION	COMMENTS
30		<p>Sandy Silt (ML)(Con't)</p> <p>▽ - mottled yellowish red (5YR 5/8) and red (2.5YR 5/8) saprolite wet, stiff, micaceous, trace residual quartz, feldspar, muscovite</p>						SPT N=14bpf(@28.5ft.)
35		<p>Silty Sand (SM)</p> <p>- mottled yellowish red (5YR 4/6) and brownish yellow (10YR 6/8) saprolite wet, medium dense, very fine to fine grained, micaceous, trace residual quartz, feldspar, weathered rock fragments</p>						SPT N=16bpf(@33.5ft.)(LL=53; PI=6; FC = 32.8%; Gravel = 1.6%)
40		<p>- mottled brown (7.5YR 4/4) and greenish gray (10BG 5/1) saprolite wet, medium dense, very fine to fine grained, micaceous, trace residual quartz, feldspar, muscovite, chlorite, zone of coarse white rock fragments</p>						SPT N=18bpf(@38.5ft.)
45		<p>- mottled greenish gray (10BG 5/1) and strong brown (7.5YR 5/8) saprolite wet, medium dense, very fine to fine grained, trace residual quartz, feldspar, chlorite, biotite, muscovite</p>						SPT N=19bpf(@43.5ft.)
50		<p>- mottled white (10R 8/1) and greenish gray (10BG 5/1) saprolite wet, very dense, very fine to fine grained, with red staining, trace residual quartz, feldspar, chlorite, muscovite, biotite, hornblende</p>						SPT N=74bpf(@48.5ft.)
55		<p>- mottled white (10R 8/1) and greenish gray (10BG 5/1) saprolite wet, very dense, very fine to fine grained, with red staining, trace residual quartz, feldspar, chlorite, muscovite, biotite, hornblende</p>						SPT N=60bpf(@53.5ft.)

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\SC\HERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
60		<p>Silty Sand (SM)(Con't)</p> <p>- very dark greenish gray (10BG 3/1) saprolite wet, very dense, very fine to fine grained. trace partially weathered rock fragments, residual quartz, feldspar, biotite, muscovite, hornblende, chlorite</p>			SPT N=50bpf(@58.5ft.)
		<p>Partially Weathered Rock (PWR)</p>			
65		<p>AMPHIBOLITE</p> <p>- black (N1) fine to coarse grain, very soft to soft, highly weathered, horizontal, completely fractured at all angles, low-angle fractures (weathering cracks), no visible healing, with quartz, feldspar, muscovite, biotite, hornblende, pyrite, interbedded Biotite Gneiss</p> <p>- black (N1) fine to coarse grain, soft to medium hard, moderately to highly weathered, inclined, banded, 14 low-angle fractures (10 - 20d), 5 moderate-angle fractures (30 - 45d), not to total healing with some fractures filled with gray mud and/or red oxidation, trace completely healed high-angle fractures, rusty red oxidation, trace yellowish-red oxidation, with pyrite, feldspar, biotite</p>			
70		<p>- black (N1) and white (N9) fine to coarse grain, medium hard, moderately weathered, inclined, banded, moderate-angle fractures along foliation, open verticle fracture at 71.6'-72.6' bgs, healed with quartz and feldspar, 4 low-angle fractures (10 - 20d), 8 moderate-angle fractures (30 - 45d), 1 high-angle fracture (65 - 90d), interbedded with Biotite Gneiss, trace mud filled fractures, oxidation, with quartz, feldspar, pyrite, biotite</p>			
75		<p>- black (N1) and white (N9) fine to coarse grain, medium hard, moderately weathered, inclined, banded, moderate-angle fractures along foliation, healed with quartz and feldspar, 4 low-angle fractures (10 - 30d), 3 moderate-angle fractures (30 - 45d), 2 high-angle fractures (65 - 90d), interbedded with Biotite Gneiss, trace mud filled fractures, oxidation, with quartz, feldspar, pyrite, biotite</p>			
80		<p>Bottom of borehole at 80.2 feet.</p>			
85					



RECORD OF WELL CONSTRUCTION

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/18/2015 COMPLETED 2/19/2015 GROUND ELEVATION 523.3 ft COORDINATES N 1120562.72 E 2400862.76

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY B. Smelser CHECKED BY L. Millet BORING DEPTH 80.2 ft.

GROUND WATER DEPTH: DURING 28.5 ft. COMP. 24.6 ft. DELAYED 24.41 ft. after 24 hrs.

NOTES _____

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. <u>Strata</u></p>	<p>Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 526.57</p> <p>← Surface Seal: concrete</p> <p style="text-align: right;">ELEV. (DEPTH) 521.3 (2.0)</p>	

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA

WELL DATA

COMMENTS

ELEV. Strata

DEPTH (ft)

(CONTINUED)

Protective aluminum cover with bollards
4-foot square concrete pad
Top of casing Elev. = 526.57

ELEV.
(DEPTH)

490.3

30

35

40

45

50

55

Annular Fill: Cement-Bentonite Grout - 8 bags Type I/II Portland Cement, 94 lbs/each

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\SCHERER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 526.57	ELEV. (DEPTH)
462.8	60		
459.4	65		
	65	← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	457.5 (65.8)
	65	← Filter: Unimin FilterSil - 6.0 Bags #1A, 50 lbs/each	455.5 (67.8)
	70		453.5 (69.8)
	75	← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	
443.1	80	← Sump: 0.40 ft.	443.5

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\IAPARKER\DESKTOP\GPCISCHERER LOGS.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 5/5/2015 COMPLETED 5/5/2015 GROUND ELEVATION 514.4 ft COORDINATES N 1122338.03 E 2401768.92

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 34.9 ft.

GROUND WATER DEPTH: DURING 23.5 ft. COMP. 19.3 ft. DELAYED 17.1 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\SCHEHER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
5		Sandy Silt (ML) - Hand auger 5' for utilities clearance			
10		- mottled light reddish brown / light brown (5YR 6/4) residuum moist, stiff, with white speckling, trace medium sand and weathered rock fragments			SPT N=15bpf(@8.5ft.)
15		- mottled light reddish brown / light brown (5YR 6/4) saprolite very moist, stiff, micaceous, trace weathered rock fragments			SPT N=10bpf(@13.5ft.)
20		- pinkish gray / grayish orange pink (5YR 7/2) saprolite wet, stiff, micaceous, trace weathered rock fragments			SPT N=13bpf(@18.5ft.)

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
		Sandy Silt (ML)(Con't)			
		∇ - mottled pinkish gray / grayish orange pink (5YR 7/2) and gray (10YR 5/1) saprolite wet, stiff, micaceous, trace weathered rock fragments			SPT N=10bpf(@23.5ft.)
25					
		- mottled white / pinkish gray (5YR 8/1) and white (10R 8/1) saprolite wet, hard, micaceous, trace weathered rock fragments			SPT N=33bpf(@28.5ft.)
30					
		- mottled white / pinkish gray (5YR 8/1) and pinkish gray / grayish orange pink (5YR 7/2) saprolite wet, very hard, trace mica			SPT N=63bpf(@33.5ft.)
35					
		Bottom of borehole at 34.9 feet.			
40					

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\APARKER\DESKTOP\GFC\SCHEHERER LOGS.GPJ



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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

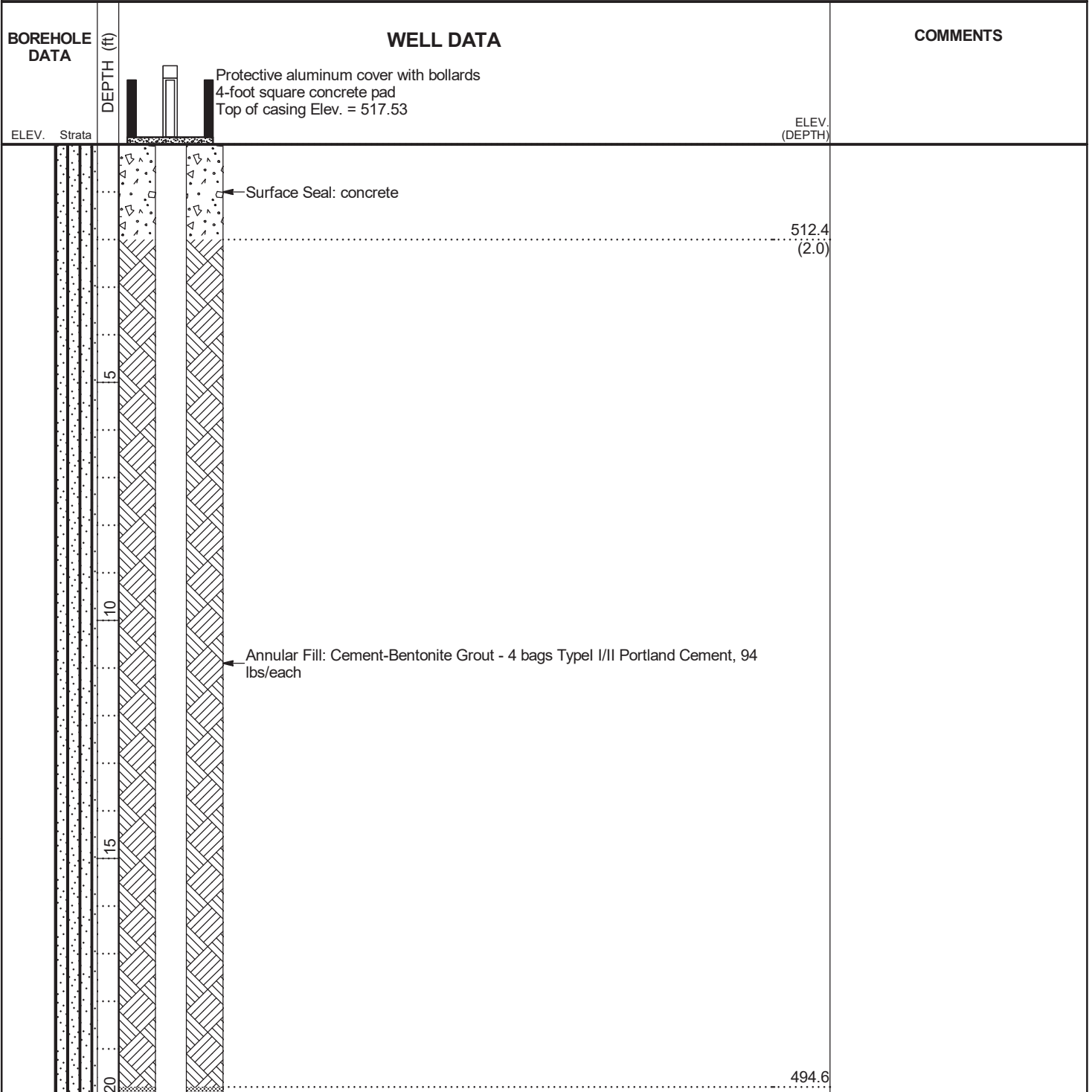
DATE STARTED 5/5/2015 COMPLETED 5/5/2015 GROUND ELEVATION 514.4 ft COORDINATES N 1122338.03 E 2401768.92

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 34.9 ft.

GROUND WATER DEPTH: DURING 23.5 ft. COMP. 19.3 ft. DELAYED 17.1 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 517.53	
		← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	ELEV. (DEPTH) (19.8)
		← Filter: Unimin FilterSil - 6 Bags #1A, 50 lbs/each	492.3 (22.1)
	25	← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	489.9 (24.5)
	30	← Sump: 0.40 ft.	479.9 (34.5)
479.5			

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 4/1/2015 COMPLETED 4/6/2015 GROUND ELEVATION 526 ft COORDINATES N 1123169.22 E 2402767.44

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 45.9 ft.

GROUND WATER DEPTH: DURING 37.3 ft. COMP. 34.3 ft. DELAYED 33.2 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\SCHEHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
5		Sandy Silt (ML) - Hand auger 5' for utilities clearance				
10		- mottled red (10R 5/6) and light yellowish brown (10YR 6/4) saprolite moist, stiff, trace black spots				SPT N=9bpf(@8.5ft.)
15		- mottled red (10R 5/6) saprolite moist, stiff, micaceous, trace orange streaks with black spots				SPT N=9bpf(@13.5ft.)
20		- pinkish white / grayish orange pink (10R 8/2) and very pale brown / very pale orange (10YR 8/2) saprolite moist, stiff, trace mica				SPT N=13bpf(@18.5ft.)
25		- mottled red (10R 5/6) and brown (10YR 5/3) saprolite moist, stiff, micaceous, trace weathered rock fragments				SPT N=13bpf(@23.5ft.)

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\SCHEHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
		Sandy Silt (ML)(Con't)			
30		- mottled reddish brown (5YR 5/4) and dark yellowish brown (10YR 4/6) saprolite moist, very stiff, micaceous, trace weathered rock fragments			SPT N=26bpf(@28.5ft.)
35		▽ - mottled dark gray / brownish gray (5YR 4/1) and brown (7.5YR 4/2) saprolite moist, very hard, micaceous			SPT N=58bpf(@33.5ft.)
40		▽ - mottled dark gray / brownish gray (5YR 4/1) and brown (7.5YR 4/2) saprolite moist, very hard, micaceous			SPT N=56bpf(@38.5ft.)
45		- mottled dark gray / brownish gray (5YR 4/1) and brown (7.5YR 4/2) saprolite wet, very hard, micaceous			SPT N=50bpf(@43.5ft.)
Bottom of borehole at 45.9 feet.					
50					
55					



RECORD OF WELL CONSTRUCTION

WELL: PZ-11S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 4/1/2015 COMPLETED 4/6/2015 GROUND ELEVATION 526 ft COORDINATES N 1123169.22 E 2402767.44

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 45.9 ft.

GROUND WATER DEPTH: DURING 37.3 ft. COMP. 34.3 ft. DELAYED 33.2 ft. after 24 hrs.

NOTES _____

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. <u>Strata</u></p>	<p style="text-align: center;">Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 529.31</p> <p style="text-align: center;">← Surface Seal: concrete</p> <p style="text-align: center;">← Annular Fill: Cement-Bentonite Grout - 8 bags Type I/II Portland Cement, 94 lbs/each</p>	<p style="text-align: right;">ELEV. (DEPTH)</p> <p style="text-align: right;">524.0 (2.0)</p>

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\SCHERER LOGS.GPJ

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RECORD OF WELL CONSTRUCTION

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 529.31	
	30		ELEV. (DEPTH)
		← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	495.1 (30.9)
	35	← Filter: Unimin FilterSil - 6.5 Bags #1A, 50 lbs/each	493.0 (33.0)
			490.0 (36.0)
	40	← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	
	45		480.5
480.1		← Sump: 0.40 ft.	

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01\LPARKER\DESKTOP\GPCISCHERER LOGS.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 3/31/2015 COMPLETED 4/1/2015 GROUND ELEVATION 514.5 ft COORDINATES N 1122684.9 E 2403618.46

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 44.4 ft.

GROUND WATER DEPTH: DURING 33.5 ft. COMP. 26.2 ft. DELAYED 25.1 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\IAPARKER\DESKTOP\GFC\SCHEHER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
5		Silt (ML) - Hand auger 5' for utilities clearance				
10		- mottled red (10R 4/8) and brown (7.5YR 5/2) saprolite moist, stiff, micaceous				SPT N=12bpf(@8.5ft.)
15		- mottled red (10R 4/8) and brown (7.5YR 5/2) saprolite moist, stiff, micaceous, with black streaking, trace weathered rock fragments				SPT N=9bpf(@13.5ft.)
20		- mottled light gray (10R 7/1) and pale brown (10YR 6/3) saprolite moist, stiff, micaceous				SPT N=15bpf(@18.5ft.)
25		- mottled light gray (10R 7/1) and pale brown (10YR 6/3) saprolite moist, medium stiff, micaceous, trace weathered rock fragments				SPT N=8bpf(@23.5ft.)

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
				Weak Moderate Strong	
		<p>▼</p> <p>Silt (ML)(Con't)</p> <p>▼</p>			
30		<p>Silty Sand (SM) - mottled white (10R 8/1) and white (10R 8/1) saprolite moist, medium dense, very fine to coarse grained, trace muscovite and residual quartz</p>			SPT N=18bpf(@28.5ft.)
35		<p>▼</p> <p>- mottled red (10R 4/8) and red / moderate reddish brown (10R 4/6) saprolite wet, medium dense, very fine to coarse grained, trace iron oxides, feldspar, residual quartz, muscovite</p>			SPT N=22bpf(@33.5ft.)
40		<p>- mottled red (10R 4/8) and red / moderate reddish brown (10R 4/6) saprolite wet, very dense, very fine to medium grained, trace iron oxides, feldspar, muscovite</p>			SPT N=81bpf(@38.5ft.)
45		<p>- mottled white (10R 8/1) and red / moderate reddish brown (10R 4/6) saprolite wet, very dense, very fine to medium, trace iron oxides, feldspar, residual quartz, muscovite</p>			SPT N=50bpf(@43.5ft.)
		Bottom of borehole at 44.4 feet.			
50					
55					

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\APARKER\DESKTOP\GFC\SCHEHERER LOGS.GPJ



RECORD OF WELL CONSTRUCTION

WELL: PZ-12S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 3/31/2015 COMPLETED 4/1/2015 GROUND ELEVATION 514.5 ft COORDINATES N 1122684.9 E 2403618.46

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 44.4 ft.

GROUND WATER DEPTH: DURING 33.5 ft. COMP. 26.2 ft. DELAYED 25.1 ft. after 24 hrs.

NOTES _____

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. <u>Strata</u></p>	<p>Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 517.69</p> <p>Surface Seal: concrete</p> <p>Annular Fill: Cement-Bentonite Grout - 4 bags Typel I/II Portland Cement, 94 lbs/each</p> <p style="text-align: right;">ELEV. (DEPTH) 512.5 (2.0)</p>	

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 517.69	ELEV. (DEPTH)
486.5	30	← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs each	485.0 (29.5)
	35	← Filter: Unimin FilterSil - 5.5 Bags #1A, 50 lbs/each	482.6 (31.9)
	40	Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	480.5 (34.0)
470.1		Sump: 0.40 ft.	470.5

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHEHERER LOGS.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 3/31/2015 COMPLETED 4/1/2015 GROUND ELEVATION 517.5 ft COORDINATES N 1121957.03 E 2404227.47

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 45.3 ft.

GROUND WATER DEPTH: DURING 33.5 ft. COMP. 28.6 ft. DELAYED 26.5 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\IAPARKER\DESKTOP\GFC\SCHEHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
5		Sandy Silt (ML) - Hand auger 5' for utilities clearance				
10		- mottled red (10R 4/8) and light red / moderate reddish orange (10R 6/6) fill moist, stiff, trace clay				SPT N=9bpf(@8.5ft.)
15		- mottled red (10R 5/6) and yellow (10YR 7/6) saprolite moist, stiff, with black streaking, trace muscovite				SPT N=10bpf(@13.5ft.)
20		- mottled red (10R 5/6) and yellow (10YR 7/6) saprolite moist, medium stiff, with black streaking, trace residual quartz and muscovite				SPT N=6bpf(@18.5ft.)
25		- mottled reddish yellow (5YR 7/8) and light red / moderate reddish orange (10R 6/6) saprolite moist, stiff, trace black streaking and residual quartz				SPT N=10bpf(@23.5ft.)

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\APARKER\DESKTOP\GFC\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
		Sandy Silt (ML)(Con't)			
		▼			
30		- mottled reddish yellow (5YR 7/8) and light red / moderate reddish orange (10R 6/6) saprolite moist, stiff, trace black streaking, residual quartz, weathered rock fragments			SPT N=11bpf(@28.5ft.)
35		▼			
		- mottled reddish yellow (7.5YR 7/8) and light red / moderate reddish orange (10R 6/6) saprolite wet, medium stiff, with black streaking, trace weathered rock fragments			SPT N=7bpf(@33.5ft.)
40					
		- mottled reddish yellow (7.5YR 7/8) and yellow (10YR 7/6) saprolite wet, stiff, with trace black spots and residual quartz			SPT N=11bpf(@38.5ft.)
45					
		- mottled reddish yellow (7.5YR 7/8) and yellow (10YR 7/6) saprolite wet, stiff, trace sand and weathered rock fragments			SPT N=11bpf(@43.5ft.)
Bottom of borehole at 45.3 feet.					
50					
55					



RECORD OF WELL CONSTRUCTION

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 3/31/2015 COMPLETED 4/1/2015 GROUND ELEVATION 517.5 ft COORDINATES N 1121957.03 E 2404227.47

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 45.3 ft.

GROUND WATER DEPTH: DURING 33.5 ft. COMP. 28.6 ft. DELAYED 26.5 ft. after 24 hrs.

NOTES _____

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. <u>Strata</u></p>	<p>Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 520.51</p> <p>Surface Seal: concrete</p> <p>Annular Fill: Cement-Bentonite Grout - 4 bags Type I/II Portland Cement, 94 lbs/each</p> <p style="text-align: right;">ELEV. (DEPTH) 515.5 (2.0)</p>	

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 520.51	
	30	← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	487.9 (29.6)
	35	← Filter: Unimin FilterSil - 6.5 Bags #1A, 50 lbs/each	485.5 (32.0)
	40	← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	482.6 (34.9)
472.2	45	← Sump: 0.40 ft.	472.6

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



BORING LOG

BORING PZ-14I

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

DATE STARTED 3/24/2015 COMPLETED 3/25/2015 GROUND ELEVATION 509.7 ft COORDINATES N 1121866.36 E 2404822.43

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 95.2 ft.

GROUND WATER DEPTH: DURING 28.5 ft. COMP. 18.5 ft. DELAYED 28.3 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate		Strong
5		Sandy Silt (ML) - Hand auger 5' for utilities clearance				
10		- mottled yellowish red (5YR 5/8) and light red / moderate reddish orange (10R 6/6) saprolite dry, very stiff				SPT N=20bpf(@8.5ft.)
15		- mottled yellowish red (5YR 5/8) and red (10R 4/8) saprolite moist, medium stiff, trace mica				SPT N=7bpf(@13.5ft.)
20		▼ - mottled reddish brown (5YR 5/4) saprolite moist, medium stiff, trace black spots, muscovite, biotite				SPT N=5bpf(@18.5ft.)
25		Silty Sand (SM) - mottled reddish brown (5YR 5/4) and red (10R 4/8) saprolite moist, medium dense, very fine to fine grained, trace black streaking, muscovite, biotite, weathered rock fragments				SPT N=20bpf(@23.5ft.)(LL=48; PI=9; FC = 48.8%; Gravel = 2.5%) (MC = 35.6%; UW(d) = 83.2pcf; PERM. = 8.29E-8cm/sec)
30		▼ - mottled yellowish red (5YR 5/8) and yellow (10YR 7/6) saprolite wet, medium dense, very fine to fine grained, with black streaking, trace muscovite, biotite, weathered rock fragments				SPT N=26bpf(@28.5ft.)
35		- mottled yellowish red (5YR 5/8) and yellow (10YR 7/6) saprolite wet, dense, very fine to fine grained, near-vertical 3.0mm thick moderately weathered quartz vein throughout sample, trace muscovite and biotite				SPT N=31bpf(@33.5ft.)

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	COMMENTS
40		Silty Sand (SM)(Con't) - mottled yellow (10YR 7/8) and brownish yellow / dark yellowish orange (10YR 6/6) saprolite wet, dense, very fine to fine grained, with black spots, trace residual quartz			SPT N=39bpf(@38.5ft.)
45		- mottled yellow (10YR 7/8) and brownish yellow / dark yellowish orange (10YR 6/6) saprolite wet, dense, very fine to fine grained, with black spots, trace residual quartz and weathered rock fragments			SPT N=33bpf(@43.5ft.)
50		- mottled light brownish gray / pale yellowish brown (10YR 6/2), grayish blue green (5BG 5/2) and brownish yellow / dark yellowish orange (10YR 6/6) saprolite wet, very dense, very fine to fine grained, trace chlorite, residual quartz, biotite, muscovite, feldspar			SPT N=77bpf(@48.5ft.)
55		- mottled light brownish gray / pale yellowish brown (10YR 6/2), grayish blue green (5BG 5/2) and greenish gray (10BG 5/1) saprolite wet, very dense, very fine to fine grained, trace chlorite, feldspar, biotite			SPT N=52bpf(@53.5ft.)
60		- mottled dark greenish gray (5GY 4/1) saprolite wet, dense, very fine to fine grained, white streaking, with weathered rock fragments			SPT N=45bpf(@58.5ft.)
65		- mottled dark greenish gray (5GY 4/1) saprolite wet, dense, very fine to fine grained, white streaking with black spots, abundant weathered rock fragments			SPT N=48bpf(@63.5ft.)
70		Partially Weathered Rock (PWR) - very fine to medium grained, white streaking with black spots			
75		BIOTITE GNEISS - mottled with dark gray (N3) medium to coarse grain, very soft to soft, moderately to highly weathered, massive, banded, fracture angles unable to be determined due to poor condition of sample recovered, interbedded with Amphibolite Gneiss, with biotite, quartz, muscovite, hornblende			
80		- becomes more frequently interbedded with Amphibolite Gneiss			

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BORING LOG

BORING PZ-14I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
..... 85 90 95		BIOTITE GNEISS(Con't) - becomes slightly more competent, with pyrite, recovered sample in poor condition	Weak Moderate Strong		
..... 100 105 110 115 120 125		Bottom of borehole at 95.2 feet.			

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\IAPARKER\Desktop\GFC\SCHEHER LOGS.GPJ



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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 3/24/2015 COMPLETED 3/25/2015 GROUND ELEVATION 509.7 ft COORDINATES N 1121866.36 E 2404822.43

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 95.2 ft.

GROUND WATER DEPTH: DURING 28.5 ft. COMP. 18.5 ft. DELAYED 28.3 ft. after 24 hrs.

NOTES _____

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. <u>Strata</u></p> <p style="text-align: right;">ELEV. (DEPTH)</p>	<p>Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 512.89</p> <p>← Surface Seal: concrete</p>	<p style="text-align: right;">507.7 (2.0)</p>
<p>486.7</p>		

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA

DEPTH (ft)

WELL DATA

COMMENTS

ELEV. Strata

(CONTINUED)

ELEV.
(DEPTH)

Protective aluminum cover with bollards
4-foot square concrete pad
Top of casing Elev. = 512.89

← Annular Fill: Cement-Bentonite Grout - 8 bags Type I/II Portland Cement, 94 lbs/each

444.7

435.5

433.5
(76.2)

← Annular Seal: bentonite pellets - 0.5 Bucket Pel Plug 3/8" coated pellets, 50 lbs each

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA		WELL DATA		COMMENTS
ELEV.	Strata	DEPTH (ft)	(CONTINUED)	ELEV. (DEPTH)
			Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 512.89	
			← Filter: Unimin FilterSil - 1.5 Bags #1A, 50 lbs/each	426.9 (82.8)
			← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	424.9 (84.8)
414.5		95	← Sump: 0.40 ft.	414.9

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 3/25/2015 COMPLETED 3/26/2015 GROUND ELEVATION 508.7 ft COORDINATES N 1121852.8 E 2404820.56

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 44.9 ft.

GROUND WATER DEPTH: DURING 28.5 ft. COMP. 28.8 ft. DELAYED 18.8 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\IAPARKER\DESKTOP\GFC\SCHEHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
				Weak Moderate Strong	
5		Silt (ML) - Hand auger 5' for utilities clearance - mottled reddish yellow (5YR 6/8) and yellow (10YR 7/6) saprolite moist, very stiff, trace weathered rock fragments			SPT N=21bpf(@8.5ft.)
10		- mottled reddish yellow (5YR 7/8) and yellow (10YR 7/8) saprolite moist, medium stiff, slight pink hue, trace weathered rock fragments			SPT N=8bpf(@13.5ft.)
15		- mottled reddish yellow (5YR 7/8) and yellow (10YR 7/8) saprolite moist, medium stiff, micaceous, trace biotite and residual quartz			SPT N=7bpf(@18.5ft.)
20		- mottled pink / moderate orange pink (5YR 8/4) and brownish yellow / dark yellowish orange (10YR 6/6) saprolite moist, loose, very fine to fine grained, black and white streaking, micaceous			SPT N=7bpf(@23.5ft.)
25		Silty Sand (SM) - mottled pink / moderate orange pink (5YR 8/4) and brownish yellow / dark yellowish orange (10YR 6/6) saprolite moist, loose, very fine to fine grained, black and white streaking, micaceous			SPT N=7bpf(@23.5ft.)

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
		Silty Sand (SM)(Con't)			
30		- mottled pink / moderate orange pink (5YR 8/4) and brownish yellow / dark yellowish orange (10YR 6/6) saprolite wet, medium dense, very fine to fine grained, black and white streaking, trace weathered rock fragments			SPT N=11bpf(@28.5ft.)
35		- mottled reddish yellow (5YR 6/8) and brownish yellow / dark yellowish orange (10YR 6/6) saprolite wet, dense, very fine to fine grained, trace angular weathered rock fragments			SPT N=37bpf(@33.5ft.)
40		- mottled reddish yellow (5YR 6/8), brownish yellow / dark yellowish orange (10YR 6/6) and gray (10YR 5/1) saprolite wet, dense, very fine to fine grained, has yellow concretions at 40', trace weathered rock fragments			SPT N=38bpf(@38.5ft.)
45		- mottled reddish yellow (5YR 6/8), brownish yellow / dark yellowish orange (10YR 6/6) and brown (10YR 4/3) saprolite wet, dense, very fine to fine grained, with black streaking, trace weathered rock fragments, biotite, muscovite, residual quartz			SPT N=33bpf(@43.5ft.)
		Bottom of borehole at 44.9 feet.			
50					
55					

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\IAPARKER\DESKTOP\GFC\SCHERER LOGS.GPJ



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EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

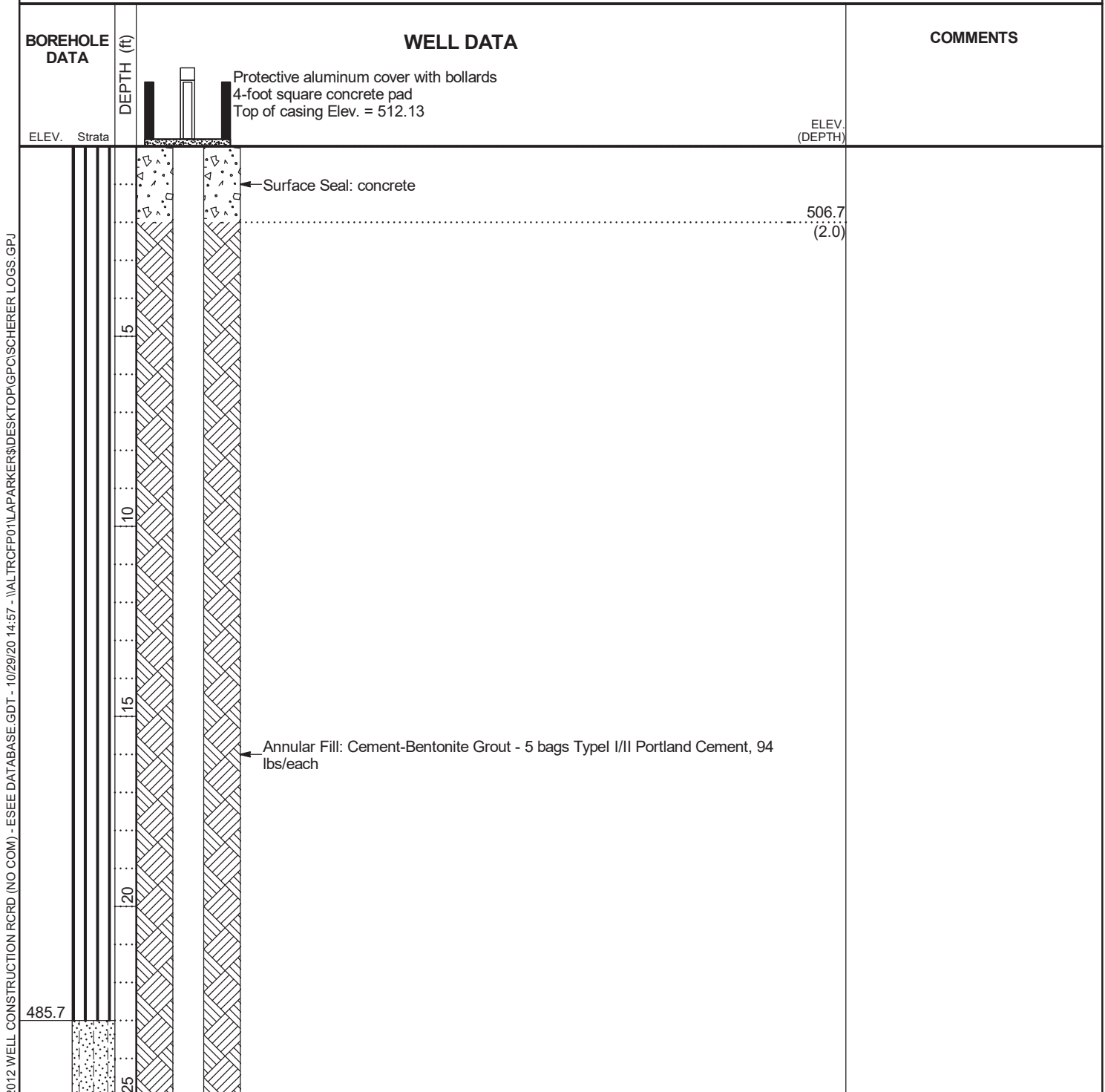
DATE STARTED 3/25/2015 COMPLETED 3/26/2015 GROUND ELEVATION 508.7 ft COORDINATES N 1121852.8 E 2404820.56

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 44.9 ft.

GROUND WATER DEPTH: DURING 28.5 ft. COMP. 28.8 ft. DELAYED 18.8 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHEHER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 512.13	
ELEV.	Strata	(CONTINUED) ← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs each ← Filter: Unimin FilterSil - 6 Bags #1A, 50 lbs/each ← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack ← Sump: 0.40 ft.	ELEV. (DEPTH) 478.7 (30.0) 476.4 (32.3) 474.2 (34.5) 464.2
463.8	30 35 40		

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 4/28/2015 COMPLETED 4/28/2015 GROUND ELEVATION 497.4 ft COORDINATES N 1121486.96 E 2405558.59

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 40.1 ft.

GROUND WATER DEPTH: DURING 23.5 ft. COMP. 19.6 ft. DELAYED 19.6 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHEHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
5		Sandy Silt (ML) - Hand auger 5' for utilities clearance				
10		- mottled red (10R 5/8) fill moist, stiff, trace clay				SPT N=12bpf(@8.5ft.)
15		- mottled dark reddish gray (10R 4/1) saprolite moist, soft, trace weathered rock fragments, mica				SPT N=4bpf(@13.5ft.)
20		- mottled reddish yellow (7.5YR 7/6) saprolite wet, medium stiff, trace mica				SPT N=6bpf(@18.5ft.)
25		- mottled reddish yellow (7.5YR 7/8) saprolite wet, medium stiff, trace mica				SPT N=6bpf(@23.5ft.)

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\APARKER\DESKTOP\GFC\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak	Moderate	Strong	HCL REACTION COMMENTS
		Sandy Silt (ML)(Con't)					
30		- mottled reddish yellow (7.5YR 6/8) saprolite wet, medium stiff, micaceous, with black streaking					SPT N=7bpf(@28.5ft.)
35		- mottled reddish yellow (7.5YR 6/8) saprolite wet, stiff, micaceous, with black streaking					SPT N=10bpf(@33.5ft.)
40		- mottled gray (7.5YR 6/1) saprolite wet, stiff, trace mica					SPT N=14bpf(@38.5ft.)
		Bottom of borehole at 40.1 feet.					
45							
50							
55							



RECORD OF WELL CONSTRUCTION

WELL: PZ-15S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

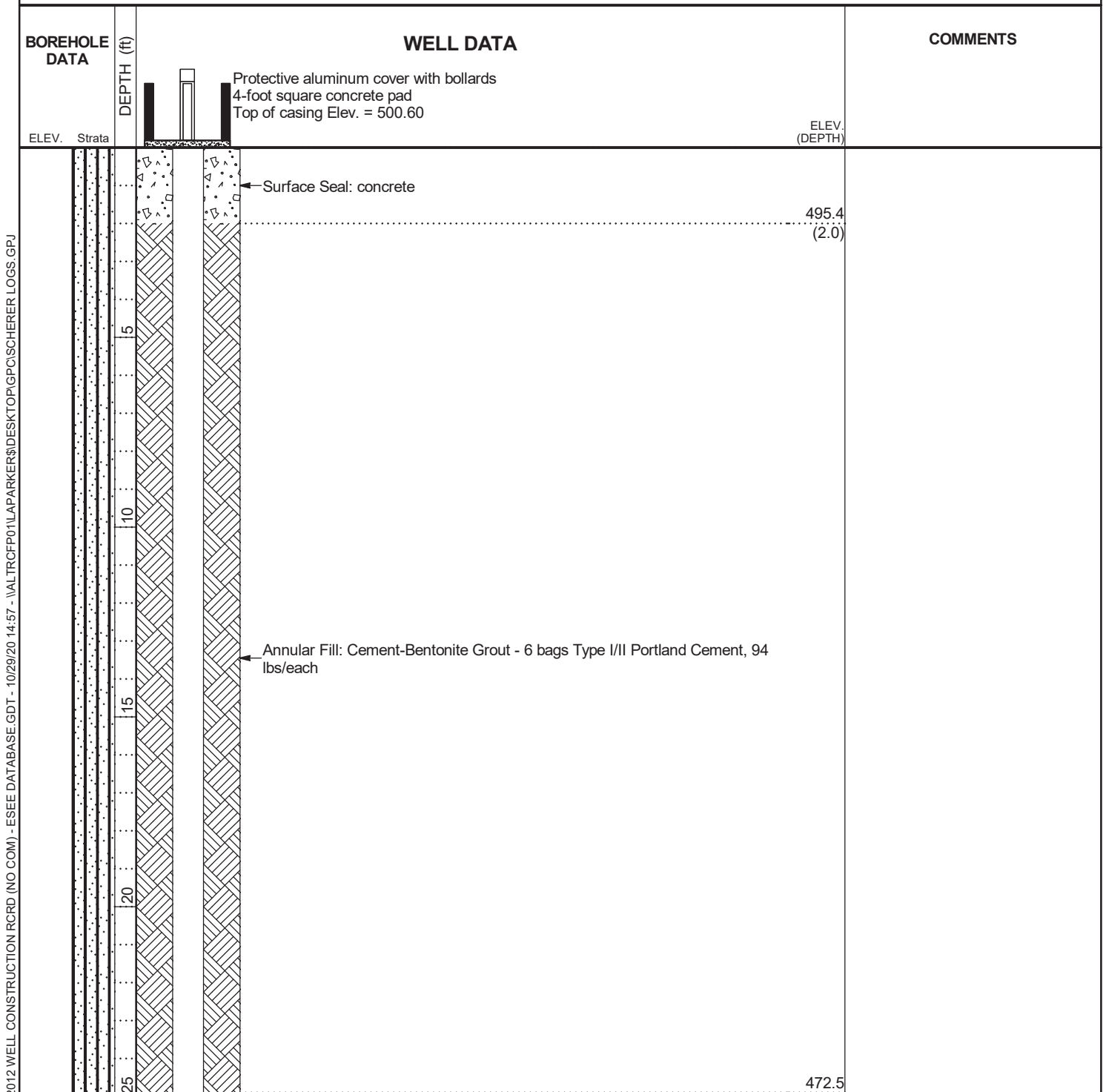
DATE STARTED 4/28/2015 COMPLETED 4/28/2015 GROUND ELEVATION 497.4 ft COORDINATES N 1121486.96 E 2405558.59

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 40.1 ft.

GROUND WATER DEPTH: DURING 23.5 ft. COMP. 19.6 ft. DELAYED 19.6 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: PZ-15S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 500.60	ELEV. (DEPTH)
		← Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	(24.9)
		← Filter: Unimin FilterSil - 6 Bags #1A, 50 lbs/each	470.1 (27.3)
	30		467.7 (29.7)
	35	Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	
457.3	40	← Sump: 0.40 ft.	457.7

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFPO1\A\PARKE\DESKTOP\GPC\ISCHERER LOGS.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/26/2015 COMPLETED 2/27/2015 GROUND ELEVATION 479.9 ft COORDINATES N 1120190.27 E 2407107.37

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 97.3 ft.

GROUND WATER DEPTH: DURING 23.5 ft. COMP. 28.51 ft. DELAYED 24.75 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\APARKER\DESKTOP\GFC\SCHEHER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
		Sandy Silt (ML)			
5		- mottled yellowish red (5YR 5/8) and yellow (10YR 7/8) residuum moist, very stiff, trace clay			SPT N=18bpf(@3.5ft.)
10		- mottled yellowish red (5YR 5/8) and yellow (10YR 8/8) residuum moist, stiff, trace clay			SPT N=9bpf(@8.5ft.)
15		- mottled red (2.5YR 4/8) and red (10R 4/8) saprolite moist, medium stiff, trace residual quartz			SPT N=7bpf(@13.5ft.)
20		- mottled red (2.5YR 4/8) and yellow (10YR 7/6) saprolite moist, medium stiff, with black streaking, trace weathered rock fragments			SPT N=8bpf(@18.5ft.)
25		▽ - mottled yellowish red (5YR 5/8) and red (10R 4/8) saprolite wet, soft, with black banding, trace residual quartz			SPT N=4bpf(@23.5ft.)
30		▽ - mottled strong brown (7.5YR 5/8) and very pale brown / very pale orange (10YR 8/2) saprolite wet, very soft, with black spots			SPT N=2bpf(@28.5ft.)

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL	COMMENTS
				REACTION	
				Weak Moderate Strong	
		Sandy Silt (ML) (Con't)			
35		Elastic Silt (MH) - mottled strong brown (7.5YR 5/8) and brownish yellow / dark yellowish orange (10YR 6/6) saprolite wet, medium stiff, with black and white banding, trace residual quartz, muscovite, biotite			SPT N=5bpf(@33.5ft.)
40		Silt (ML) - mottled reddish yellow (7.5YR 6/8) and yellow (10YR 7/8) saprolite wet, stiff, with black spots, trace weathered rock fragments			SPT N=9bpf(@38.5ft.)
45		- mottled reddish yellow (7.5YR 6/8) and yellow (10YR 7/8) saprolite wet, stiff, trace weathered rock fragments, residual quartz, biotite, muscovite, amphibole			SPT N=12bpf(@43.5ft.)
50		- mottled reddish yellow (7.5YR 6/8) and yellow (10YR 7/8) saprolite wet, very stiff, trace weathered rock fragments, amphibole, residual quartz, muscovite			SPT N=27bpf(@48.5ft.)
55		- mottled reddish yellow (7.5YR 6/8) and yellow (10YR 7/8) saprolite wet, very stiff, trace weathered rock fragments, residual quartz, muscovite, amphibole			SPT N=20bpf(@53.5ft.)
60		- mottled gray (10YR 6/1) and white (10YR 8/1) saprolite wet, very stiff, trace residual quartz, feldspar, biotite, muscovite			SPT N=27bpf(@58.5ft.)
65		- mottled light gray (10YR 7/1) and white (10YR 8/1) saprolite wet, very hard, trace weathered rock fragments, residual quartz, feldspar, biotite			SPT N=84bpf(@63.5ft.) Switched to casing, advancing into upper weathered rock (Biotite Gneiss/Amphibolite)

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\APARKER\DESKTOP\GFC\SCHEHER LOGS.GPJ

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

SAMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\LPARKER\DESKTOP\GFCVSCHEHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
				Weak Moderate Strong	
		Silt (ML)(Con't)			
70		Silty Sand (SM) - mottled dark greenish gray (10GY 4/1) saprolite wet, very hard, fine to coarse grained, with residual quartz, biotite, feldspar, amphibole			SPT N=63bpf(@68.5ft.)
75		- mottled dark greenish gray (10GY 4/1) saprolite wet, very hard, fine to coarse grained, with residual quartz, biotite, feldspar, amphibole			SPT N=50bpf(@73.5ft.) Top of rock at 74.1 ft bgs, advanced casing to 81.1 ft bgs and began coring.
80		Partially Weathered Rock (PWR) - mottled dark greenish gray (10GY 4/1) saprolite wet, very hard, fine to coarse grained, with residual quartz, biotite, feldspar, amphibole			
85		AMPHIBOLITE - dark gray (N3) fine to medium grain, soft, slightly to moderately weathered, 12 moderate-angle fractures (30 - 45d), becomes interbedded with Biotite Gneiss			
90		BIOTITE GNEISS - mottled with dark gray (N3) medium grain, soft to medium hard, slightly weathered, inclined, banded, 10 moderate-angle fractures (30 - 45d), oxidized throughout, thin to medium foliation, mechanically fractured along schistosity (35 - 65d), 0.1 to 10 mm thick quartz/feldspar-filled healed fractures			
95		- 4 low-angle fractures (10 - 30d), 2 moderate-angle fractures (30 - 45d), becomes more competent with depth			
		Bottom of borehole at 97.3 feet.			
100					



RECORD OF WELL CONSTRUCTION

WELL: PZ-171
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 2/26/2015 COMPLETED 2/27/2015 GROUND ELEVATION 479.9 ft COORDINATES N 1120190.27 E 2407107.37

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 97.3 ft.

GROUND WATER DEPTH: DURING 23.5 ft. COMP. 28.51 ft. DELAYED 24.75 ft. after 24 hrs.

NOTES _____

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. Strata</p>	<p>Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 483.03</p> <p>Surface Seal: concrete</p>	<p>ELEV. (DEPTH)</p> <p>477.9 (2.0)</p>

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCF001\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 483.03	ELEV. (DEPTH)
446.9	35	← Annular Fill: Cement-Bentonite Grout - 10 bags Type I/II Portland Cement, 94 lbs/each	
441.9	40		
	45		
	50		
	55		
	60		
	65		

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPCISCHERER LOGS.GPJ

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RECORD OF WELL CONSTRUCTION

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 483.03	ELEV. (DEPTH)
411.9	70		
404.9	75		
398.5	80		
	85	← Annular Seal: bentonite pellets - 0.5 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	397.2 (82.7)
	85	← Filter: Unimin FilterSil - 2.5 Bags #1A, 50 lbs/each	395.2 (84.7)
391.2	90	← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	393.2 (86.7)
382.6	95	← Sump: 0.60 ft.	383.2 (96.7)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 3/3/2015 COMPLETED 3/4/2015 GROUND ELEVATION 414.5 ft COORDINATES N 1118588.47 E 2407251.56

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 71.9 ft.

GROUND WATER DEPTH: DURING 1.5 ft. COMP. 0 ft. DELAYED 0.5 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCISCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	COMMENTS
5		Lean Clay (CL) - Hand auger 5' for utilities clearance - mottled red (2.5YR 5/8) and light red / moderate reddish orange (10R 6/6) residuum wet, soft, trace organics			SPT N=4bpf(@8.5ft.) (MC = 34.7%; UW(d) = 86pcf; PERM. = 1.14E-5cm/sec)
15		Silty Sand (SM) - mottled reddish yellow (7.5YR 7/8) and light red / moderate reddish orange (10R 6/6) saprolite wet, loose, very fine to fine grained, with black streaking, trace residual quartz - mottled gray (7.5YR 5/1) and white (10R 8/1) saprolite wet, medium dense, very fine to fine grained, trace biotite, muscovite, residual quartz, amphibole - mottled gray (7.5YR 5/1) and white (10R 8/1) saprolite wet, medium dense, very fine to fine grained, trace residual quartz, biotite, muscovite, feldspar - mottled strong brown (7.5YR 5/6) saprolite wet, medium dense, very fine to fine grained, trace residual quartz, feldspar, biotite, oxides			SPT N=7bpf(@13.5ft.)(PL=NP; FC = 39.3%; Gravel = 0%) SPT N=12bpf(@18.5ft.)(LL=34; PI=6; FC = 36.7%; Gravel = 0%) (MC = 35.4%; UW(d) = 85.5pcf; PERM. = 9.46E-7cm/sec) SPT N=16bpf(@23.5ft.) SPT N=15bpf(@28.5ft.)

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BORING LOG

BORING PZ-19I

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\IAPARKER\DESKTOP\GFC\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
35		Silty Sand (SM)(Con't) - mottled gray (7.5YR 5/1) saprolite wet, very dense, very fine to fine grained, with white and black and orange streaking, trace oxides, residual quartz, amphibole, biotite			SPT N=59bpf(@33.5ft.)
40		- mottled dusky yellow green (5GY 5/2) saprolite wet, very dense, very fine to fine grained, with white and black and orange streaking, trace iron oxide staining, residual quartz, feldspar, biotite, muscovite, amphibole			SPT N=56bpf(@38.5ft.)
45		- mottled dark gray (N3) saprolite wet, dense, very fine to fine grained, with white streaking, trace iron oxide staining, residual quartz, feldspar, biotite			SPT N=40bpf(@43.5ft.)
50		- mottled dark gray (N3) saprolite wet, very dense, very fine to fine grained, with white speckling, trace biotite, residual quartz, iron oxide staining			SPT N=87bpf(@48.5ft.)
55		Partially Weathered Rock (PWR) - mottled dark gray (N3) saprolite wet, very dense, very fine to coarse grained, weathered Amphibolite			SPT N=50bpf(@53.5ft.)
60		BIOTITE GNEISS - mottled with dark gray (N3) medium to fine grain, soft to medium hard, slightly to moderately weathered, inclined, banded, 4 moderate-angle fractures (30 - 45d), medium to thin foliation, slight to moderate mechanical fracturing along schistosity (36 - 65d), oxidation, quartz, feldspar, biotite, amphibole - 10 moderate-angle fractures (30 - 45d), becomes thin to laminated banding, interbedded with dark gray to black Amphibolite Gneiss			Lack of recovery likely due to weakness of formation. Core water returns contain medium grained amphibolite and quartz which has been observed at other locations where Amphibolite Gneiss has been collected.
65		- No recovery 60.9' - 71.9' bgs			
70					
Bottom of borehole at 71.9 feet.					



RECORD OF WELL CONSTRUCTION

WELL: PZ-19I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

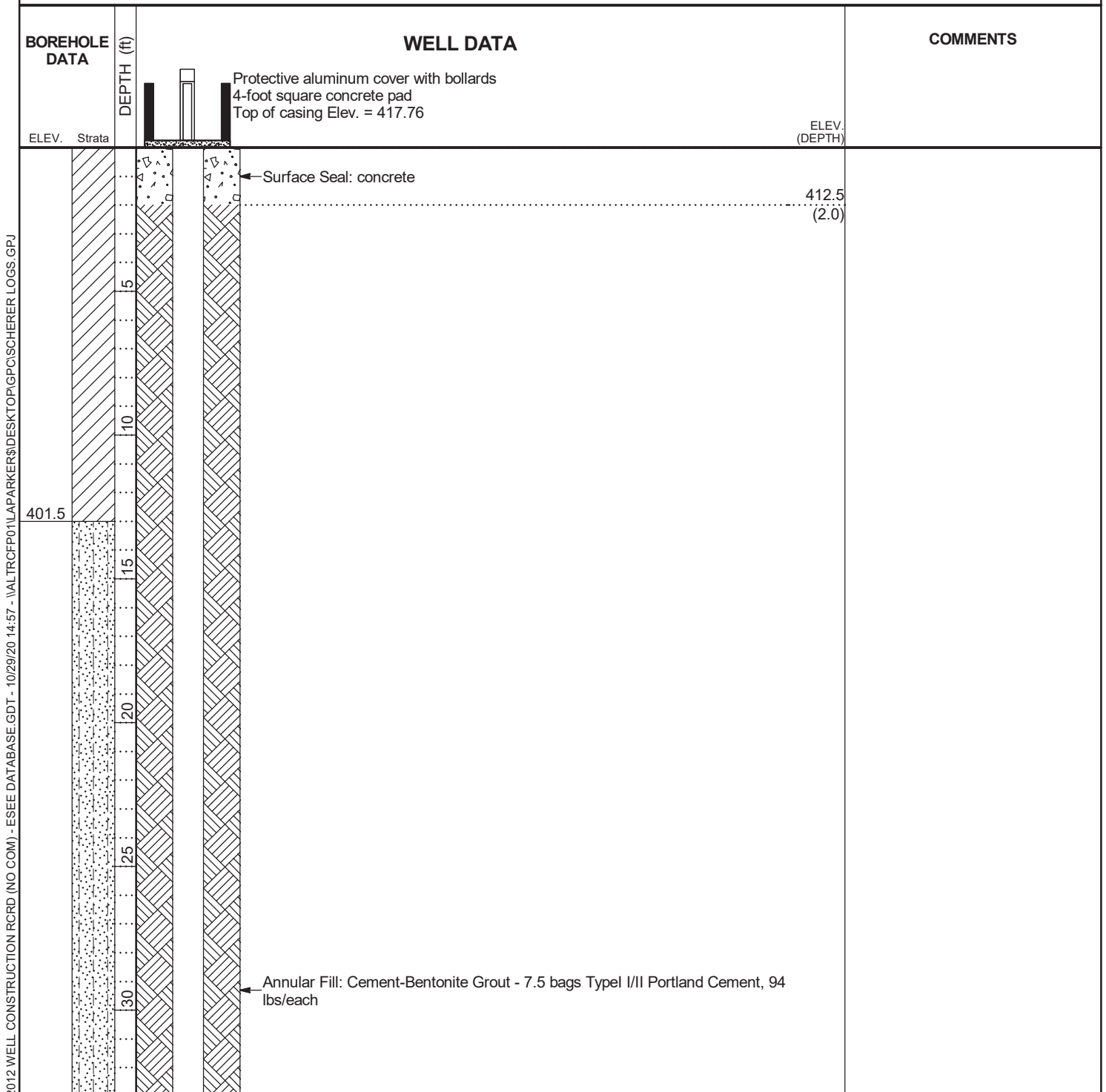
DATE STARTED 3/3/2015 COMPLETED 3/4/2015 GROUND ELEVATION 414.5 ft COORDINATES N 1118588.47 E 2407251.56

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 71.9 ft.

GROUND WATER DEPTH: DURING 1.5 ft. COMP. 0 ft. DELAYED 0.5 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LA\PARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

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RECORD OF WELL CONSTRUCTION

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA		WELL DATA		COMMENTS
ELEV.	Strata	DEPTH (ft)	(CONTINUED)	ELEV. (DEPTH)
		35		
		40		
		45		
		50		
361.5		55		
359.0				
			Annular Seal: bentonite pellets - 0.5 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each	357.9 (56.6)
			Filter: Unimin FilterSil - 1.25 Bags #1A, 50 lbs/each	355.7 (58.8)
				353.0 (61.5)
			Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	
			Sump: 0.40 ft.	343.0
342.6		70		

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 3/4/2015 COMPLETED 3/4/2015 GROUND ELEVATION 414.5 ft COORDINATES N 1118587.24 E 2407241.54

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 25 ft.

GROUND WATER DEPTH: DURING 0.5 ft. COMP. 1.5 ft. DELAYED 0.5 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
		▼ Silty Sand (ML) - Hand auger 5' for utilities clearance ▼			
5					
10		- mottled reddish yellow (7.5YR 6/8), light red / moderate reddish orange (10R 6/6) and light red / moderate reddish orange (10R 6/6) saprolite wet, very loose, very fine to fine grained, trace biotite, residual quartz, feldspar			SPT N=3bpf(@8.5ft.)
15		- mottled strong brown (7.5YR 5/6), light red / moderate reddish orange (10R 6/6) and light red / moderate reddish orange (10R 6/6) saprolite wet, loose, very fine to fine grained, trace residual quartz, biotite			SPT N=9bpf(@13.5ft.)
20		- mottled reddish yellow (7.5YR 6/8), light red / moderate reddish orange (10R 6/6) and light red / moderate reddish orange (10R 6/6) saprolite wet, loose, very fine to fine grained, with black streaking, trace weathered rock fragments			SPT N=5bpf(@18.5ft.)
25		- mottled reddish yellow (7.5YR 6/8), very dark greenish gray (10BG 3/1) and light red / moderate reddish orange (10R 6/6) saprolite wet, medium dense, very fine to fine grained, trace residual quartz and weathered rock fragments			SPT N=12bpf(@23.5ft.)
		Bottom of borehole at 25.0 feet.			



RECORD OF WELL CONSTRUCTION

WELL: PZ-19S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 3/4/2015 COMPLETED 3/4/2015 GROUND ELEVATION 414.5 ft COORDINATES N 1118587.24 E 2407241.54

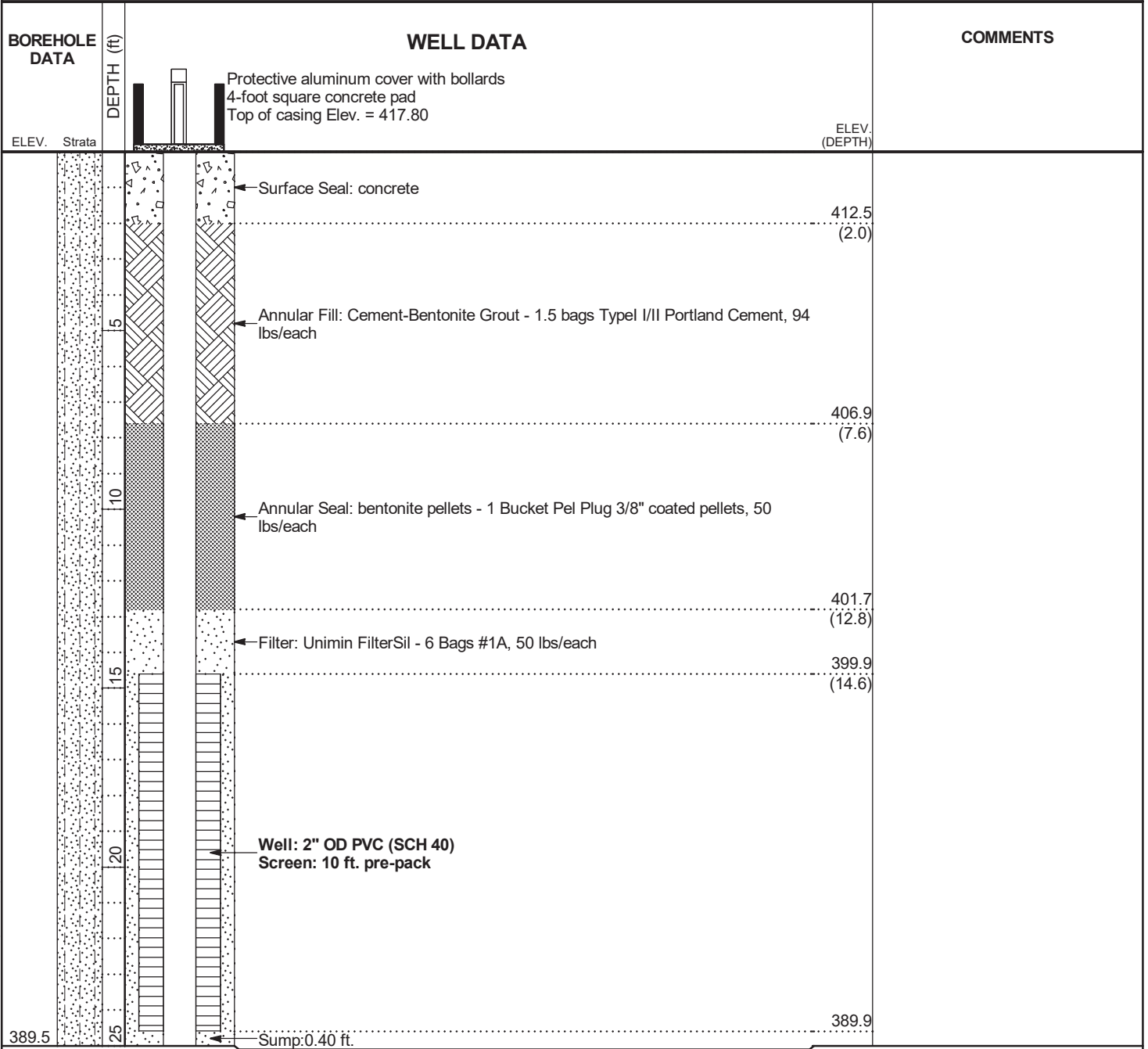
CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 25 ft.

GROUND WATER DEPTH: DURING 0.5 ft. COMP. 1.5 ft. DELAYED 0.5 ft. after 24 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01\LPARKER\DESKTOP\GPCISCHERER LOGS.GPJ





BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 3/10/2015 COMPLETED 3/10/2015 GROUND ELEVATION 414.3 ft COORDINATES N 1118318.15 E 2407273.36

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 79.6 ft.

GROUND WATER DEPTH: DURING 5 ft. COMP. 3.2 ft. DELAYED 3.2 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\VALTRCFP01\LPARKER\DESKTOP\GFC\ISCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate		Strong
0 - 5		Sandy Fat Clay (CH) - Hand auger 5' for utilities clearance				
5 - 10		- mottled light gray (7.5YR 7/1) residuum wet, stiff, moderate plasticity, with sand, trace organics				(MC = 30%; UW(d) = 96.9pcf; PERM. = 1.07E-6cm/sec) SPT N=11bpf(@8.5ft.)(LL=53; PI=31; FC = 72.3%; Gravel = 0%)
10 - 15		Silty Sand (SM) - mottled black (7.5YR 2.5/1) and white (10R 8/1) saprolite wet, medium dense, very fine to fine grained, trace residual quartz, feldspar, biotite				SPT N=20bpf(@13.5ft.)
15 - 20		- mottled pinkish white (7.5YR 8/2) and pinkish white / grayish orange pink (10R 8/2) saprolite wet, medium dense, very fine to fine grained, with black streaking, trace biotite, residual quartz, amphibole				SPT N=14bpf(@18.5ft.) (MC = 27.6%; UW(d) = 99.8pcf; PERM. = 2.97E-9cm/sec)
20 - 25		- mottled pinkish gray (7.5YR 7/2) saprolite wet, medium dense, very fine to fine grained, with white banding, trace weathered rock fragments and mica				SPT N=13bpf(@23.5ft.)(PL=NP; FC = 42.7%; Gravel = 0%)
25 - 30		- mottled pinkish gray (7.5YR 7/2) saprolite wet, medium dense, very fine to fine grained, with white banding, trace residual quartz, feldspar, biotite, muscovite				SPT N=28bpf(@28.5ft.)
30 - 35		- mottled pinkish gray (7.5YR 7/2) saprolite wet, medium dense, very fine to fine grained, with white banding, trace residual quartz, biotite, muscovite, oxides, weathered rock fragments				SPT N=12bpf(@33.5ft.)

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:40 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\ISCHERER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
40		Silty Sand (SM)(Con't) - mottled gray (7.5YR 6/1) saprolite wet, very dense, very fine to fine grained, with black and white banding, trace residual quartz, mica, weathered rock fragments			SPT N=52bpf(@38.5ft.)
45		- mottled gray (7.5YR 6/1) saprolite wet, dense, very fine to fine grained, with black and white banding, with trace mica, residual quartz, hornblende			SPT N=40bpf(@43.5ft.)
50		- mottled very dark gray (7.5YR 3/1) saprolite wet, very dense, very fine to fine grained, with white speckling, trace oxide staining, mica, residual quartz, amphibole			SPT N=50bpf(@48.5ft.)
55		- mottled very dark gray (7.5YR 3/1) saprolite wet, very dense, very fine to fine grained, with white banding, trace oxide staining, mica, residual quartz, amphibole			SPT N=50bpf(@53.5ft.)
60		- mottled very dark gray (7.5YR 3/1) saprolite wet, very dense, very fine to fine grained, with white and black banding, trace oxide staining, mica, residual quartz, feldspar, amphibole Partially Weathered Rock (PWR) - very fine to medium grained, with white and black banding, trace oxide staining, mica, residual quartz, feldspar, amphibole			SPT N=50bpf(@58.5ft.)
65		AMPHIBOLITE GNEISS - mottled with dark gray (N3) medium to fine grain, soft to medium hard, moderately to highly weathered, inclined, banded, 5 low-angle fractures (10 - 30d), 4 moderate-angle fractures (30 - 45d), thin to laminate banding, slight mechanical fracturing along schistosity (30-50d)			
70		- mottled with dark gray (N3) medium to fine grain, soft to medium hard, moderately to highly weathered, inclined, banded, 2 low-angle fractures (10 - 30d), 8 moderate-angle fractures (30 - 45d), 5 high-angle fractures (65 - 90d), becomes more laminated and competent with depth			
75		- mottled with dark gray (N3) medium to fine grain, soft to medium hard, moderately to highly weathered, inclined, banded, 8 low-angle fractures (10 - 30d), 5 moderate-angle fractures (30 - 45d), 3 high-angle fractures (65 - 90d), becomes slightly less competent			
80		Bottom of borehole at 79.6 feet.			



RECORD OF WELL CONSTRUCTION

WELL: PZ-20I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

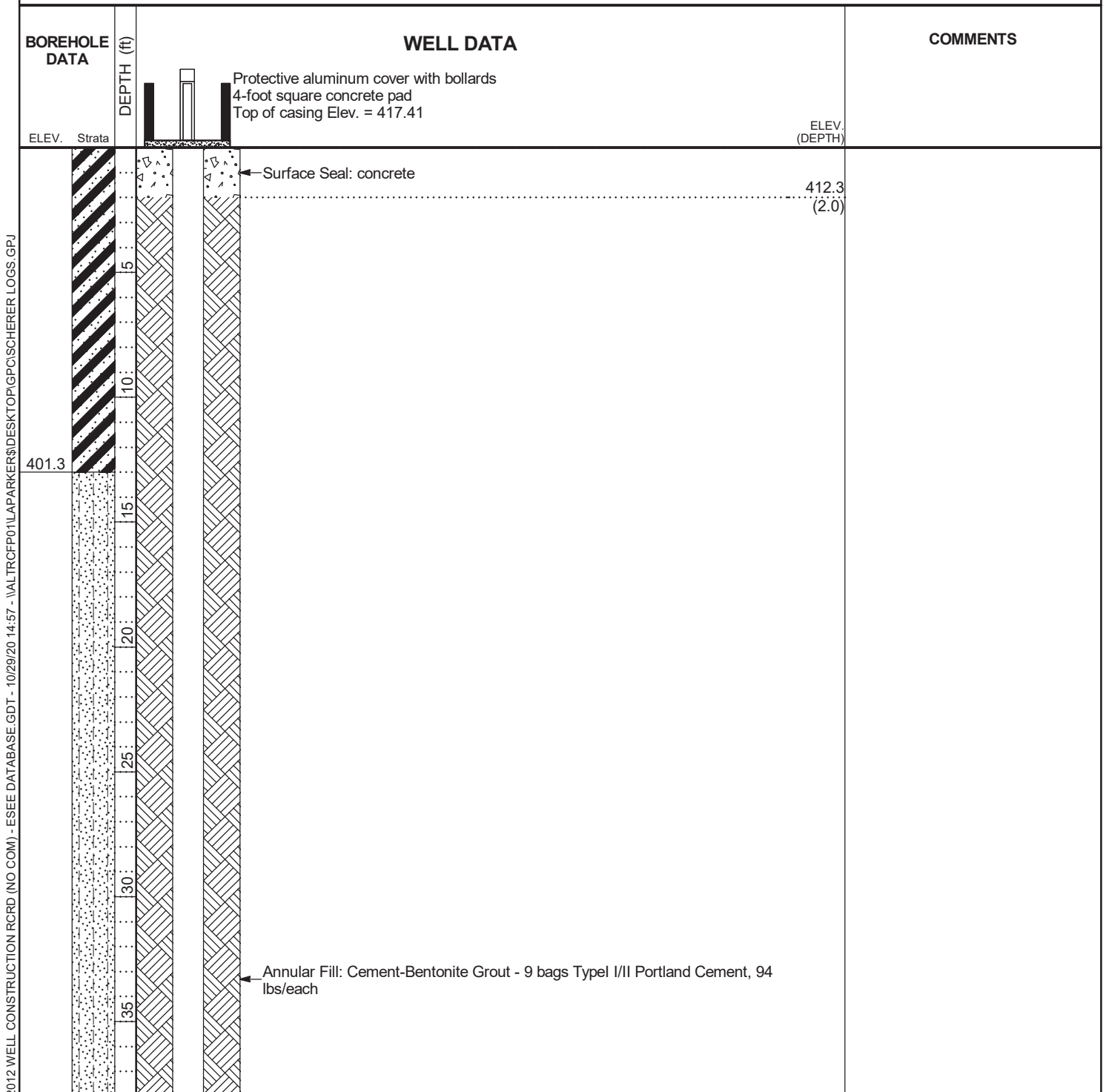
DATE STARTED 3/10/2015 COMPLETED 3/10/2015 GROUND ELEVATION 414.3 ft COORDINATES N 1118318.15 E 2407273.36

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger; HQ Rock Core EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 79.6 ft.

GROUND WATER DEPTH: DURING 5 ft. COMP. 3.2 ft. DELAYED 3.2 ft. after 24 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER LOGS.GPJ

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: PZ-20I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 417.41	ELEV. (DEPTH)
354.3 350.3	40 45 50 55 60 65 70 75	← Annular Seal: bentonite pellets - 0.5 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each ← Filter: Unimin FilterSil - 1 Bag #1A, 50 lbs/each ← Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack ← Sump: 0.40 ft.	349.7 (64.6) 347.6 (66.7) 345.1 (69.2) 335.1

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER LOGS.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation
LOCATION Plant Scherer

DATE STARTED 3/11/2015 COMPLETED 3/12/2015 GROUND ELEVATION 470.6 ft COORDINATES N 1117639.19 E 2407006.52

CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 25 ft.

GROUND WATER DEPTH: DURING 1.5 ft. COMP. 3.2 ft. DELAYED 3.2 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:41 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\SCHEHER LOGS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
5		Sandy Silt (ML) - Hand auger 5' for utilities clearance				
10		- mottled reddish yellow (7.5YR 6/8) and light red / moderate reddish orange (10R 6/6) residuum wet, soft, trace mica				SPT N=4bpf(@8.5ft.)
15		- mottled reddish yellow (7.5YR 6/8) and yellow (10YR 7/6) saprolite wet, medium stiff, with black streaking				SPT N=5bpf(@13.5ft.)
20		- mottled light gray (7.5YR 7/1) saprolite wet, very stiff, with white and black spots, trace residual quartz, feldspar, biotite, muscovite, weathered rock fragments				SPT N=17bpf(@18.5ft.)
25		- mottled white (7.5YR 8/1) and light red / moderate reddish orange (10R 6/6) saprolite wet, very stiff, micaceous, with black banding, trace weathered rock fragments				SPT N=22bpf(@23.5ft.)
Bottom of borehole at 25.0 feet.						



RECORD OF WELL CONSTRUCTION

WELL: PZ-21S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Piezometer Installation

LOCATION Plant Scherer

DATE STARTED 3/11/2015 COMPLETED 3/12/2015 GROUND ELEVATION 470.6 ft COORDINATES N 1117639.19 E 2407006.52

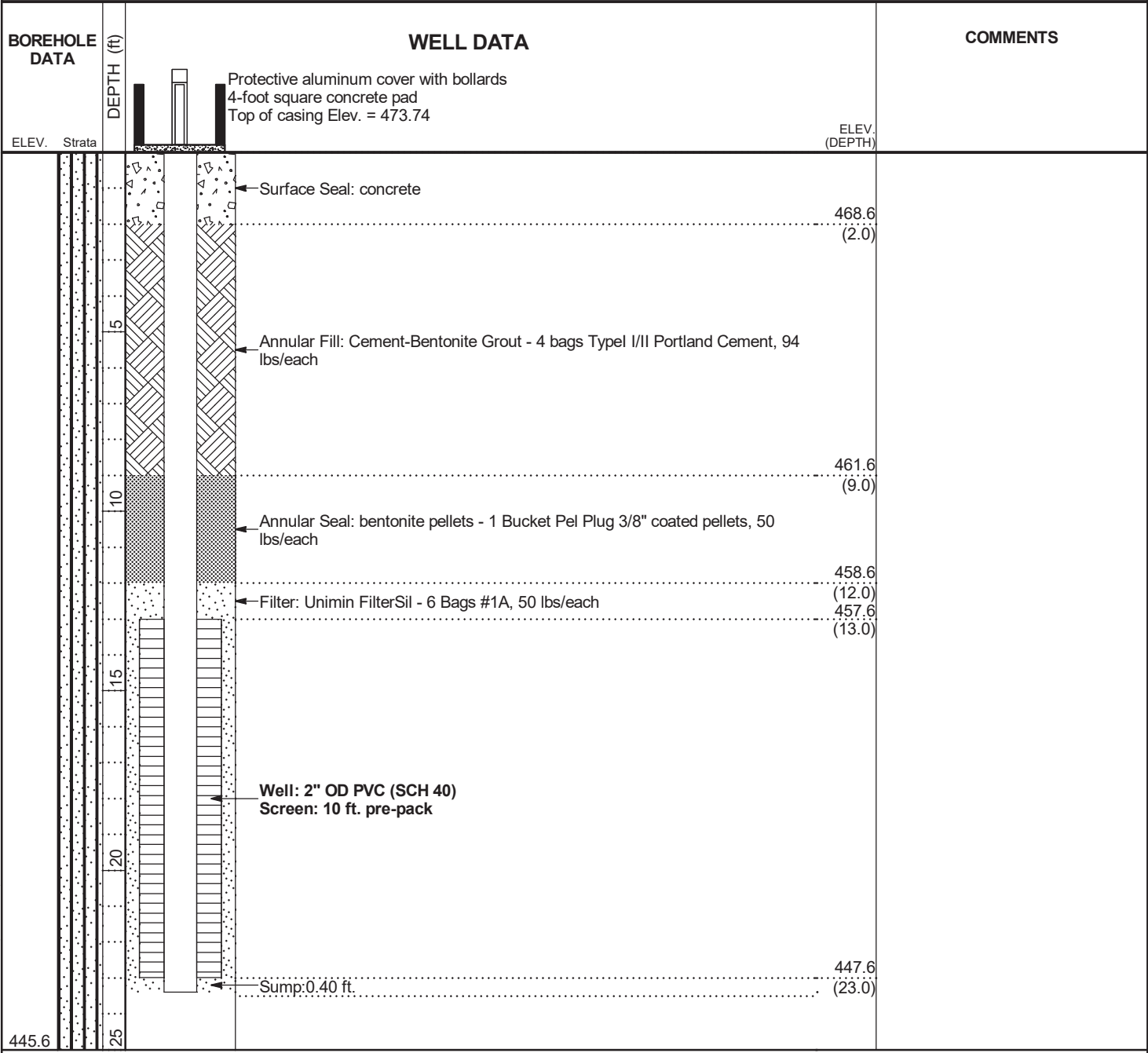
CONTRACTOR Civil Field Services METHOD Hollow Stem Auger EQUIPMENT CME550

DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 25 ft.

GROUND WATER DEPTH: DURING 1.5 ft. COMP. 3.2 ft. DELAYED 3.2 ft. after 24 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01\LPARKER\DESKTOP\GPCISCHERER LOGS.GPJ





BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 5/22/2016 **COMPLETED** 5/24/2016 **GROUND ELEVATION** 525.8 ft **COORDINATES** N 1121837.8 E 2404573.04

CONTRACTOR Cascade **METHOD** Rotosonic **EQUIPMENT** Tracked

DRILLED BY M. Pope **LOGGED BY** W. Shaughnessy **CHECKED BY** B. Smelser **BORING DEPTH** 126 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** 32.5 ft. **DELAYED** 30.6 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	COMMENTS
5		Well-graded Sand with Clay (SW-SC) - mottled red (2.5YR 4/6) dry, fine to medium-grained, with magnetite and illmenite			
10		- yellowish red (5YR 4/6) dry, with silt			
15		- reddish yellow (7.5YR 6/8) with black and white mottling, weathered feldspar			
20		- mottled strong brown (7.5YR 5/8), light gray (2.5Y 7/2) and pale red (10R 6/3) dry, fine to coarse-grained, trace fine quartz gravel - with magnetite and illmenite			
25		- strong brown (7.5YR 5/8), black (7.5YR 2.5/1) and very pale brown / grayish orange (10YR 7/4) with mica			
30		Sandy Silt (ML) - mottled dark reddish brown (2.5YR 3/4) and dark reddish gray (2.5YR 3/1) moist, with sandy clay (CL) bedding			
35		- mottled strong brown (7.5YR 5/8) and black (7.5YR 2.5/1) - dark red (2.5YR 3/6), red (2.5YR 4/6) and reddish gray (2.5YR 5/1) wet, flow-banded fabric			
40		Elastic Silt (MH) - mottled weak red (10R 5/3) and reddish black (10R 2.5/1) wet, medium, with sandy clay (CH) bedding			
45		- mottled strong brown (7.5YR 5/8), light brownish gray (2.5Y 6/2) and black (2.5Y 2.5/1)			
50		- reddish brown (2.5YR 4/4), reddish yellow (7.5YR 6/6) and black (7.5YR 2.5/1) wet, with sandy clay (CH) bedding			

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHEHER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
55		Elastic Silt (MH)(Con't) - yellowish red / light brown (5YR 5/6)			
60		Well-graded Sand with Clay (SW-SC) - yellowish red / light brown (5YR 5/6) saprolite wet, medium dense, fine to coarse-grained, cohesive - dark grayish brown / dark yellowish brown (10YR 4/2) with gravel (residual diabase) - dark gray / olive gray (5Y 4/1) and strong brown (7.5YR 5/6) moist			
70		- mottled very dark gray (5Y 3/1) and white (N9) - dark brown (10YR 3/3) with interlayered clay bedding			
80		- gray (10YR 5/1) moist			
90		- very dark gray (2.5Y 3/1) regolith moist, dense - very dark gray (5Y 3/1)			
95		- with interlayered clay bedding			
100		- dark yellowish brown (10YR 4/6) and olive (5Y 5/4)			
105		- mottled black (2.5Y 2.5/1), dark gray (2.5Y 4/1) and white (N9)			
110					

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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
115		- grayish brown (2.5Y 5/2)			
120		- dark yellowish brown (10YR 3/6)			
125		- very dark gray (2.5Y 3/1)			

Bottom of borehole at 126.0 feet.

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

130					
135					
140					
145					
150					
155					
160					
165					
170					



RECORD OF WELL CONSTRUCTION

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 5/22/2016 COMPLETED 5/24/2016 GROUND ELEVATION 525.8 ft COORDINATES N 1121837.8 E 2404573.04

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY M. Pope LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 126 ft.

GROUND WATER DEPTH: DURING _____ COMP. 32.5 ft. DELAYED 30.6 ft. after 24 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPCISCHERER ADDITIONAL PZS_UPDATED.GPJ

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. Strata</p> <p style="text-align: right;">ELEV. (DEPTH)</p>	<p style="text-align: center;">Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 528.39</p> <p>← Surface Seal: concrete</p>	<p style="text-align: right;">522.8 (3.0)</p>

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RECORD OF WELL CONSTRUCTION

WELL: PZ-25 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)		ELEV. (DEPTH)
469.8	55 60 65 70 75 80 85 90 95 100 105 110	<p style="text-align: center;">Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 528.39</p> <p style="text-align: center;">Annular Fill: Cement-Bentonite Grout (8 - 94# bags PC, 1 - 55# bag gel, 210 gal. water)</p>	
		Annular Seal: bentonite pellets (1 - 5 gal. bucket 3/8" pellets)	418.8 (107.0) 415.8

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPCISCHERER\ADDITIONAL_PZS_UPDATED.GPJ

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RECORD OF WELL CONSTRUCTION

WELL: PZ-25 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 528.39	ELEV. (DEPTH)
399.8	115	← Filter: 20/40 silica filter sand (6 - 0.5 cubic ft. bags)	(110.0)
	120	Well: 2" OD PVC (SCH 40) Screen: 10 ft. 0.010" Slot Prepack	411.0 (114.8)
	125	Sump: 0.20 ft.	401.0 (124.8)
			400.8 (125.0)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 5/24/2016 COMPLETED 5/25/2016 GROUND ELEVATION 525.5 ft COORDINATES N 1121848.11 E 2404567.52

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY M. Pope LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 56 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 32.6 ft. after 48 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
5		Well-graded Sand with Clay (SW-SC) - mottled red (2.5YR 4/6) dry, fine to medium-grained, with magnetite and illmenite - yellowish red (5YR 4/6) dry, with silt			
10					
15		- reddish yellow (7.5YR 6/8) with black and white mottling, weathered feldspar - mottled strong brown (7.5YR 5/8), light gray (2.5Y 7/2) and pale red (10R 6/3) dry, fine to coarse-grained, trace fine quartz gravel - with magnetite and illmenite			
20					
25		- strong brown (7.5YR 5/8), black (7.5YR 2.5/1) and very pale brown / grayish orange (10YR 7/4) with mica			
30		Sandy Silt (ML) - mottled dark reddish brown (2.5YR 3/4) and dark reddish gray (2.5YR 3/1) moist, with sandy clay (CL) bedding			
35		▼ - mottled strong brown (7.5YR 5/8) and black (7.5YR 2.5/1) - dark red (2.5YR 3/6), red (2.5YR 4/6) and reddish gray (2.5YR 5/1) wet, flow-banded fabric			
40		Elastic Silt (MH) - mottled weak red (10R 5/3) and reddish black (10R 2.5/1) wet, medium, with sandy clay (CH) bedding			
45		- mottled strong brown (7.5YR 5/8), light brownish gray (2.5Y 6/2) and black (2.5Y 2.5/1)			
50		- reddish brown (2.5YR 4/4), reddish yellow (7.5YR 6/6) and black (7.5YR 2.5/1) wet, with sandy clay (CH) bedding			

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
..... 55	||||	Elastic Silt (MH)(Con't) - yellowish red / light brown (5YR 5/6)		Weak Moderate Strong	
..... 60					
..... 65					
..... 70					
..... 75					
..... 80					
..... 85					
..... 90					
..... 95					
..... 100					
..... 105					
..... 110					

Bottom of borehole at 56.0 feet.

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFCVSCHERER ADDITIONAL PZS.GPJ



RECORD OF WELL CONSTRUCTION

WELL: PZ-25 S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

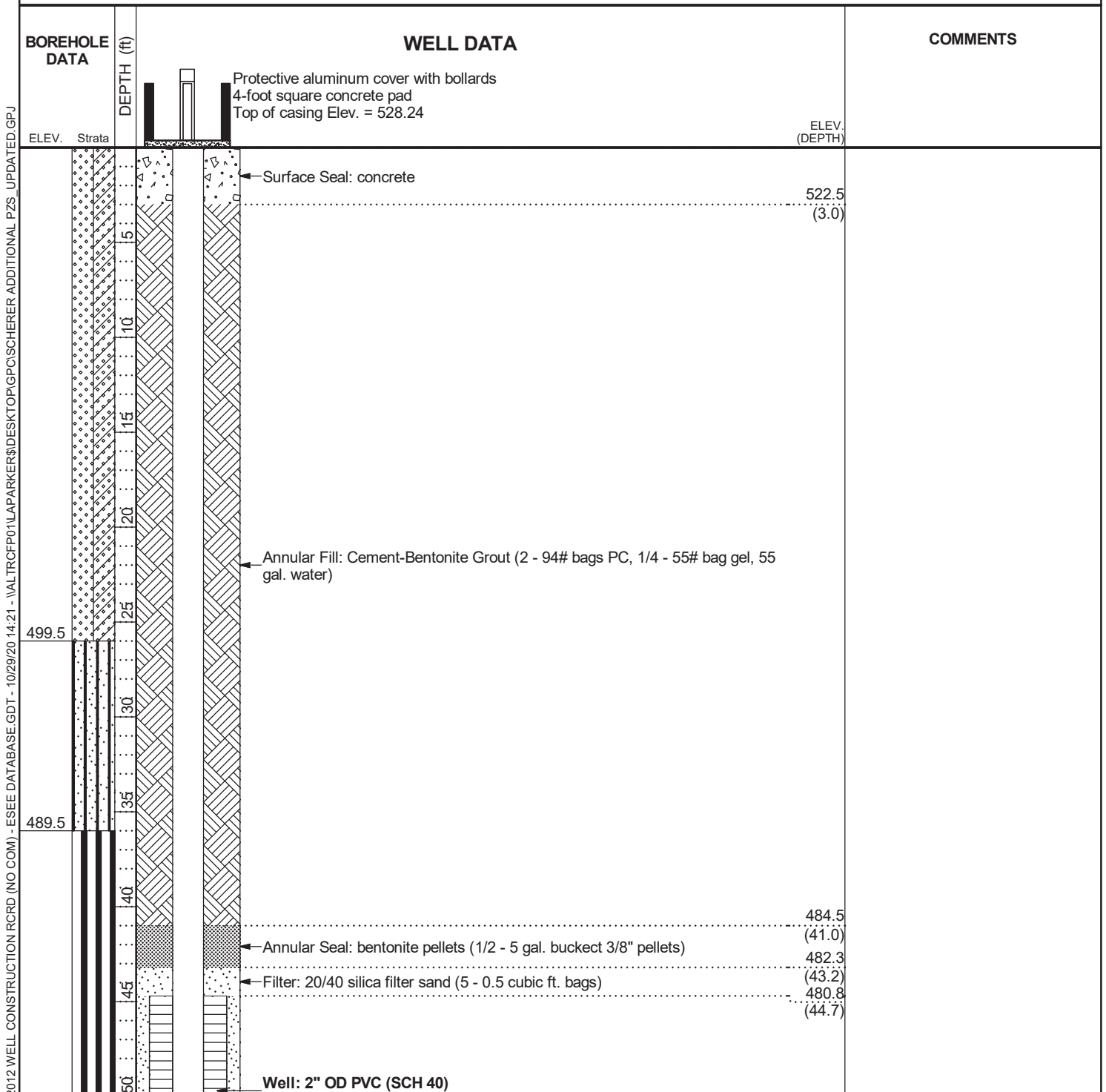
DATE STARTED 5/24/2016 COMPLETED 5/25/2016 GROUND ELEVATION 525.5 ft COORDINATES N 1121848.11 E 2404567.52

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY M. Pope LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 56 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 32.6 ft. after 48 hrs.

NOTES _____



(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: PZ-25 S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 528.24 Screen: 10 ft. 0.010" Slot Prepack	
469.5	55	Sump: 0.20 ft. <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-left: auto;"> 470.7 (54.8) 470.5 (55.0) </div>	

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHEHER ADDITIONAL_PZS_UPDATED.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/1/2016 COMPLETED 6/1/2016 GROUND ELEVATION 489.1 ft COORDINATES N 1121696.65 E 2405733.23

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 46 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 12.5 ft. after 72 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\APARKER\DESKTOP\GFC\SCHERER\ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
				Weak Moderate Strong	
5		Lean Clay (CL) - dark red (2.5YR 3/6) dry, with silt - red (2.5YR 4/6) - red (2.5YR 4/8)			
10		Sandy Silt (ML) - red (2.5YR 4/6) and reddish black (2.5YR 2.5/1) dry, with mica - yellowish red (5YR 4/6) damp, with mica - red (2.5YR 4/6) wet			
20		Poorly-graded Sand with Silt (SP-SM) - mottled yellowish red (5YR 5/8) and black (5YR 2.5/1) fine-grained, with mica - mottled strong brown (7.5YR 4/6) and black (7.5YR 2.5/1)			
35		Elastic Silt (MH) - olive brown (2.5Y 4/4) wet, with fine sand, micaceous			
40		Silty Sand (SM) - light olive brown (2.5Y 5/6) fine-grained, micaceous			
45		Poorly-graded Sand (SP) - gray / light olive gray (5Y 6/1) and white / yellowish gray (5Y 8/1) fine to coarse-grained			
50		Silty Sand (SM) - light olive brown (2.5Y 5/6) fine-grained, micaceous Bottom of borehole at 46.0 feet.			



RECORD OF WELL CONSTRUCTION

WELL: PZ-26 S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/1/2016 COMPLETED 6/1/2016 GROUND ELEVATION 489.1 ft COORDINATES N 1121696.65 E 2405733.23

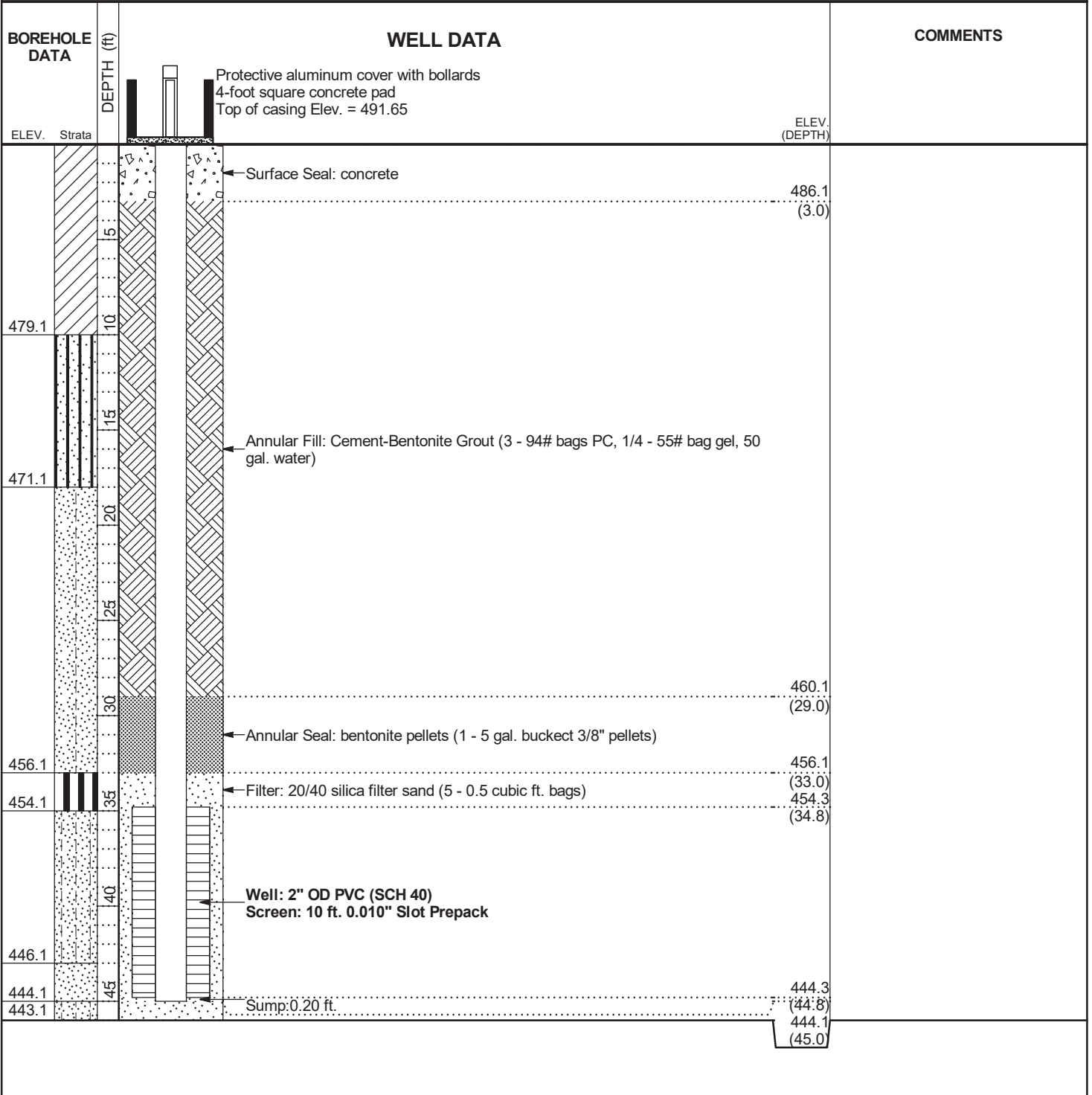
CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 46 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 12.5 ft. after 72 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ





BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/14/2016 COMPLETED 6/17/2016 GROUND ELEVATION 472.4 ft COORDINATES N 1121558.94 E 2406023.17

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY M. Pope LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 126 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 10 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
.....	Clayey Sand (SC) - dark brown (7.5YR 3/3) damp, fine to medium-grained	.....	.....
5	Lean Clay (CL) - mottled yellowish red (5YR 4/6) and yellowish brown (10YR 5/6) damp, medium, with mica	.....	.....
.....	- dark brown (10YR 3/3) with fine quartz gravel	.....	.....
10	Well-graded Sand with Silt (SW-SM) - yellowish red / light brown (5YR 5/6) and yellowish brown (10YR 5/6) moist, fine to coarse-grained, with mica	.....	.....
15	- very dark gray (10YR 3/1) black (10YR 3/1) oxidation mottling	.....	.....
20	- dark brown (7.5YR 3/4) wet	.....	.....
25	- brown (7.5YR 4/3) and strong brown (7.5YR 4/6) fine to coarse-grained	.....	.....
.....	- dark yellowish brown (10YR 4/4) wet	.....	.....
30	Clayey Sand (SC) - grayish brown (2.5Y 5/2) wet, with mica	.....	.....
35	Well-graded Sand with Silt (SW-SM) - grayish brown (2.5Y 5/2) and white / yellowish gray (5Y 8/1) partially weathered rock biotite gneiss, fine to coarse-grained, - olive gray (5Y 4/2) wet, fine to coarse-grained	.....	.....
40	- mottled olive gray (5Y 4/2) and white / yellowish gray (5Y 8/1)	.....	.....
45	- UD tube attempted, crushed due to dense soils - dark grayish brown (2.5Y 4/2) and yellow (2.5Y 7/6) saprolite wet, fine to coarse-grained, with mica	.....	.....
50	Well-graded Sand (SW)	.....	.....

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
55		Well-graded Sand (SW) (Con't) - very dark gray (2.5Y 3/1) and dark grayish brown (2.5Y 4/2) wet, fine to coarse-grained, with mica - very dark greenish gray (10Y 3/1) and greenish black (10Y 2.5/1) with gravel and clay (pulverized rock), biotite gneiss, fresh to highly weathered			
60		Biotite Gneiss - dark gray / olive gray (5Y 4/1) and light gray (5Y 7/1) coarse grain, medium hard to hard, not to slightly weathered, banded, moderately fractured, sub-horizontal fractures - medium hard to hard, inclined, white feldspar and quartz banding, thin to medium bedded - increased granitic composition 61 to 63 ft., light gray with black banding			
65					
70		- very dark gray (5Y 3/1) and black (5Y 2.5/2) coarse grain, medium hard to very hard, not weathered, inclined, intensely to moderately fractured, white banding, thin bedded - increased granitic composition 71 to 73 ft., light gray with black banding			
75					
80		- gray (2.5Y 5/1) coarse grain, medium hard to very hard, folded, moderately fractured, black and white banding			
85					
90					
95		- very dark gray (2.5Y 3/1) completely weathered, 93 to 95 ft.			
100		- light gray (2.5Y 7/1) hard, inclined and folded bedding, moderately fractured, white and dark gray banding, thin to medium bedded, sub-vertical fractures - intensely fractured, 100 to 101 ft.			
105					
110		- gray (2.5Y 5/1) and very dark gray (2.5Y 3/1) coarse grain, hard, not weathered, inclined and folded bedding, moderately fractured, white banding - near vertical bedding 109 to 111 ft.			

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate Strong	
115		Biotite Gneiss (Con't)				
120		- gray (2.5Y 6/1) coarse grain, hard, not weathered, inclined, intensely fractured, white and dark gray banding, near horizontal fractures				
125		- soft				

Bottom of borehole at 126.0 feet.

SAMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LAPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

130
135
140
145
150
155
160
165
170



RECORD OF WELL CONSTRUCTION

WELL: PZ-27 D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/14/2016 COMPLETED 6/17/2016 GROUND ELEVATION 472.4 ft COORDINATES N 1121558.94 E 2406023.17

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY M. Pope LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 126 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 10 ft. after 24 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. Strata</p> <p>470.4</p> <p>463.4</p> <p>445.4</p> <p>440.4</p> <p>423.4</p>	<p style="text-align: center;">DEPTH (ft)</p> <p style="text-align: center;">Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 475.43</p> <p>Surface Seal: concrete</p> <p>Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 75 gal. water)</p>	<p style="text-align: right;">ELEV. (DEPTH)</p> <p style="text-align: right;">467.4 (5.0)</p>

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: PZ-27 D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 475.43	ELEV. (DEPTH)
416.4	55		418.4 (54.0)
	60		
	65		
	70		
	75		
	80	← Annular Seal: bentonite pellets (1 - 5 gal. bucket 3/8" pellets (98-102.5 ft.), 6 - 50# bags 3/8" chips (54-98 ft.)	
	85		
	90		
	95		
	100		
	105	← Filter: 20/40 silica filter sand (10 - 0.5 cubic ft. bags)	369.9 (102.5)
	110		367.6 (104.8)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHEHER ADDITIONAL_PZS_UPDATED.GPJ

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RECORD OF WELL CONSTRUCTION

WELL: PZ-27 D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

BOREHOLE DATA		WELL DATA	COMMENTS
ELEV.	Strata	DEPTH (ft)	ELEV. (DEPTH)
346.4		<p style="text-align: center;">(CONTINUED)</p> <p style="text-align: center;">Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 475.43</p> <p style="text-align: center;">Well: 2" OD PVC (SCH 40) Screen: 20 ft. 0.010" Slots</p> <p style="text-align: center;">Sump: 0.20 ft</p>	<p style="text-align: center;">347.6 (124.8) 347.4 (125.0)</p>

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 5/25/2016 COMPLETED 5/26/2016 GROUND ELEVATION 473.1 ft COORDINATES N 1121565.33 E 2406028.25

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY M. Pope LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 46 ft.

GROUND WATER DEPTH: DURING _____ COMP. 3.5 ft. DELAYED 5.8 ft. after 200 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
.....		Clayey Sand (SC) - dark brown (7.5YR 3/3) damp, fine to medium-grained	.....	.....
5		Lean Clay (CL) - mottled yellowish red (5YR 4/6) and yellowish brown (10YR 5/6) damp, medium, with mica	.....	.....
.....		- dark brown (10YR 3/3) with fine quartz gravel	.....	.....
10		Well-graded Sand with Silt (SW-SM) - yellowish red / light brown (5YR 5/6) and yellowish brown (10YR 5/6) moist, fine to coarse-grained, with mica	.....	.....
15		- very dark gray (10YR 3/1) black (10YR 3/1) oxidation mottling	.....	.....
20		- dark brown (7.5YR 3/4) wet	.....	.....
25		- brown (7.5YR 4/3) and strong brown (7.5YR 4/6) fine to coarse-grained	.....	.....
.....		- dark yellowish brown (10YR 4/4) wet	.....	.....
30		Clayey Sand (SC) - grayish brown (2.5Y 5/2) wet, with mica	.....	.....
35		Well-graded Sand with Silt (SW-SM) - grayish brown (2.5Y 5/2) and white / yellowish gray (5Y 8/1) partially weathered rock biotite gneiss, fine to coarse-grained, - olive gray (5Y 4/2) wet, fine to coarse-grained	.....	.....
40		- mottled olive gray (5Y 4/2) and white / yellowish gray (5Y 8/1)	.....	.....
45			
.....		Bottom of borehole at 46.0 feet.	
50			



RECORD OF WELL CONSTRUCTION

WELL: PZ-27 S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 5/25/2016 **COMPLETED** 5/26/2016 **GROUND ELEVATION** 473.1 ft **COORDINATES** N 1121565.33 E 2406028.25

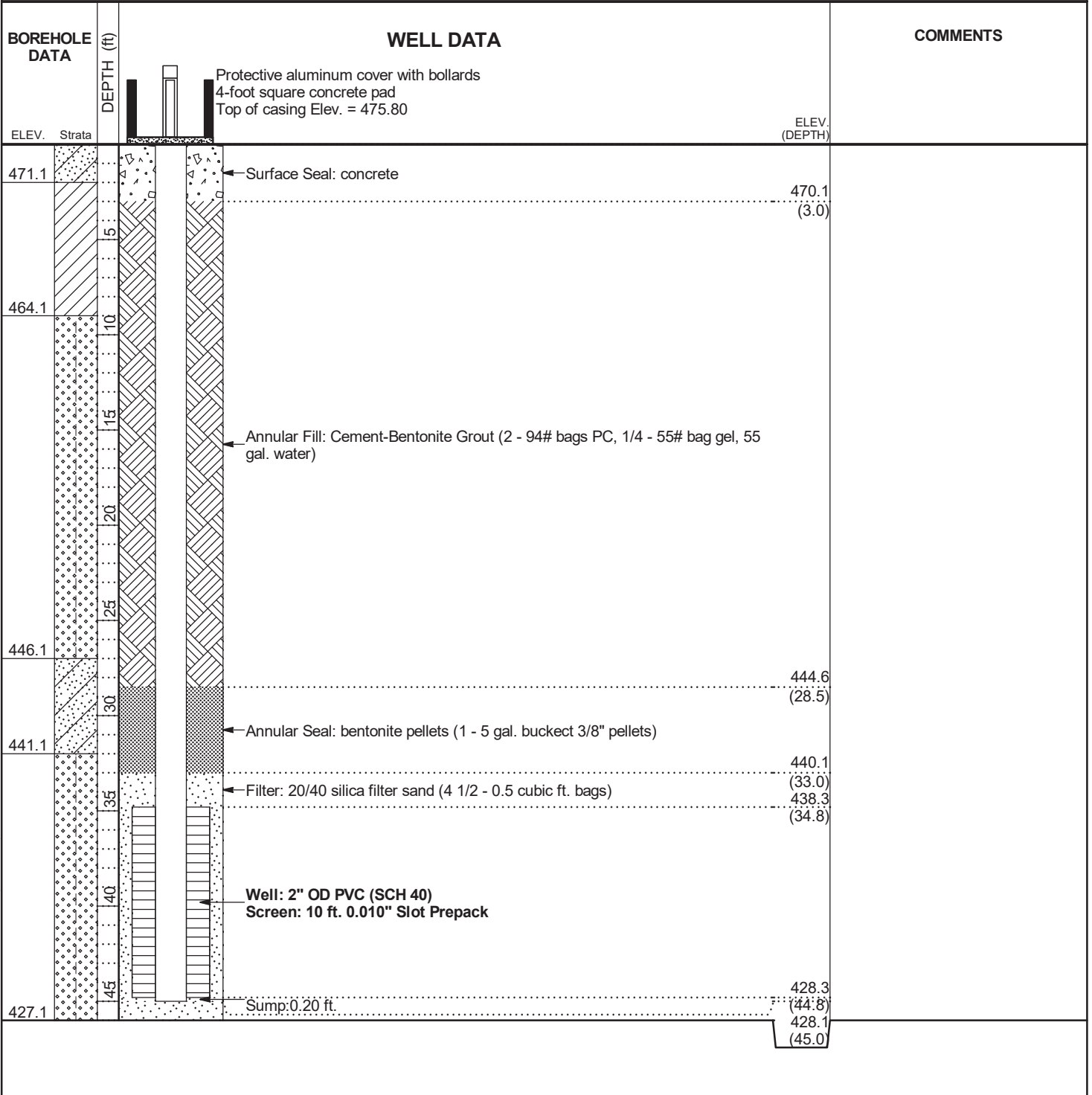
CONTRACTOR Cascade **METHOD** Rotosonic **EQUIPMENT** Tracked

DRILLED BY M. Pope **LOGGED BY** W. Shaughnessy **CHECKED BY** B. Smelser **BORING DEPTH** 46 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** 3.5 ft. **DELAYED** 5.8 ft. after 200 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ





BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/3/2016 COMPLETED 6/3/2016 GROUND ELEVATION 481.4 ft COORDINATES N 1121394.06 E 2406373.94

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY T. Ardito LOGGED BY P. Alexander CHECKED BY B. Smelser BORING DEPTH 70 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 15.5 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\1APARKER\DESKTOP\GFC\SCHEHER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	COMMENTS
5		Silt (ML) - red (2.5YR 5/8) residuum dry, medium stiff, no, micaceous			
10					
15		Poorly-graded Sand with Silt (SP-SM) - yellowish red (5YR 5/8) saprolite moist, loose, fine-grained, with mica, oxidation			
20					
25		Silt (ML) - mottled red (2.5YR 5/6), reddish gray (10R 6/1) and reddish yellow (5YR 6/6) saprolite moist, medium stiff, no, fine-grained, some mica, oxidation			
30		Poorly-graded Sand with Silt (SP-SM) - mottled light gray (2.5Y 7/2), olive brown (2.5Y 4/3) and dusky yellow green (5GY 5/2) saprolite moist, loose			
35					
40					
45		- greenish gray (10Y 5/1) moist			
50		Well-graded Sand (SW) - greenish gray (10Y 5/1), black (N1) and white (N9) moist, loose, biotite and feldspar, some mica			

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RECORD OF WELL CONSTRUCTION

WELL: PZ-28 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/3/2016 COMPLETED 6/3/2016 GROUND ELEVATION 481.4 ft COORDINATES N 1121394.06 E 2406373.94

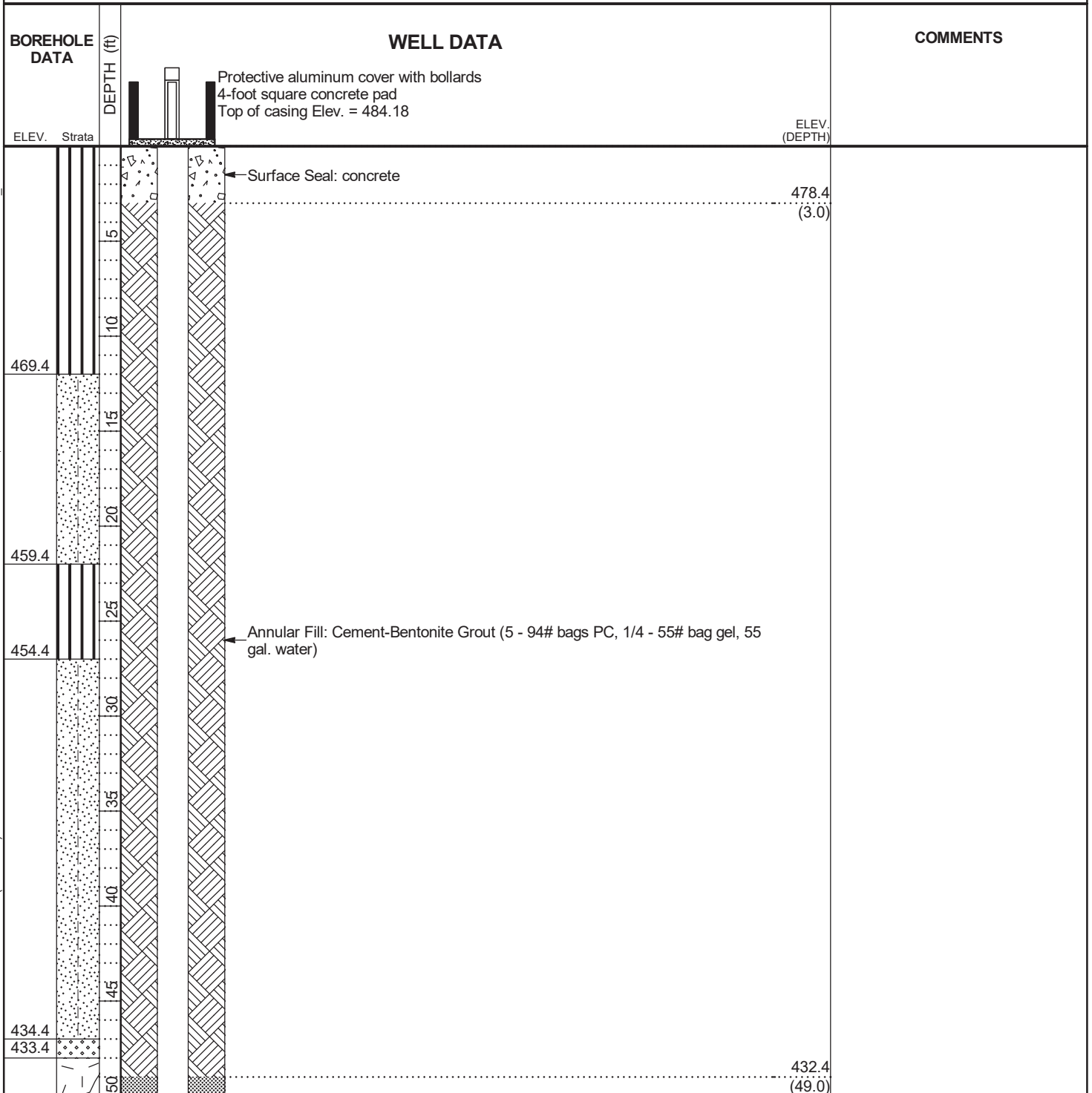
CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY T. Ardito LOGGED BY P. Alexander CHECKED BY B. Smelser BORING DEPTH 70 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 15.5 ft. after 24 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPCISCHERER\ADDITIONAL_PZS_UPDATED.GPJ



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RECORD OF WELL CONSTRUCTION

WELL: PZ-28 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 484.18	ELEV. (DEPTH)
411.4	55	← Annular Seal: bentonite pellets (3/4 - 5 gal. bucket 3/8" pellets)	427.4 (54.0)
	60	← Filter: 20/40 silica filter sand (4 1/2 - 0.5 cubic ft. bags)	422.8 (58.6)
	65	Well: 2" OD PVC (SCH 40) Screen: 9.999999999999999 ft. 0.010" Slot Prepack	
	70	Sump: 0.20 ft	412.8 (68.6) 412.6 (68.8)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCF001\APARKER\DESKTOP\GPC\SCHERER ADDITIONAL PZS_UPDATED.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 5/26/2016 COMPLETED 5/26/2016 GROUND ELEVATION 488.5 ft COORDINATES N 1121269.19 E 2406618.29

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY M. Pope LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 46 ft.

GROUND WATER DEPTH: DURING _____ COMP. 22 ft. DELAYED 26.9 ft. after 100 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	COMMENTS
0		Sandy Lean Clay (CL) - red (2.5YR 4/8) dry, with mica			
5		Sandy Silt (ML) - red (2.5YR 4/8) with mica			
10		- mottled strong brown (7.5YR 5/6) and black (7.5YR 2.5/1) dry			
15					
20					
25		Well-graded Sand with Silt (SW-SM) - dark yellowish brown (10YR 4/4) damp, fine to medium-grained			
30		▼ - olive brown (2.5Y 4/4)			
35		- light olive brown (2.5Y 5/6) - mottled olive (5Y 4/3) and pale yellow (5Y 7/4)			
40		- olive brown (2.5Y 4/3)			
45		- mottled olive gray / light olive gray (5Y 5/2) and dark greenish gray (10Y 4/1) weathered biotite gneiss			
46.0		Bottom of borehole at 46.0 feet.			
50					



RECORD OF WELL CONSTRUCTION

WELL: PZ-29 S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 5/26/2016 COMPLETED 5/26/2016 GROUND ELEVATION 488.5 ft COORDINATES N 1121269.19 E 2406618.29

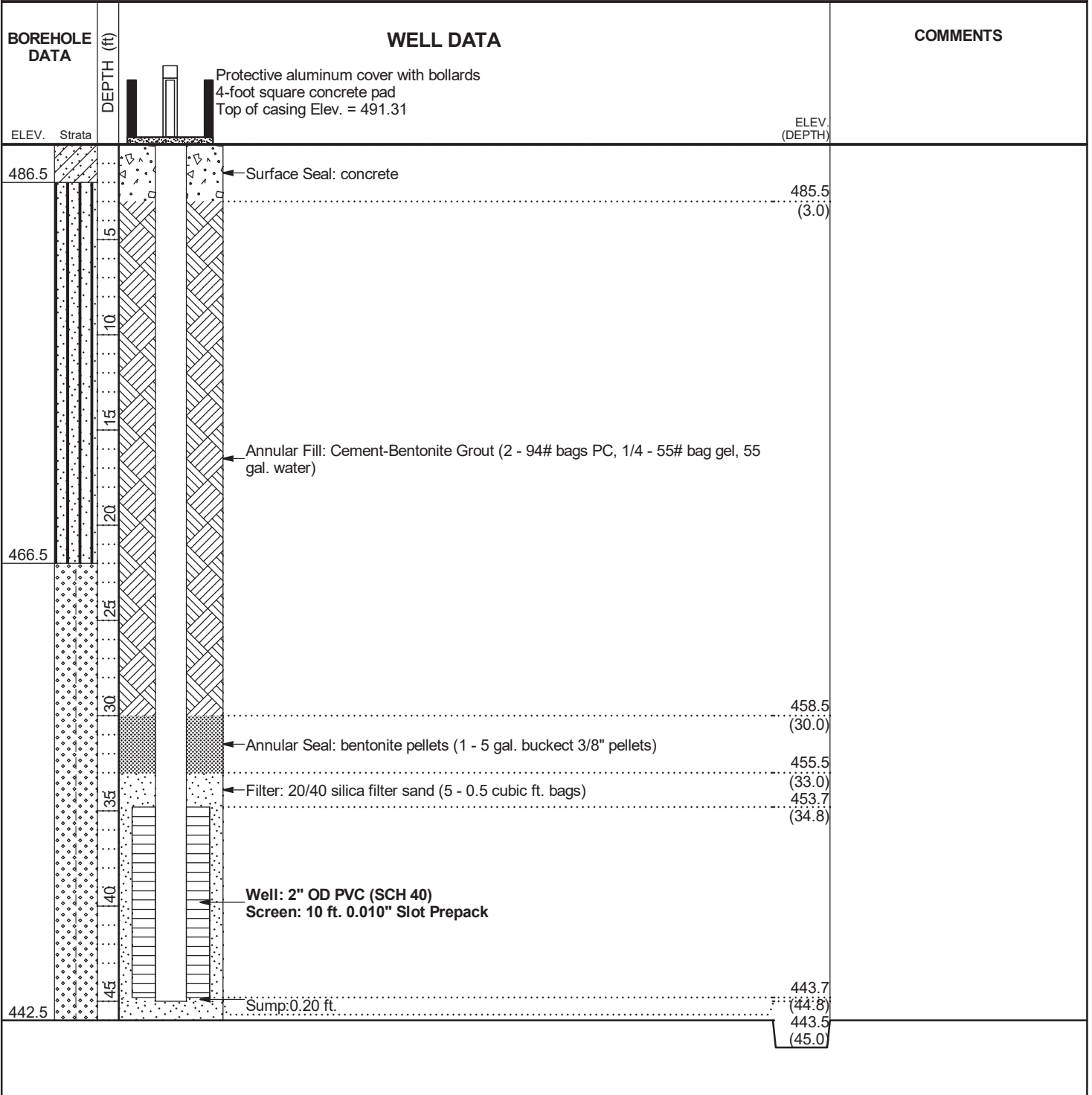
CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY M. Pope LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 46 ft.

GROUND WATER DEPTH: DURING _____ COMP. 22 ft. DELAYED 26.9 ft. after 100 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ





BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/2/2016 COMPLETED 6/2/2016 GROUND ELEVATION 475.6 ft COORDINATES N 1121073.53 E 2407078.99

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY T. Ardito LOGGED BY P. Alexander CHECKED BY B. Smelser BORING DEPTH 87 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 18.9 ft. after 24 hrs.

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\APARKER\DESKTOP\GFC\SCHEHER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
				Weak Moderate Strong	
5		Sandy Silt (ML) - red (2.5YR 5/6) residuum dry, stiff, no, fine-grained, trace mica - damp			
10					
15		Silt (ML) - mottled yellowish red / light brown (5YR 5/6) and strong brown (7.5YR 5/6) residuum dry, soft, low, fine-grained, trace mica, oxidation			
20		Poorly-graded Sand with Silt (SP-SM) - brown (7.5YR 5/4) residuum moist, loose, fine-grained, with mica			
25					
30					
35		Sandy Silt (ML) - mottled brown (7.5YR 5/4) and reddish yellow (7.5YR 8/6) saprolite moist, no, with mica, oxidation			
40		Poorly-graded Sand with Silt (SP-SM) - light brownish gray (2.5Y 6/2) moist, loose, fine-grained - sub-vertical fractures - mottled light red / moderate reddish orange (10R 6/6) and very pale brown / very pale orange (10YR 8/2) saprolite folded fabric			
45					
50		- white (N9), very pale brown (10YR 7/3) and reddish brown (2.5YR 4/4) - very dark grayish brown (2.5Y 3/2) moist, fine-grained, some mica			

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\IAPARKER\DESKTOP\GFC\SCHERER\ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
55		Poorly-graded Sand with Silt (SP-SM)(Con't)			
60		Biotite Gneiss - olive gray / light olive gray (5Y 5/2) and pale yellow (2.5Y 8/4) very soft, highly weathered, banded			
65		- dark gray (N3) and very light gray (N8) soft, highly weathered, banded			
70		- black (5Y 2.5/1) and light olive brown (2.5Y 5/4) moderately to highly weathered			
75					
80		- very dark greenish gray (10Y 3/1) and very light gray (N8) soft, moderately weathered, foliated			
85					
Bottom of borehole at 87.0 feet.					
90					
95					
100					
105					
110					



RECORD OF WELL CONSTRUCTION

WELL: PZ-30 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/2/2016 COMPLETED 6/2/2016 GROUND ELEVATION 475.6 ft COORDINATES N 1121073.53 E 2407078.99

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY T. Ardito LOGGED BY P. Alexander CHECKED BY B. Smelser BORING DEPTH 87 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 18.9 ft. after 24 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. Strata</p> <p>461.6</p> <p>457.6</p> <p>444.6</p> <p>438.6</p>	<p style="text-align: center;">Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 478.31</p> <p>← Surface Seal: concrete</p> <p>← Annular Fill: Cement-Bentonite Grout (6 - 94# bags PC, 1/2 - 55# bag gel, 70 gal. water)</p>	<p style="text-align: right;">ELEV. (DEPTH)</p> <p style="text-align: right;">472.6 (3.0)</p>

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RECORD OF WELL CONSTRUCTION

WELL: PZ-30 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 478.31	ELEV. (DEPTH)
419.6	55		
	60		
	65		410.5 (65.1)
	70	← Annular Seal: bentonite pellets (1 - 5 gal. bucket 3/8" pellets)	405.6 (70.0)
	75	← Filter: 20/40 silica filter sand (6 - 0.5 cubic ft. bags)	400.5 (75.1)
	80	Well: 2" OD PVC (SCH 40) Screen: 10 ft. 0.010" Slot Prepack	
	85	Sump: 0.20 ft.	390.5 (85.1)
388.6			390.3 (85.3)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPCISCHERER ADDITIONAL - PZS_UPDATED.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/1/2016 COMPLETED 6/2/2016 GROUND ELEVATION 464.0 ft COORDINATES N 1121204.03 E 2407445.73

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY T. Ardito LOGGED BY P. Alexander CHECKED BY B. Smelser BORING DEPTH 77 ft.

GROUND WATER DEPTH: DURING _____ COMP. 24 ft. DELAYED 28.1 ft. after 200 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
				Weak Moderate Strong	
5		Silt (ML) - red (10R 5/6) residuum dry, stiff, no, trace mica			
10					
15		- red (2.5YR 5/8) residuum dry, some mica - oxidation			
20		Poorly-graded Sand with Silt (SP-SM) - mottled reddish yellow (7.5YR 6/6) and pink / moderate orange pink (5YR 8/4) residuum damp, loose, fine-grained			
25		Silt (ML) - strong brown (7.5YR 4/6) and white (N9) residuum moist, soft, fine-grained, feldspar and biotite			
30		Poorly-graded Sand with Silt (SP-SM) - greenish gray (5G 5/1) and very light gray (N8) saprolite moist, fine-grained, some mica			
35					
40		Biotite Gneiss - yellowish brown / moderate yellowish brown (10YR 5/4), light greenish gray (10Y 7/1) and white (N9) highly weathered, feldspar banding			
45		- greenish gray (5GY 5/1) and greenish black (5GY 2.5/1) soft, highly weathered, feldspar banding			
50					

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\VALTRCFP01\1APARKER\DESKTOP\GFCVCSCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
..... 55 60 65 70 75		<p>Biotite Gneiss (Con't)</p> <p>- dark gray (N3) and very light gray (N8) soft to medium hard, moderately weathered, felspar banding</p> <p>- bluish black (10B 2.5/1) and white (N9) very hard, slightly weathered, horizontal and sub-vertical fractures, felspar banding</p>		Weak Moderate Strong	
..... 80 85 90 95 100 105 110		<p>Bottom of borehole at 77.0 feet.</p>			



RECORD OF WELL CONSTRUCTION

WELL: PZ-31 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/1/2016 COMPLETED 6/2/2016 GROUND ELEVATION 464 ft COORDINATES N 1121204.03 E 2407445.73

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY T. Ardito LOGGED BY P. Alexander CHECKED BY B. Smelser BORING DEPTH 77 ft.

GROUND WATER DEPTH: DURING _____ COMP. 24 ft. DELAYED 28.1 ft. after 200 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCF001\APARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. Strata</p> <p style="text-align: right;">ELEV. (DEPTH)</p>	<p style="text-align: center;">Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 466.89</p> <p>← Surface Seal: concrete</p> <p>← Annular Fill: Cement-Bentonite Grout (6 - 94# bags PC, 1/2 - 55# bag gel, 70 gal. water)</p>	<p style="text-align: right;">461.0 (3.0)</p>
<p>448.0</p>		
<p>443.0</p>		
<p>436.0</p>		
<p>425.0</p>		

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: PZ-31 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 466.89	ELEV. (DEPTH)
387.0	55		408.0 (56.0)
	60	← Annular Seal: bentonite pellets (3/4 - 5 gal. bucket 3/8" pellets)	403.0 (61.0)
	65	← Filter: 20/40 silica filter sand (7 1/2 - 0.5 cubic ft. bags)	399.1 (64.9)
	70	Well: 2" OD PVC (SCH 40) Screen: 10 ft. 0.010" Slot Prepack	389.1 (74.9)
	75	Sump: 0.20 ft.	388.9 (75.1)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPCISCHERER ADDITIONAL PZS_UPDATED.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 5/31/2016 COMPLETED 6/1/2016 GROUND ELEVATION 462.4 ft COORDINATES N 1121089.64 E 2407719.37

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 126.5 ft.

GROUND WATER DEPTH: DURING _____ COMP. 23.5 ft. DELAYED 24.5 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	COMMENTS
5		Silt (ML) - red (2.5YR 4/6) residuum dry, stiff, no			
10		Clayey Sand (SC) - red (10R 5/6) dry, loose, fine-grained, some oxidation			
15		Sandy Silt (ML) - reddish yellow (5YR 6/6) dry			
20		Silty Sand (SM) - mottled reddish brown (5YR 5/4) and very dark gray (7.5YR 3/1) dry, loose, fine-grained, trace mica - strong brown (7.5YR 5/8) moist			
25		- light brown (7.5YR 6/4) - mottled light yellowish brown (10YR 6/4) and light olive brown (2.5Y 5/4)			
30		Sandy Silt (ML) - bluish gray (10B 5/1) and white (N9) moist, medium stiff, some clay, varying amounts of sand			
35		Poorly-graded Sand with Clay (SP-SC) - white (7.5YR 8/1), very dark bluish gray (10B 3/1) and very dark gray (10YR 3/1) moist, loose, fine-grained - 2" sand (SW) seam at 41 ft.			
40		Well-graded Sand (SW) - greenish black (10GY 2.5/1) saprolite medium to coarse-grained, weathered biotite gneiss, some silt, pulverized rock (sand with gravel)			
45					
50					

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\APARKER\DESKTOP\GFC\SCHERER\ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
55		Well-graded Sand (SW)(Con't) - SW: - greenish black (10GY 2.5/1) medium to coarse-grained, weathered biotite gneiss, some silt - very dark greenish gray (5GY 3/1)			
65		Well-graded Sand with Silt (SW-SM) - very dark gray (7.5YR 3/1) medium to coarse-grained, some gravel (slightly decomposed biotite gneiss) - mottled very dark greenish gray (10GY 3/1) and white (7.5YR 8/1) weathered biotite gneiss			
70		Biotite Gneiss - dark gray (7.5YR 4/1) medium to coarse grain, medium hard to hard, slightly to highly weathered, thin to medium bedding, vuggy, moderately fractured, white feldspar and quartz banding - yellowish red (5YR 5/8) water staining - dark gray / brownish gray (5YR 4/1) and black (5YR 2.5/1) medium to coarse grain, not to slightly weathered, inclined, white banding - slightly fractured			
85		- not to moderately weathered			
86		- slightly fractured, feldspar rich 84-86 ft.			
90		Granitic Gneiss - white (10YR 8/1) and gray (10YR 6/1) medium to coarse grain, hard, not to slightly weathered, inclined, banded, slightly fractured			
95					
100		Biotite Gneiss - dark gray (10YR 4/1) and black (10YR 2/1) medium to coarse grain, not to slightly weathered, medium bedded, white banding			
105		Granitic Gneiss - gray (10YR 6/1) and pink (5YR 7/3) medium to coarse grain, not weathered			
110		Biotite Gneiss - dark gray (10YR 4/1), black (10YR 2/1) and white (10YR 8/1) not weathered, medium bedded, slightly to moderately fractured, sub-horizontal			

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate		Strong
115		fractures Biotite Gneiss (Con't) - quartz healed fractures (sub-vertical) - medium to coarse sand in fractures				
120		- coarse grain, not to highly weathered, medium bedded, moderately fractured, alternating competent rock and sand filled fractures				
125						
Bottom of borehole at 126.5 feet.						
130						
135						
140						
145						
150						
155						
160						
165						
170						

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ



RECORD OF WELL CONSTRUCTION

WELL: PZ-32 D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 5/31/2016 COMPLETED 6/1/2016 GROUND ELEVATION 462.4 ft COORDINATES N 1121089.64 E 2407719.37

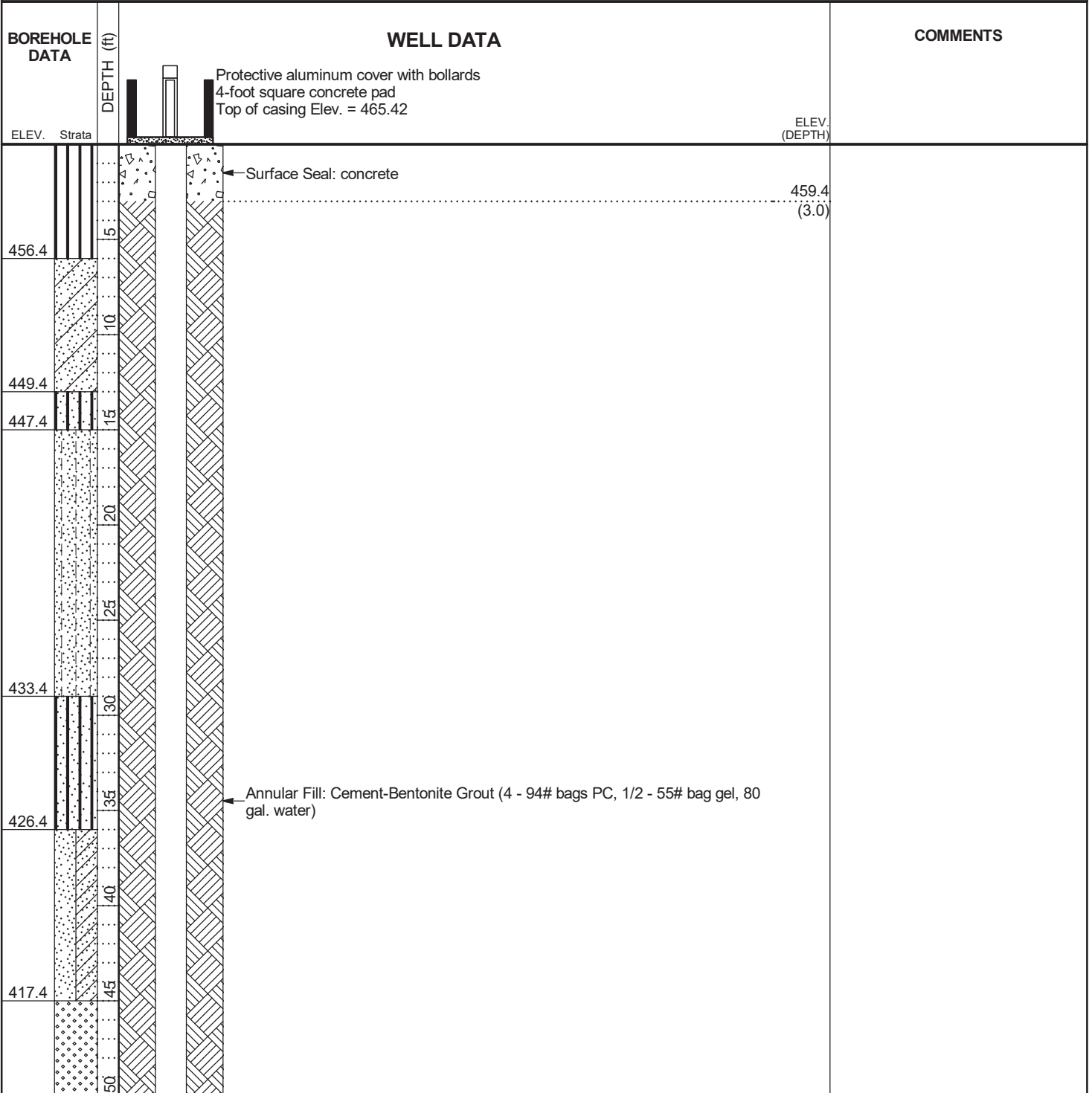
CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 126.5 ft.

GROUND WATER DEPTH: DURING _____ COMP. 23.5 ft. DELAYED 24.5 ft. after 24 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPCISCHERER\ADDITIONAL_PZS_UPDATED.GPJ



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RECORD OF WELL CONSTRUCTION

WELL: PZ-32 D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 465.42	ELEV. (DEPTH)
2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\ISCHERER\ADDITIONAL_PZS_UPDATED.GPJ	55 60 65 70 75 80 85 90 95 100 105 110	<p>Annular Seal: bentonite pellets (1 - 5 gal. bucket 3/8" pellets (89-93 ft.), 6 - 50# bags 3/8" chips (66-89 ft.))</p> <p>Filter: 20/40 silica filter sand (15 1/2 - 0.5 cubic ft. bags)</p>	399.4 396.4 (66.0) 372.4 369.4 (93.0) 366.6 (95.8) 362.4 358.4 356.4

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: PZ-32 D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 465.42 Well: 2" OD PVC (SCH 40) Screen: 30 ft. 0.010" Slots	ELEV. (DEPTH)
335.9	125		336.6 336.4

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPCISCHERER ADDITIONAL PZS_UPDATED.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 5/31/2016 COMPLETED 6/1/2016 GROUND ELEVATION 462.3 ft COORDINATES N 1121089.22 E 2407698.44

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY P. Alexander CHECKED BY B. Smelser BORING DEPTH 57 ft.

GROUND WATER DEPTH: DURING 26 ft. COMP. 21.3 ft. DELAYED 23.8 ft. after 200 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION			COMMENTS
				Weak	Moderate	Strong	
5		Silt (ML) - red (2.5YR 4/6) residuum dry, stiff, no					
10		Clayey Sand (SC) - red (10R 5/6) dry, loose, fine-grained, some oxidation					
15		Sandy Silt (ML) - reddish yellow (5YR 6/6) dry					
20		Silty Sand (SM) - mottled reddish brown (5YR 5/4) and very dark gray (7.5YR 3/1) dry, loose, fine-grained, trace mica - strong brown (7.5YR 5/8) moist					
25		- light brown (7.5YR 6/4)					
30		- mottled light yellowish brown (10YR 6/4) and light olive brown (2.5Y 5/4)					
35		Sandy Silt (ML) - bluish gray (10B 5/1) and white (N9) moist, medium stiff, some clay, varying amounts of sand					
40		Poorly-graded Sand with Clay (SP-SC) - white (7.5YR 8/1), very dark bluish gray (10B 3/1) and very dark gray (10YR 3/1) moist, loose, fine-grained - 2" sand (SW) seam at 41 ft.					
45		Well-graded Sand (SW) - greenish black (10GY 2.5/1) saprolite medium to coarse-grained, weathered biotite gneiss, some silt, pulverized rock (sand with gravel)					
50							


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BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
..... 55		Well-graded Sand (SW)(Con't)		Weak Moderate Strong	
		Bottom of borehole at 57.0 feet.			
60					
65					
70					
75					
80					
85					
90					
95					
100					
105					
110					

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\IAPARKER\DESKTOP\GFCVSCHEHER ADDITIONAL PZS.GPJ



RECORD OF WELL CONSTRUCTION

WELL: PZ-32 S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 5/31/2016 COMPLETED 6/1/2016 GROUND ELEVATION 462.3 ft COORDINATES N 1121089.22 E 2407698.44

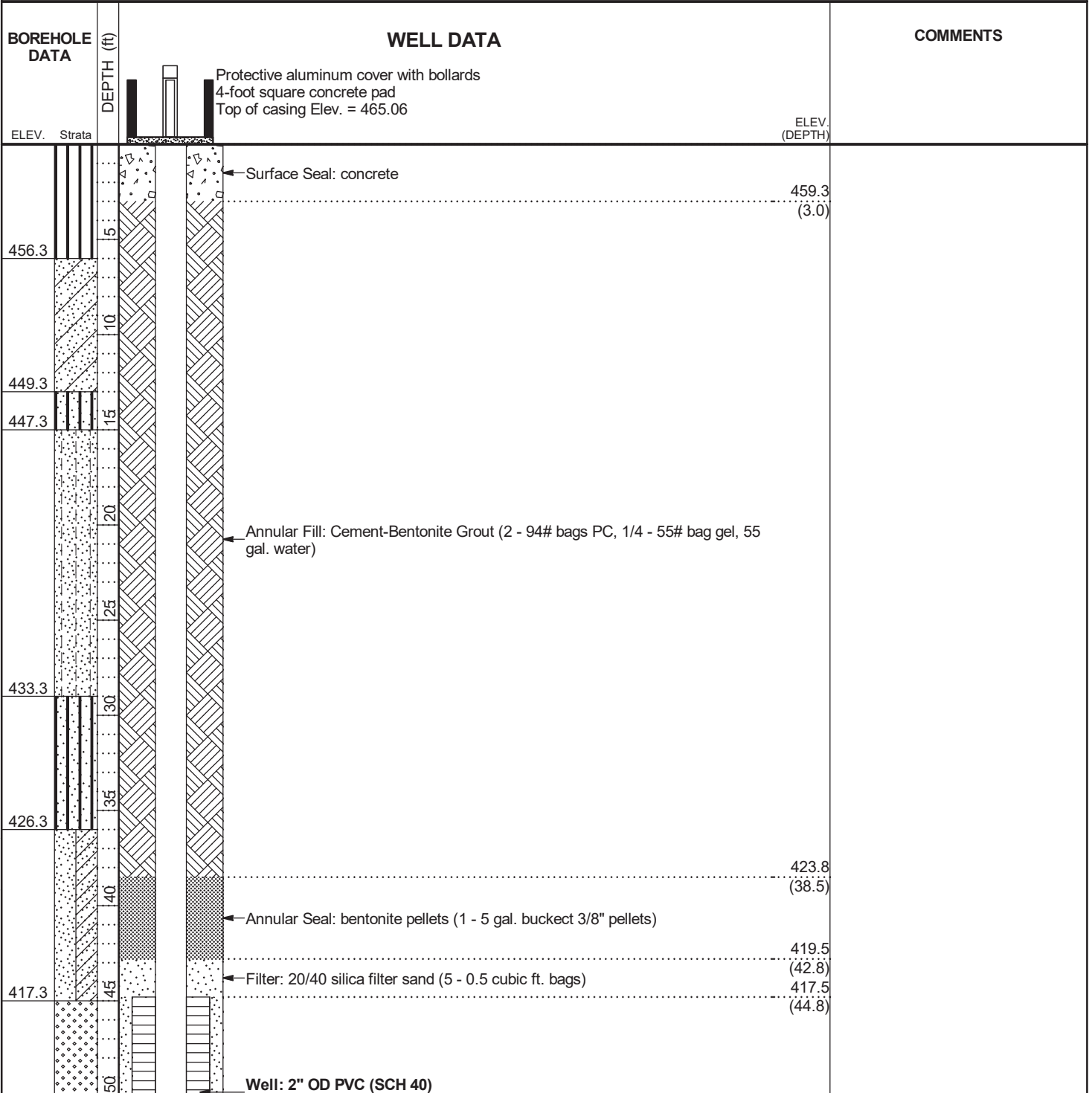
CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY P. Alexander CHECKED BY B. Smelser BORING DEPTH 57 ft.

GROUND WATER DEPTH: DURING 26 ft. COMP. 21.3 ft. DELAYED 23.8 ft. after 200 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ



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RECORD OF WELL CONSTRUCTION

WELL: PZ-32 S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 465.06 Screen: 10 ft. 0.010" Slot Prepack	
405.3	55	Sump: 0.20 ft.	ELEV. (DEPTH) 407.5 (54.8) 407.3 (55.0)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\ISCHERER ADDITIONAL_PZS_UPDATED.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/7/2016 COMPLETED 6/8/2016 GROUND ELEVATION 466.4 ft COORDINATES N 1121245.25 E 2409064.05

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 76.5 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 39 ft. after 100 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\ISCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	COMMENTS
5		Sandy Lean Clay (CL) - red (2.5YR 4/6) dry, no			
10		Sandy Silt (ML) - red (2.5YR 4/6) dry, no - yellowish red / light brown (5YR 5/6)			
15		Well-graded Sand with Silt (SW-SM) - mottled yellowish red / light brown (5YR 5/6) and black (5YR 2.5/1) dry, fine to coarse-grained			
20					
25					
30		Clayey Sand (SC) - mottled strong brown (7.5YR 5/8), yellowish brown (10YR 5/8) and white (10YR 8/1) dry, fine to medium-grained			
35					
40					
45		Well-graded Sand with Silt (SW-SM) - mottled light olive brown (2.5Y 5/3), white (2.5Y 8/1) and black (2.5Y 2.5/1) damp, fine to coarse-grained, with mica			
50		Well-graded Sand (SW) - olive gray / light olive gray (5Y 5/2), greenish gray (5GY 5/1) and white (2.5Y 8/1) saprolite wet, fine to coarse-grained, weathered gneiss			

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\1APARKER\DESKTOP\GFCVSCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
55		Well-graded Sand (SW)(Con't) - mottled dark gray (7.5YR 4/1) and white (N9)			
60		Well-graded Sand with Silt (SW-SM) - very dark greenish gray (10Y 3/1) wet, fine to coarse-grained, with gravel (pulverized rock/biotite gneiss)			
75		Biotite Gneiss - dark greenish gray (10G 4/1) coarse grain, medium hard to soft, moderately to highly weathered, vuggy, black and white banding, quartz and feldspar - Driller indicated competent rock at 76.5 ft.			
Bottom of borehole at 76.5 feet.					
80					
85					
90					
95					
100					
105					
110					



RECORD OF WELL CONSTRUCTION

WELL: PZ-33 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

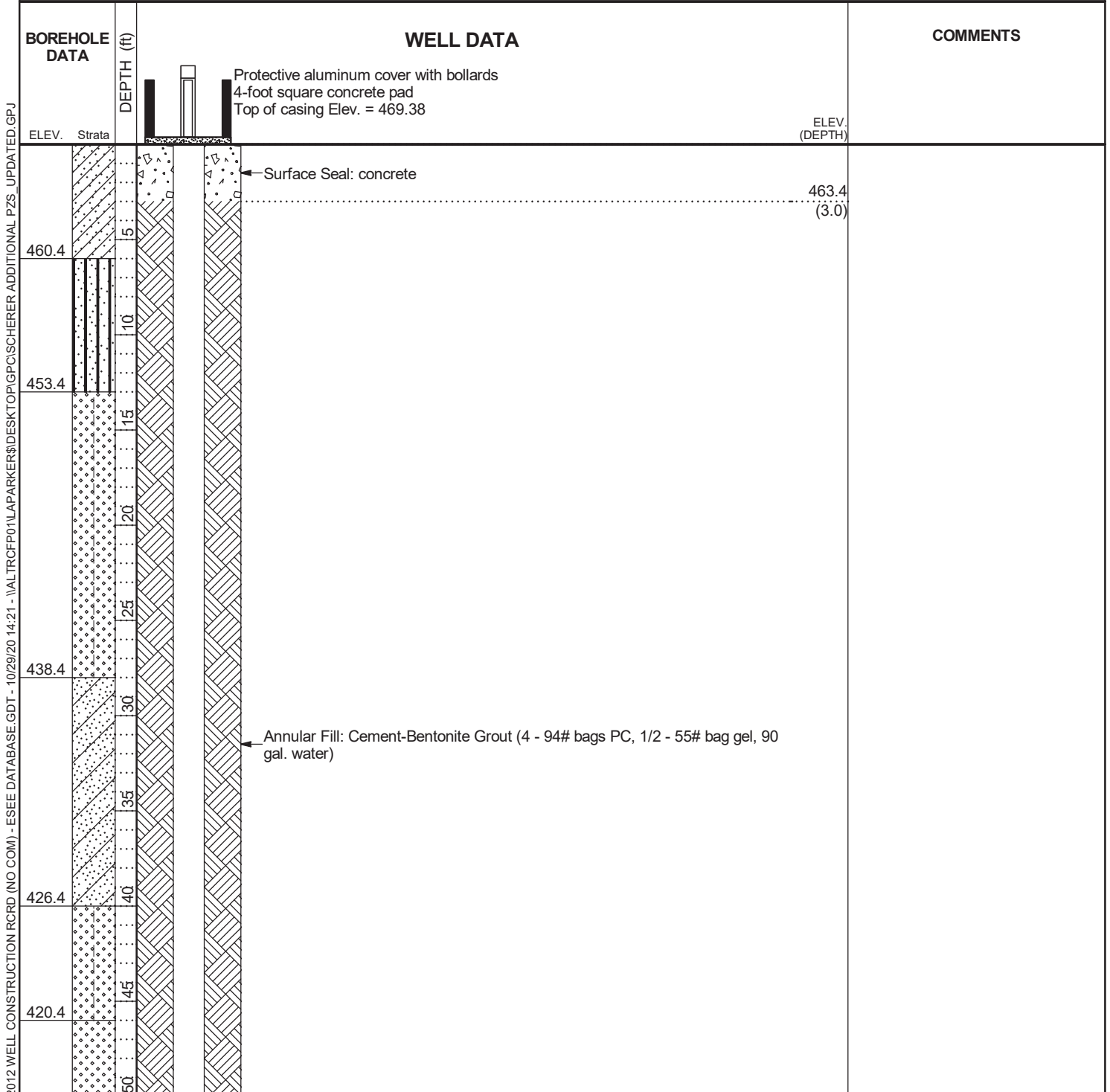
DATE STARTED 6/7/2016 COMPLETED 6/8/2016 GROUND ELEVATION 466.4 ft COORDINATES N 1121245.25 E 2409064.05

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 76.5 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 39 ft. after 100 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ

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RECORD OF WELL CONSTRUCTION

WELL: PZ-33 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\SCHERER ADDITIONAL_PZS_UPDATED.GPJ

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 469.38	
410.4	55		
	60		ELEV. (DEPTH) 406.4 (60.0)
	65	← Annular Seal: bentonite pellets (1 - 5 gal. bucket 3/8" pellets)	402.4 (64.0)
		← Filter: 20/40 silica filter sand (4 1/2 - 0.5 cubic ft. bags)	400.6 (65.8)
394.4	70	Well: 2" OD PVC (SCH 40) Screen: 10 ft. 0.010" Slot Prepack	
389.9	75	Sump: 0.20 ft.	390.6 390.4



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/3/2016 COMPLETED 6/4/2016 GROUND ELEVATION 440.8 ft COORDINATES N 1121331.59 E 2409288.37

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 46 ft.

GROUND WATER DEPTH: DURING _____ COMP. 13 ft. DELAYED _____

NOTES _____

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFCVSCHERER\ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION		COMMENTS
				Weak	Moderate		Strong
5		Lean Clay (CL) - red (2.5YR 4/6) dry, no				
10		Sandy Silt (ML) - reddish brown (2.5YR 4/4) Elastic Silt (MH) - mottled strong brown (7.5YR 5/6) and black (7.5YR 2.5/1) damp, medium				
15		Well-graded Sand with Silt (SW-SM) - mottled yellowish brown (10YR 5/6), black (10YR 2/1) and white (10YR 8/1) damp, fine to medium-grained				
20		- mottled light olive brown (2.5Y 5/4), black (10YR 2/1) and white (10YR 8/1) saprolite				
25		- light olive brown (2.5Y 5/3) moist - mottled olive (5Y 5/3) and strong brown (7.5YR 5/6) wet				
30		- olive gray / light olive gray (5Y 5/2)				
35		- mottled olive gray / light olive gray (5Y 5/2), strong brown (7.5YR 5/6) and white (7.5YR 8/1) weathered feldspar				
40						
45		- mottled dark gray (2.5Y 4/1) and white (7.5YR 8/1) weathered biotite gneiss				
50		Bottom of borehole at 46.0 feet.				



RECORD OF WELL CONSTRUCTION

WELL: PZ-34 S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/3/2016 COMPLETED 6/4/2016 GROUND ELEVATION 440.8 ft COORDINATES N 1121331.59 E 2409288.37

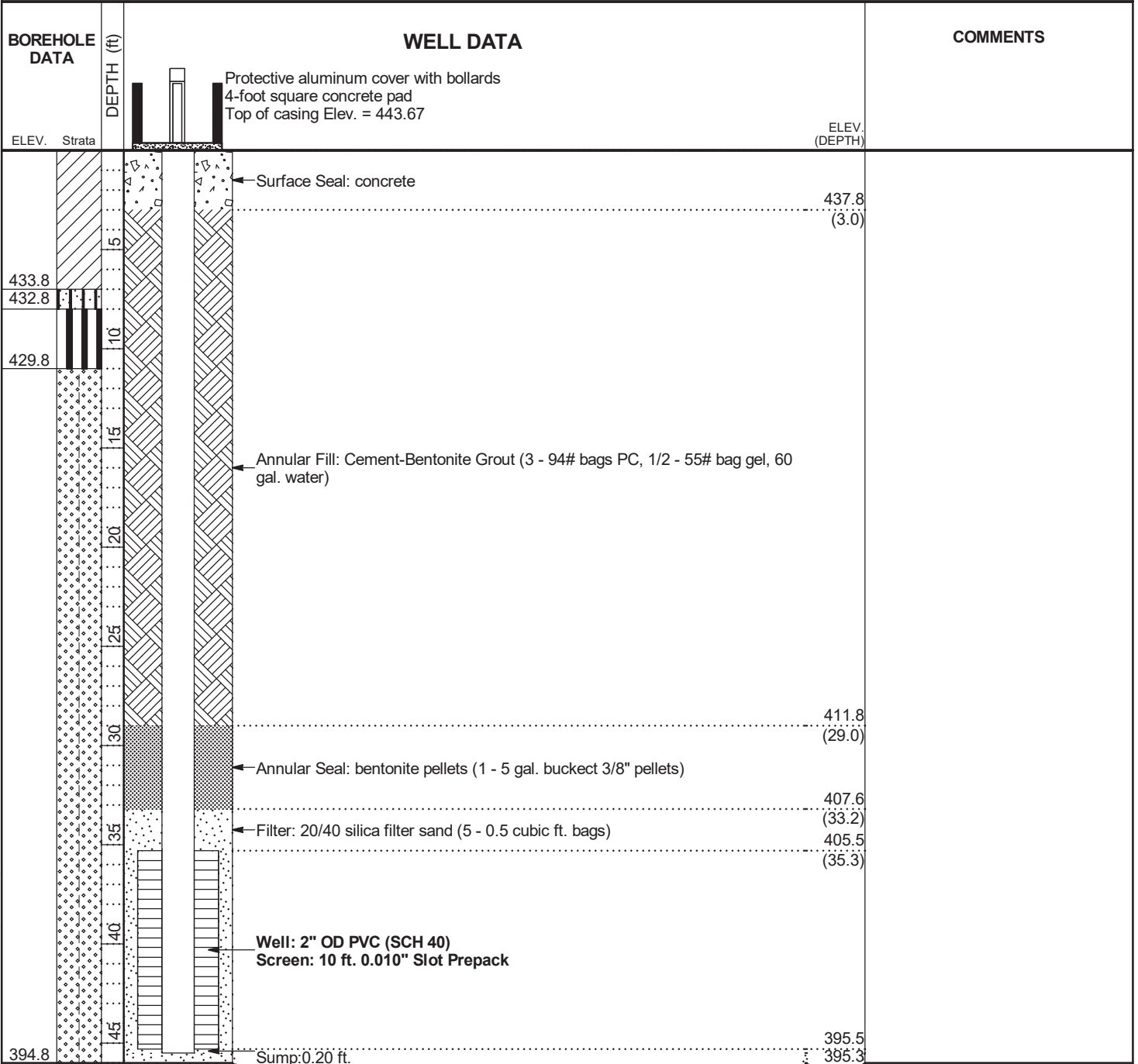
CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 46 ft.

GROUND WATER DEPTH: DURING _____ COMP. 13 ft. DELAYED _____

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPC\ISCHERER\ADDITIONAL PZS_UPDATED.GPJ





BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/22/2016 COMPLETED 6/22/2016 GROUND ELEVATION 474.6 ft COORDINATES N 1121598.57 E 2406058.33

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 56 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 5.3 ft. after 100 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFCISCHERER\ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION			COMMENTS
				Weak	Moderate	Strong	
5		Sandy Silt (ML) - dark red (2.5YR 3/6) dry					
		Poorly-graded Sand with Silt (SP-SM) - dark red (10R 3/6) dry					
		Clayey Sand (SC) - dark reddish brown (2.5YR 3/4) dry, cohesive - yellowish red / light brown (5YR 5/6)					
10		Poorly-graded Sand with Silt (SP-SM) - mottled red (2.5YR 4/6) and brown (7.5YR 4/4) moist, fine-grained, micaceous					
15		- mottled light yellowish brown (10YR 6/4), red (2.5YR 4/6) and black (N1) micaceous (biotite and muscovite), oxidation - mottled brown (7.5YR 4/4), yellowish red / light brown (5YR 5/6) and black (N1) saprolite wet, micaceous					
20		- mottled light yellowish brown (10YR 6/4) and strong brown (7.5YR 5/8)					
25		Well-graded Sand with Silt (SW-SM) - mottled strong brown (7.5YR 4/6) and black (N1) wet, fine to coarse-grained, micaceous					
30		- mottled brown (10YR 5/3) and white (N9) weathered feldspar					
35		Poorly-graded Sand (SP) - mottled dark gray (2.5Y 4/1) and light olive brown (2.5Y 5/6) fine-grained					
40		Well-graded Sand with Silt (SW-SM) - damp - olive brown (2.5Y 4/3) fine to coarse-grained - SW: - olive brown (2.5Y 4/3), white (N9) and light gray (10YR 7/1) with gravel (residual/pulverized rock)					
45							
50		Well-graded Sand with Clay (SW-SC) - dark greenish gray (10Y 4/1) with gravel (residual/pulverized rock)					

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
55		Biotite Gneiss - dark gray (10YR 4/1) and light gray (10YR 7/1) medium to coarse grain, medium hard to hard, slightly to highly weathered, inclined, moderate to intensely fractured, white banding		Weak Moderate Strong	
Bottom of borehole at 56.0 feet.					
60					
65					
70					
75					
80					
85					
90					
95					
100					
105					
110					

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ



RECORD OF WELL CONSTRUCTION

WELL: PZ-35 I
PAGE 1 OF 2
ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

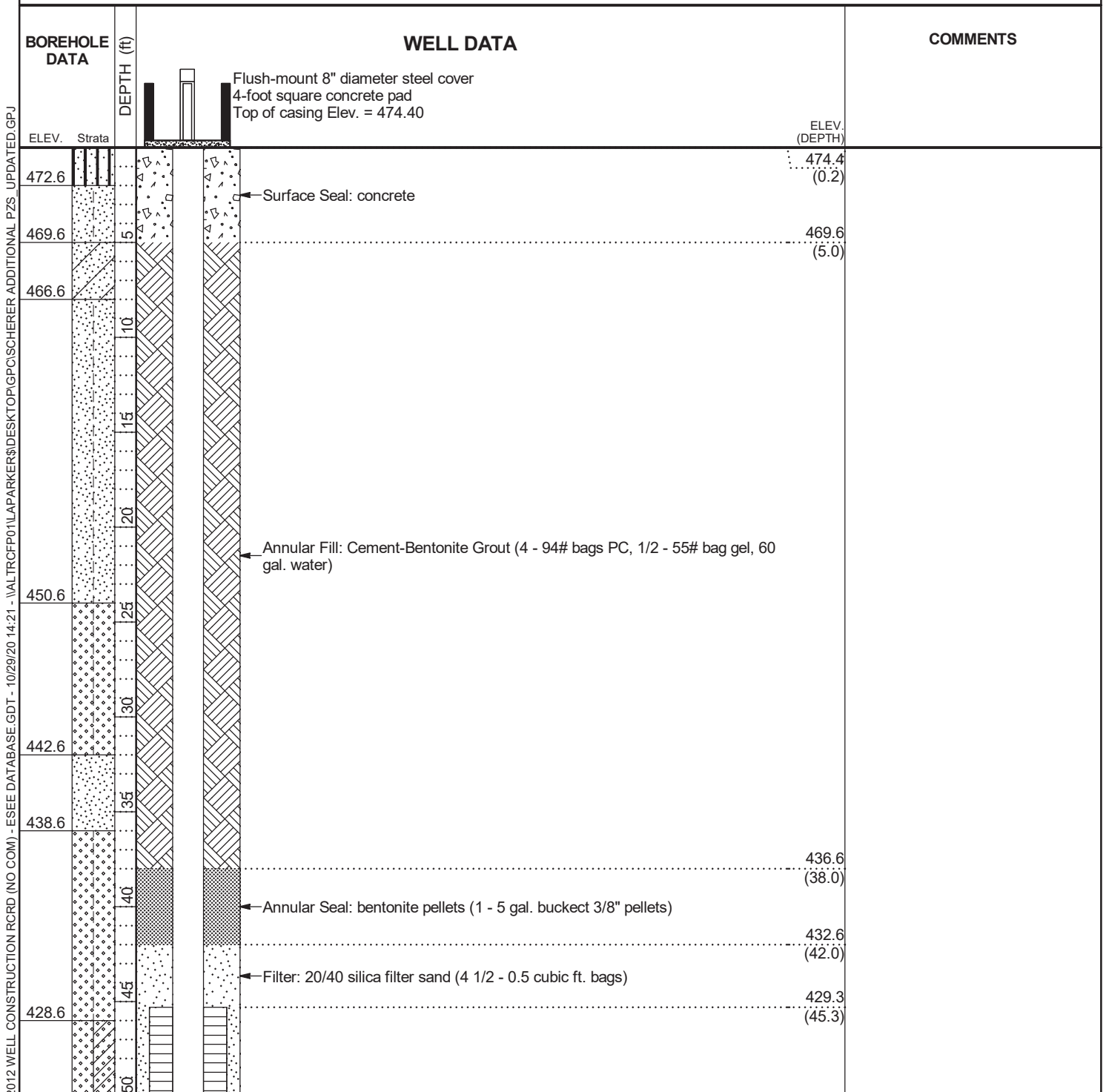
DATE STARTED 6/22/2016 COMPLETED 6/22/2016 GROUND ELEVATION 474.6 ft COORDINATES N 1121598.57 E 2406058.33

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 56 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 5.3 ft. after 100 hrs.

NOTES _____



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCF001\APARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: PZ-35 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	DEPTH (ft)	Flush-mount 8" diameter steel cover 4-foot square concrete pad Top of casing Elev. = 474.40	ELEV. (DEPTH)
423.6	(CONTINUED)	Well: 2" OD PVC (SCH 40) Screen: 10 ft. 0.010" Slot Prepack	
418.6	155	Sump: 0.20 ft.	419.3 419.1

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPCISCHERER ADDITIONAL_PZS_UPDATED.GPJ



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/4/2016 COMPLETED 6/5/2016 GROUND ELEVATION 478.9 ft COORDINATES N 1120410.99 E 2407256.25

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY T. Ardito LOGGED BY P. Alexander CHECKED BY B. Smelser BORING DEPTH 97 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 49.8 ft. after 24 hrs.

NOTES

SIMPLE GEOLOGY LOG - ESEE DATABASE:GDT - 8/27/20 08:45 - \\ALTRCFP01\LPARKER\DESKTOP\GFC\SCHERER ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL	COMMENTS
				REACTION	
				Weak Moderate Strong	
5		Silt (ML) - red (2.5YR 4/6) dry, stiff, no			
10					
15		- red (2.5YR 5/6) dry, stiff, some mica			
20		- saprolite			
25		Poorly-graded Sand with Silt (SP-SM) - mottled reddish brown (5YR 5/4) and white (N9) damp, loose - mottled strong brown (7.5YR 5/6), pink (5YR 7/3) and light red (2.5YR 6/6) - slight oxidation			
30		Well-graded Sand with Silt (SW-SM) - red (2.5YR 5/6), pink (2.5YR 8/4) and strong brown (7.5YR 5/6) saprolite moist, loose, banded, some mica - mottled brown (7.5YR 5/3), reddish brown (2.5YR 5/4) and light gray (2.5Y 7/2) moist, horizontal and sub-vertical banding - relict fractures 38 to 43 ft.			
35					
40					
45		Poorly-graded Sand with Silt (SP-SM) - mottled reddish yellow (7.5YR 6/6), yellow (10YR 7/6) and light yellowish brown (2.5Y 6/3) saprolite wet, very loose, some mica - relict fractures 46 to 48 ft. (horizontal and sub-vertical)			
50		Poorly-graded Sand with Clay (SP-SC) - mottled light gray (10YR 7/2), light reddish brown (2.5YR 6/3) and light			

(Continued Next Page)



BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\APARKER\DESKTOP\GFC\SC\SC\ADDITIONAL PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION	COMMENTS
55		reddish brown (2.5YR 7/4) saprolite moist, loose, some mica, some oxidation 47 to 56 ft., foliation 55 to 57 ft. Poorly-graded Sand with Clay (SP-SC)(Con't)			
60		- mottled gray (2.5Y 6/1), olive gray / light olive gray (5Y 5/2) and very dark gray (5Y 3/1) saprolite moist, loose, some mica			
65		Biotite Gneiss - greenish gray (10Y 6/1), white (7.5YR 8/1) and dark greenish gray (10GY 4/1) very soft to soft, highly weathered, banded - bluish gray (10B 5/1) and light bluish gray (5PB 8/1) soft, highly weathered, banded, water staining, moderately disintegrated			
70		- white (10YR 8/1) and greenish gray (5BG 5/1) very soft to soft, moderately weathered, banded, water staining, moderately disintegrated			
75		- white (10YR 8/1) and greenish gray (5BG 5/1) very soft to soft, moderately weathered, banded, water staining, moderately disintegrated			
80		- medium light gray (N6), white (N9) and dark bluish gray (10B 4/1) hard, slightly weathered, banded, horizontal and sub-vertical fractures, water staining, slightly disintegrated			
85		- dark bluish gray (10B 4/1) hard, slightly weathered, banded, slightly disintegrated			
90		- white (N9) and bluish gray (10B 5/1) hard, slightly weathered, banded, sub-vertical fractures, water staining, slightly disintegrated			
95		- intensely fractured - hard, not to slightly weathered, massive, horizontal and sub-vertical fractures, slightly disintegrated			
100		Bottom of borehole at 97.0 feet.			
105					
110					



RECORD OF WELL CONSTRUCTION

WELL: PZ-36 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/4/2016 COMPLETED 6/5/2016 GROUND ELEVATION 478.9 ft COORDINATES N 1120410.99 E 2407256.25

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY T. Ardito LOGGED BY P. Alexander CHECKED BY B. Smelser BORING DEPTH 97 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 49.8 ft. after 24 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPCISCHERER\ADDITIONAL_PZS_UPDATED.GPJ

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. Strata</p> <p style="text-align: right;">ELEV. (DEPTH)</p>	<p style="text-align: center;">Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 481.52</p> <p>← Surface Seal: concrete</p> <p style="text-align: right;">475.9 (3.0)</p> <p>← Annular Fill: Cement-Bentonite Grout (6 - 94# bags PC, 1/2 - 55# bag gel, 70 gal. water)</p>	
<p>455.9</p> <p>449.9</p> <p>436.9</p> <p>430.9</p>		

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: PZ-36 I
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ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 481.52	ELEV. (DEPTH)
413.9	55 60 65 70 75 80 85 90 95	← Annular Seal: bentonite pellets (1 - 5 gal. bucket 3/8" pellets) ← Filter: 20/40 silica filter sand (6 - 0.5 cubic ft. bags) Well: 2" OD PVC (SCH 40) Screen: 10 ft. 0.010" Slot Prepack Sump: 0.20 ft.	402.9 (76.0) 397.9 (81.0) 393.6 (85.3) 383.6 (95.3) 383.4 (95.5)
381.9			(95.5)

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPCISCHERER ADDITIONAL - PZS_UPDATED.GPJ

RECORD OF BOREHOLE PZ-36S

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 56.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/22/18
 DATE COMPLETED: 8/22/18

NORTHING: 1,120,401.04
 EASTING: 2,407,248.04
 GS ELEVATION: 479.4
 TOC ELEVATION: 482.35 ft

DEPTH W.L.: 35.5'
 ELEVATION W.L.: 446.69'
 DATE W.L.: 8/24/18
 TIME W.L.: 09:05

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 4.00 Clayey SILT with trace sand and organic matter; sand: fine; red to dark reddish brown; non-cohesive; moist to wet; compact; RESIDUUM	ML	| | | |	475.4 4.00	S-1	ROTO SONIC	7.50 10.00		<p>WELL CASING Interval: 0-45' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 45-55' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010 End Cap: 0.4</p> <p>FILTER PACK Interval: 43-55' Type: No. 20-40 Sand</p> <p>FILTER PACK SEAL Interval: 38,8-43' Type: 3/8" Pel-Plug</p> <p>ANNULUS SEAL Interval: 0-38.8' Type: Portland Cement and Quick Gel Bentonite Mix</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
475		4.00 - 10.00 Silty CLAY with trace organics; red to reddish brown; cohesive; w~PL to w>PL; firm to very stiff; RESIDUUM	CL	| | | | | | | | | |	469.4 10.00	S-2	ROTO SONIC	2.00 10.00		
470		10.00 - 20.00 Silty CLAY with some sand; sand: fine to coarse; red; cohesive; w<PL to w~PL; firm to stiff; RESIDUUM	CL	| | | | | | | | | |	459.4 20.00	S-3	ROTO SONIC	8.50 10.00		
465		20.00 - 25.00 Clayey SAND; sand: fine to coarse; reddish-pink to red; non-cohesive; moist to wet; compact to dense; RESIDUUM	SC	| | | | | | | | | |	454.4 25.00	S-4	ROTO SONIC	10.00 10.00		
460		25.00 - 30.00 Clayey SAND; sand: fine to coarse; reddish brown; micaceous; non-cohesive; moist to wet; compact to dense; RESIDUUM	SC	| | | | | | | | | |	449.4 30.00					
455		30.00 - 40.00 Clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse; red to light grey; micaceous; non-cohesive; moist; compact to dense; SAPROLITE	SC	| | | | | | | | | |	439.4					

Log continued on next page

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-36S

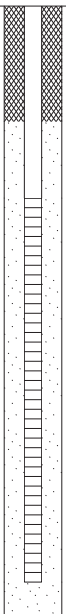
SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 56.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/22/18
 DATE COMPLETED: 8/22/18

NORTHING: 1,120,401.04
 EASTING: 2,407,248.04
 GS ELEVATION: 479.4
 TOC ELEVATION: 482.35 ft

DEPTH W.L.: 35.5'
 ELEVATION W.L.: 446.69'
 DATE W.L.: 8/24/18
 TIME W.L.: 09:05

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		40.00 - 50.00 Clayey-Silty SAND; orange to light tan; micaceous; non-cohesive; wet; compact to dense; SAPROLITE			40.00					<p>WELL CASING Interval: 0-45' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 45-55' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010 End Cap: 0.4</p> <p>FILTER PACK Interval: 43-55' Type: No. 20-40 Sand</p> <p>FILTER PACK SEAL Interval: 38.8-43' Type: 3/8" Pel-Plug</p> <p>ANNULUS SEAL Interval: 0-38.8' Type: Portland Cement and Quick Gel Bentonite Mix</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
45	435		SC-SM			S-5	ROTO SONIC	10.00 10.00		
50	430	50.00 - 56.00 Clayey-Silty SAND; orange to light tan; micaceous; non-cohesive; wet; compact to dense; SAPROLITE			429.4 50.00					
55	425		SC-SM			S-6	ROTO SONIC	5.00 10.00		
		Boring completed at 56.00 ft								
60	420									
65	415									
70	410									
75	405									
80	400									

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 9/7/16 11:23 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\IGA-SCHERER\BORING ADDITIONAL HYDROGEOLOGIC INVESTIGATION (2016)\BORING LOG



LOG OF TEST BORING

BORING PZ-37 I
PAGE 1 OF 2
ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/2/2016 COMPLETED 6/2/2016 SURF. ELEV. 479.5 COORDINATES: N:1121178.48 E 2408419.19

CONTRACTOR Cascade EQUIPMENT Tracked METHOD Rotosonic

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser ANGLE _____ BEARING _____

BORING DEPTH 72.5 ft. GROUND WATER DEPTH DURING _____ COMP. _____ DELAYED 43 ft. after 48 hrs.

NOTES _____

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
						Completion: protective aluminum cover with bollards; 4-foot square concrete pad Top of casing Elev. = 482.18
5		Sandy Silt (ML) - dark red (2.5YR 3/6) dry				Surface Seal: concrete
10		- red (2.5YR 4/6) - yellowish red (5YR 4/6)				
15		Silty Sand (SM) - red (10R 5/6) dry, fine-grained, with mica				Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water)
20		- weak red (10R 5/3)				
25		- mottled reddish brown (2.5YR 4/4) and reddish black (2.5YR 2.5/1) dry, weathered schist - weak red (2.5YR 5/2)				
30		- mottled reddish brown (2.5YR 4/4) and strong brown (7.5YR 5/6)				
30		Elastic Silt (MH) - reddish brown (2.5YR 4/4) wet				
35		Silty Sand (SM) - reddish brown (2.5YR 5/4) fine to coarse-grained. with mica				
40		- yellowish red (5YR 4/6) and reddish brown (2.5YR 4/4) with coarse gravel (residual quartz+feldspar viens) - mottled grayish brown (10YR 5/2) and white (10YR 8/1)				
40		Silt (ML) - mottled strong brown (7.5YR 5/8) and black (7.5YR 2.5/1)				
45		Silty Sand (SM) - light brown (7.5YR 6/4) fine to coarse-grained. with mica				
45		Silt (ML) - strong brown (7.5YR 4/6) and black (7.5YR 2.5/1) - dark yellowish brown (10YR 4/4)				
50						

(Continued Next Page)

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 9/7/16 11:23 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\IGA-SCHERER\BORING LOG (2016)\BORING LOG



LOG OF TEST BORING

BORING PZ-37 I
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
 LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
						Completion: protective aluminum cover with bollards; 4-foot square concrete pad Top of casing Elev. = 482.18
		Silt (ML) (Con't)				(CONTINUED) Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water) Annular Seal: ← bentonite pellets (1 - 5 gal. bucket 3/8" pellets) Filter: ← 20/40 silica filter sand (5 - 0.5 cubic ft. bags) Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; 0.010" Slot Prepack Sump: 0.2000000000000003 ft. Cave-in to 72.5 ft.
55		Silty Sand (SM) - olive brown (2.5Y 4/4) and olive gray / light olive gray (5Y 5/2) saprolite fine to coarse-grained, with mica				
60						
65		Well-graded Sandy Gravel (GW) - dark gray (10YR 4/1) and white (10YR 8/1) transition zone pulverized rock, biotite gneiss, feldspar and quartz				
70		Biotite Gneiss - black (5Y 2.5/1) and white / yellowish gray (5Y 8/1) coarse grain, hard, not to slightly weathered, banded, moderately fractured, sub-horizontal fractures - yellowish red (5YR 5/8) water staining				
		Bottom of borehole at 72.5 feet.				
75						
80						
85						
90						
95						
100						
105						
110						



RECORD OF WELL CONSTRUCTION

WELL: PZ-37 I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/2/2016 COMPLETED 6/2/2016 GROUND ELEVATION 479.5 ft COORDINATES N 1121178.48 E 2408419.19

CONTRACTOR Cascade METHOD Rotosonic EQUIPMENT Tracked

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser BORING DEPTH 72.5 ft.

GROUND WATER DEPTH: DURING _____ COMP. _____ DELAYED 43 ft. after 48 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPCISCHERER\ADDITIONAL_PZS_UPDATED.GPJ

BOREHOLE DATA	WELL DATA	COMMENTS
<p>ELEV. Strata</p> <p style="text-align: right;">ELEV. (DEPTH)</p>	<p>Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 482.18</p> <p>Surface Seal: concrete</p> <p>Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water)</p>	<p>476.5 (3.0)</p>
<p>467.5</p>		
<p>452.5</p>		
<p>450.5</p>		
<p>442.5</p>		
<p>438.5</p>		
<p>435.5</p>		
<p>50</p>		

(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: PZ-37 I
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ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\APARKER\DESKTOP\GPCISCHERER\ADDITIONAL_PZS_UPDATED.GPJ

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 482.18	ELEV. (DEPTH)
426.5	55	← Annular Seal: bentonite pellets (1 - 5 gal. bucket 3/8" pellets)	425.0 (54.5)
416.5	60	← Filter: 20/40 silica filter sand (5 - 0.5 cubic ft. bags)	421.5 (58.0)
412.5	65	Well: 2" OD PVC (SCH 40) Screen: 10 ft. 0.010" Slot Prepack	418.5 (61.0)
407.0	70	Sump: 0.20 ft.	408.5 (71.0) 408.3 (71.2)

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 9/7/16 11:23 - S:\WORKGROUP\SPAC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\IGA-SCHERER\BORING ADDITIONAL HYDROGEOLOGIC INVESTIGATION (2016)\BORING LOG



LOG OF TEST BORING

BORING PZ-38 I
 PAGE 1 OF 2
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
 LOCATION Plant Scherer

DATE STARTED 6/22/2016 COMPLETED 6/23/2016 SURF. ELEV. 482.2 COORDINATES: N 1121475.86 E 2406352.98

CONTRACTOR Cascade EQUIPMENT Tracked METHOD Rotosonic

DRILLED BY J. Asua LOGGED BY W. Shaughnessy CHECKED BY B. Smelser ANGLE _____ BEARING _____

BORING DEPTH 76 ft. GROUND WATER DEPTH DURING _____ COMP. _____ DELAYED 16.3 ft. after 100 hrs.

NOTES _____

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	GROUNDWATER OBSERVATIONS	WELL DATA	
						Completion: flush-mount 8" diameter steel cover; 4-foot square concrete pad	
5		Sandy Silt (ML) - dark red (2.5YR 3/6) dry - with mica					Surface Seal: concrete
10		Poorly-graded Sand with Silt (SP-SM) - yellowish red / light brown (5YR 5/6) dry, fine-grained					
15		Elastic Silt (MH) - yellowish red / light brown (5YR 5/6) and brown (7.5YR 5/4) micaceous - brown (7.5YR 5/3) damp					
20		Poorly-graded Sand with Silt (SP-SM) - grayish brown (10YR 5/2) fine-grained, micaceous					
25		Well-graded Sand (SW) - black (N1) and very light gray (N8) coarse-grained, weathered feldspar seam Poorly-graded Sand with Silt (SP-SM) - grayish brown (10YR 5/2) and strong brown (7.5YR 4/6) saprolite wet, fine-grained, white banding, interbedded by weathered feldspar and quartz seams					
30		Well-graded Sand with Silt (SW-SM) - mottled olive gray / light olive gray (5Y 5/2) and pale yellow (5Y 8/2) saprolite wet, fine to coarse-grained					
35		- mottled grayish olive (10Y 4/2) and pale yellow (2.5Y 7/4)					
40		- mottled grayish brown (2.5Y 5/2) and pale yellow (2.5Y 7/4) with mica					
45							
50							Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water)

(Continued Next Page)

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 9/7/16 11:23 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\GA-SCHERISCHERER ADDITIONAL HYDROGEOLOGIC INVESTIGATION (2016)\BORING LOG



LOG OF TEST BORING

BORING PZ-38 I
 PAGE 2 OF 2
 ECS38467

SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	GROUNDWATER OBSERVATIONS	WELL DATA
						Completion: flush-mount 8" diameter steel cover; 4-foot square concrete pad
55		Well-graded Sand with Silt (SW-SM)(Cont) - mottled olive gray / light olive gray (5Y 5/2), brown (7.5YR 4/4) and white (N9) weathered biotite gneiss - mottled dark grayish brown (2.5Y 4/2) and white (N9)				(CONTINUED) Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water) Annular Seal: ← bentonite pellets (1 - 5 gal. bucket 3/8" pellets) Filter: ← 20/40 silica filter sand (4 1/2 - 0.5 cubic ft. bags) Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; 0.010" Slot Prepack Sump: 0.200000000000003 ft. Cave-in to 76 ft.
60		Poorly-graded Sand (SP) - yellowish brown (10YR 5/6) and dark grayish brown (2.5Y 4/2) fine-grained				
65		Biotite Gneiss - grayish brown (2.5Y 5/2) fine to coarse grain, gravelly sand (pulverized weathered rock)				
70						
75						
Bottom of borehole at 76.0 feet.						
80						
85						
90						
95						
100						
105						
110						



RECORD OF WELL CONSTRUCTION

WELL: PZ-38 I
PAGE 1 OF 2
ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)
LOCATION Plant Scherer

DATE STARTED 6/22/2016 **COMPLETED** 6/23/2016 **GROUND ELEVATION** 482.2 ft **COORDINATES** N 1121475.86 E 2406352.98

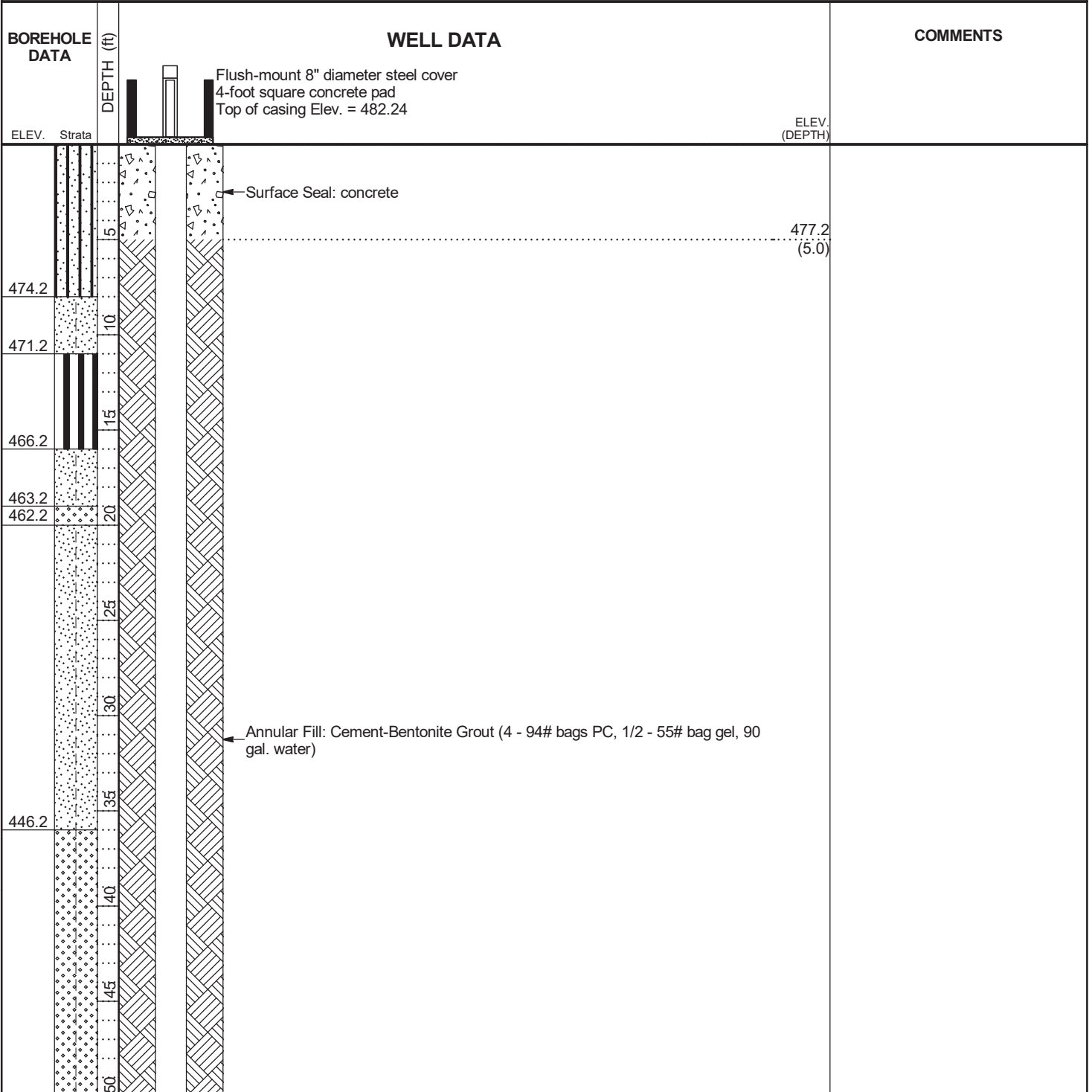
CONTRACTOR Cascade **METHOD** Rotosonic **EQUIPMENT** Tracked

DRILLED BY J. Asua **LOGGED BY** W. Shaughnessy **CHECKED BY** B. Smelser **BORING DEPTH** 76 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** 16.3 ft. after 100 hrs.

NOTES _____

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LPARKER\DESKTOP\GPC\ISCHERER ADDITIONAL PZS_UPDATED.GPJ



(Continued Next Page)



RECORD OF WELL CONSTRUCTION

WELL: PZ-38 I
PAGE 2 OF 2
ECS38467

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Additional Hydrogeological Investigation (2016)

LOCATION Plant Scherer

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\VALTRCFP01\LAPARKER\$\DESKTOP\GPCISCHERER ADDITIONAL PZS_UPDATED.GPJ

BOREHOLE DATA	DEPTH (ft)	WELL DATA	COMMENTS
ELEV. Strata	(CONTINUED)	Flush-mount 8" diameter steel cover 4-foot square concrete pad Top of casing Elev. = 482.24	ELEV. (DEPTH)
423.2	55		424.7 (57.5)
419.2	60	← Annular Seal: bentonite pellets (1 - 5 gal. bucket 3/8" pellets)	420.7 (61.5)
	65	← Filter: 20/40 silica filter sand (4 1/2 - 0.5 cubic ft. bags)	418.4 (63.8)
	70	Well: 2" OD PVC (SCH 40) Screen: 10 ft. 0.010" Slot Prepack	
406.2	75	Sump: 0.20 ft.	408.4 (73.8) 408.2 (74.0)

RECORD OF BOREHOLE PZ-39S

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 80.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/21/18
 DATE COMPLETED: 8/21/18

NORTHING: 1,120,178.43
 EASTING: 2,407,470.49
 GS ELEVATION: 471.8
 TOC ELEVATION: 474.58 ft

DEPTH W.L.: 35.9'
 ELEVATION W.L.: 438.59'
 DATE W.L.: 8/24/18
 TIME W.L.: 09:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	470	0.00 - 6.50 clayey SILT with some organic matter; dark reddish brown; non-cohesive; moist; compact; RESIDUUM	ML						WELL CASING Interval: 0-76' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread WELL SCREEN Interval: 66-76' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/ 2" Inner Slot Size: 0.010 End Cap: 0.4 FILTER PACK Interval: 64-79' Type: No. 20-40 Sand FILTER PACK SEAL Interval: 62.5-64' Type: 3/8" PEL-PLUG ANNULUS SEAL Interval: 0-62.5' Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
5	465	6.50 - 10.00 silty CLAY; grey to brown; cohesive; w~PL; soft to firm; RESIDUUM	CL		465.3 6.50	S-1	ROTO SONIC	10.00 10.00	
10	460	10.00 - 20.00 silty CLAY; high plasticity; red to reddish brown; cohesive; w>PL; stiff to very stiff; RESIDUUM	CL		461.8 10.00	S-2	ROTO SONIC	7.50 10.00	
15	455	20.00 - 30.00 silty-sandy CLAY and clayey SAND mix; sand: fine; red; cohesive; w<PL to w~PL; soft to firm; RESIDUUM	CL-SC		451.8 20.00	S-3	ROTO SONIC	7.50 10.00	
20	450	30.00 - 35.00 clayey SAND with silt; sand: fine to coarse; red to orange; non-cohesive; wet; loose to compact; RESIDUUM	SC		441.8 30.00	S-4	ROTO SONIC	10.00 10.00	
25	445	35.00 - 40.00 clayey SAND with silt and gravel; sand: fine to coarse; gravel: fine to coarse; orange; non-cohesive; wet; loose to compact; RESIDUUM	SC		436.8 35.00	S-4	ROTO SONIC	10.00 10.00	
30	440				431.8				

Log continued on next page

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-39S

SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 80.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/21/18
 DATE COMPLETED: 8/21/18

NORTHING: 1,120,178.43
 EASTING: 2,407,470.49
 GS ELEVATION: 471.8
 TOC ELEVATION: 474.58 ft

DEPTH W.L.: 35.9'
 ELEVATION W.L.: 438.59'
 DATE W.L.: 8/24/18
 TIME W.L.: 09:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40	430	40.00 - 50.00 clayey SAND with silt; sand: fine to coarse; red to orange; non-cohesive; wet; loose to compact; RESIDUUM	SC		40.00	S-5	ROTO SONIC	9.50 10.00		<p>WELL CASING Interval: 0-76' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 66-76' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/ 2" Inner Slot Size: 0.010 End Cap: 0.4</p> <p>FILTER PACK Interval: 64-79' Type: No. 20-40 Sand</p> <p>FILTER PACK SEAL Interval: 62.5-64' Type: 3/8" PEL-PLUG</p> <p>ANNULUS SEAL Interval: 0-62.5' Type: Portland Cement and Quick Gel Bentonite Mix</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
45	425	50.00 - 57.00 clayey SAND with silt; sand: fine to coarse; red to orange; non-cohesive; wet; loose to compact; RESIDUUM	SC		421.8 50.00	S-6	ROTO SONIC	10.00 10.00		
50	420		SM		414.8 57.00	S-7	ROTO SONIC	10.00 10.00		
55	415	57.00 - 60.00 silty SAND with trace clay; micaceous; tan to grey; non-cohesive; moist to wet; compact to dense; SAPROLITE	SM		411.8 60.00	S-7	ROTO SONIC	10.00 10.00		
60	410	60.00 - 68.00 silty SAND with trace clay and some fine gravel; sand: fine to coarse; tan to grey; micaceous; non-cohesive; moist to wet; compact to dense; SAPROLITE	SM		403.8 68.00	S-8	ROTO SONIC	9.00 10.00		
65	405	68.00 - 70.00 silty SAND with trace clay and some fine gravel; sand: fine to coarse; dark grey; micaceous; non-cohesive; moist; dense; SAPROLITE	SM		401.8 70.00	S-8	ROTO SONIC	9.00 10.00		
70	400	70.00 - 77.00 silty SAND with trace clay and some fine gravel; sand: fine to coarse; dark grey; micaceous; non-cohesive; moist; dense; SAPROLITE	SM		394.8 77.00	S-8	ROTO SONIC	9.00 10.00		
75	395	77.00 - 80.00 silty SAND with trace clay and some gravel; sand: fine to coarse; gravel: fine to coarse; dark grey; micaceous; non-cohesive; moist; dense to very dense; TWR	TWR		391.8					
80		Note: Drill chatter at 77' Boring completed at 80.00 ft								

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-40I

SHEET 1 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 84.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/15/18
 DATE COMPLETED: 8/15/18

NORTHING: 1,116,960.39
 EASTING: 2,406,934.72
 GS ELEVATION: 510.1
 TOC ELEVATION: 512.55 ft

DEPTH W.L.: 31.8'
 ELEVATION W.L.: 480.42'
 DATE W.L.: 8/17/18
 TIME W.L.: 13:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	510	0.00 - 10.00 Hydrovac from 0-10'							WELL CASING Interval: 0-73' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread WELL SCREEN Interval: 73-83' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010" End Cap: 0.4 FILTER PACK Interval: 70-84' Type: No. 20-40 Sand FILTER PACK SEAL Interval: 70-65.5' Type: 3/8" PEL-PLUG ANNULUS SEAL Interval: 0-65.5' Type: Portland Cement and Quick Gel Bentonite Gel Mix WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
5	505								
10	500	10.00 - 20.00 Sandy, Clayey SILT; low to medium plasticity; sand: fine to coarse; red to reddish brown; non-cohesive; moist to wet; compact; trending towards clay downhole; RESIDUUM	MH		500.1 10.00	S-1	ROTO SONIC	7.00 10.00	
15	495								
20	490	20.00 - 22.80 silty CLAY with some sand; sand: fine to coarse; reddish brown; cohesive; w<PL; compact; soft to firm; RESIDUUM	CL		490.1 20.00				
25	485	22.80 - 27.60 sandy SILT with some clay; sand: fine to coarse; reddish brown with black; micaceous; non-cohesive; moist; loose; RESIDUUM	SM		487.3 22.80	S-2	ROTO SONIC	8.00 10.00	
30	480	27.60 - 30.00 silty CLAY with some sand and nodules of organic matter; sand: fine to coarse; reddish brown; cohesive; w<PL; soft to firm; RESIDUUM	CL		482.5 27.60				
35	475	30.00 - 36.80 silty CLAY; red; cohesive; w>PL; very soft; RESIDUUM	CL		480.1 30.00				
40	470	36.80 - 40.00 clayey SAND; sand: fine; reddish-pink; micaceous; non-cohesive; wet; compact; SAPROLITE	SC		473.3 36.80	S-3	ROTO SONIC	9.50 10.00	
		Log continued on next page			470.1				

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ_PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-40I

SHEET 2 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 84.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/15/18
 DATE COMPLETED: 8/15/18

NORTHING: 1,116,960.39
 EASTING: 2,406,934.72
 GS ELEVATION: 510.1
 TOC ELEVATION: 512.55 ft

DEPTH W.L.: 31.8'
 ELEVATION W.L.: 480.42'
 DATE W.L.: 8/17/18
 TIME W.L.: 13:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40	470	40.00 - 50.00 clayey SAND; sand: fine; reddish pink; micaceous; cohesive; w<PL; very soft to soft; SAPROLITE			40.00					WELL CASING Interval: 0-73' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread WELL SCREEN Interval: 73-83' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010" End Cap: 0.4 FILTER PACK Interval: 70-84' Type: No. 20-40 Sand FILTER PACK SEAL Interval: 70-65.5' Type: 3/8" PEL-PLUG ANNULUS SEAL Interval: 0-65.5' Type: Portland Cement and Quick Gel Bentonite Gel Mix WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
45	465		SC			S-4		5.00 10.00		
50	460	50.00 - 55.00 sandy CLAY; sand: fine to coarse; light tan; micaceous; cohesive; w>PL; soft to firm; SAPROLITE	CH		460.1 50.00					
55	455	55.00 - 57.50 clayey SAND; sand: fine to coarse; brown; micaceous; non-cohesive to cohesive; moist to wet; compact; SAPROLITE	SC		455.1 55.00	S-5		10.00 10.00		
60	450	57.50 - 65.00 clayey SAND; sand: fine to coarse; dark grey; micaceous; highly weathered rock; non-cohesive; moist; compact to dense; SAPROLITE	SC		452.6 57.50					
65	445	65.00 - 68.50 clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse; light grey to grey; micaceous; some weathered quartz; orange mottling; non-cohesive; moist to wet; dense; TWR	TWR		445.1 65.00	S-6		8.00 10.00		
70	440	68.50 - 70.00 silty GRAVEL; gravel: fine to coarse; dark grey; micaceous; highly weathered rock; non-cohesive; wet; dense to very dense; BEDROCK	BR		441.6 68.50					
75	435	70.00 - 80.00 BIOTITE GNEISS; fresh; banded coarse and fine; gneissic banding; crystals fine to coarse; strong	BR		440.1 70.00					
80					430.1	S-7		8.50 10.00		

Log continued on next page

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-40I



SHEET 3 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 84.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/15/18
 DATE COMPLETED: 8/15/18

NORTHING: 1,116,960.39
 EASTING: 2,406,934.72
 GS ELEVATION: 510.1
 TOC ELEVATION: 512.55 ft

DEPTH W.L.: 31.8'
 ELEVATION W.L.: 480.42'
 DATE W.L.: 8/17/18
 TIME W.L.: 13:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
80	430	80.00 - 84.00 BIOTITE GNEISS; fresh; banded coarse and fine; gneissic banding; crystals fine to coarse; strong	BR		80.00	S-8	ROTO SONIC	4.00 4.00		<p>WELL CASING Interval: 0-73' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 73-83' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010" End Cap: 0.4</p> <p>FILTER PACK Interval: 70-84' Type: No. 20-40 Sand</p> <p>FILTER PACK SEAL Interval: 70-65.5' Type: 3/8" PEL-PLUG</p> <p>ANNULUS SEAL Interval: 0-65.5' Type: Portland Cement and Quick Gel Bentonite Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
		Boring completed at 84.00 ft			426.1					

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-41S

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 45.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/16/18
 DATE COMPLETED: 8/16/18

NORTHING: 1,116,799.18
 EASTING: 2,407,124.98
 GS ELEVATION: 488.6
 TOC ELEVATION: 491.50 ft

DEPTH W.L.: 25.8'
 ELEVATION W.L.: 465.55'
 DATE W.L.: 8/17/18
 TIME W.L.: 14:45

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 12.00 Hydrovac 0-12'							WELL CASING Interval: 0-45' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread WELL SCREEN Interval: 35-45' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010 End Cap: 0.4 FILTER PACK Interval: 32-45' Type: No. 20-40 Sand FILTER PACK SEAL Interval: 27-32' Type: 3/8" PEL-PLUG ANNULUS SEAL Interval: 0-27' Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
485									
5									
480									
10									
475		12.00 - 20.00 silty SAND with trace organics and clay; sand: fine to coarse; reddish brown with black and orange mottling; micaceous; non-cohesive; moist; loose to compact; RESIDUUM	SM	[Dotted Pattern]	476.6 12.00	S-1	ROTO SONIC	5.50 8.00	
15									
470									
20		20.00 - 30.00 silty, clayey SAND; sand: fine to coarse; reddish brown; micaceous; non-cohesive; moist to wet; compact; RESIDUUM	SC-SM	[Diagonal Pattern]	468.6 20.00	S-2	ROTO SONIC	9.00 10.00	
25									
465									
30		30.00 - 35.00 clayey SAND; sand: fine to coarse; light grey to tan; micaceous; non-cohesive; moist to wet; compact to dense; RESIDUUM	SC	[Diagonal Pattern]	458.6 30.00	S-3	ROTO SONIC	10.00 10.00	
35									
455									
40		35.00 - 40.00 silty-sandy CLAY with trace fine gravel; sand: fine to coarse; light grey and tan; micaceous; cohesive; w<PL to w-PL; very soft to firm; SAPROLITE	CL	[Diagonal Pattern]	453.6 35.00	S-3	ROTO SONIC	10.00 10.00	
450									
448.6					448.6				

Log continued on next page

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-41S

SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 45.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/16/18
 DATE COMPLETED: 8/16/18

NORTHING: 1,116,799.18
 EASTING: 2,407,124.98
 GS ELEVATION: 488.6
 TOC ELEVATION: 491.50 ft

DEPTH W.L.: 25.8'
 ELEVATION W.L.: 465.55'
 DATE W.L.: 8/17/18
 TIME W.L.: 14:45

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		40.00 - 41.00 silty-sandy CLAY with trace gravel; sand: fine to coarse; gravel: fine to coarse; grey; micaceous; cohesive; w-PL; firm; SAPROLITE	CL		40.00 447.6					<p>WELL CASING Interval: 0-45' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 35-45' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010 End Cap: 0.4</p> <p>FILTER PACK Interval: 32-45' Type: No. 20-40 Sand</p> <p>FILTER PACK SEAL Interval: 27-32' Type: 3/8" PEL-PLUG</p> <p>ANNULUS SEAL Interval: 0-27' Type: Portland Cement and Quick Gel Bentonite Mix</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
		41.00 - 43.00 silty SAND with trace gravel; sand: fine to coarse; gravel: fine; light grey to grey; micaceous; non-cohesive; dry; dense to very dense; TWR	TWR		41.00	S-4		3.00 5.00		
44.5		43.00 - 45.00 clayey- silty SAND with some silt and gravel; sand: fine to coarse; gravel: fine to coarse; grey; micaceous; non-cohesive; moist to wet; dense; TWR	TWR		445.6 43.00					
45		Boring completed at 45.00 ft			443.6					
45										
44										
50										
435										
55										
430										
60										
425										
65										
420										
70										
415										
75										
410										
80										

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-42I

SHEET 1 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 105.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/20/18
 DATE COMPLETED: 8/21/18

NORTHING: 1,116,013.79
 EASTING: 2,405,294.12
 GS ELEVATION: 500.5
 TOC ELEVATION: 503.18 ft

DEPTH W.L.: 9.5'
 ELEVATION W.L.: 493.47'
 DATE W.L.: 8/22/18
 TIME W.L.: 15:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	500	0.00 - 10.00 Hydrovac 0-10'							<p>WELL CASING Interval: 0-96' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 86-96' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010 End Cap: 0.4</p> <p>FILTER PACK Interval: 83-96' Type: No. 20-40 Sand</p> <p>FILTER PACK SEAL Interval: 77-83' Type: 3/8" PEL-PLUG</p> <p>ANNULUS SEAL Interval: 0-77' Type: Portland Cement and Quick Gel Bentonite Mix</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
5	495								
10	490	10.00 - 20.00 Clayey SILT with some sand; sand: fine to coarse; red; micaceous; non-cohesive; wet; loose to compact; RESIDUUM	ML		490.5 10.00	S-1	ROTO SONIC	10.00 10.00	
15	485								
20	480	20.00 - 30.00 silty CLAY with some sand; sand: fine to coarse; red to reddish brown; micaceous; cohesive; w~PL to w>PL; loose to compact; RESIDUUM	CL		480.5 20.00	S-2	ROTO SONIC	10.00 10.00	
25	475								
30	470	30.00 - 37.00 silty CLAY with some sand; sand: fine to coarse; red to reddish brown; micaceous; cohesive; w~PL to w>PL; loose to compact; RESIDUUM	CL		470.5 30.00	S-3	ROTO SONIC	9.50 10.00	
35	465								
40	460	37.00 - 40.00 clayey SAND with silt; sand: fine to coarse; brown to grey; micaceous; non-cohesive; wet; compact; SAPROLITE	SC		463.5 37.00				
		Log continued on next page							

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-421

SHEET 2 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 105.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/20/18
 DATE COMPLETED: 8/21/18

NORTHING: 1,116,013.79
 EASTING: 2,405,294.12
 GS ELEVATION: 500.5
 TOC ELEVATION: 503.18 ft

DEPTH W.L.: 9.5'
 ELEVATION W.L.: 493.47'
 DATE W.L.: 8/22/18
 TIME W.L.: 15:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40	460	40.00 - 45.00 clayey SAND with silt; sand: fine to coarse; brown to grey; micaceous; non-cohesive; wet; compact; SAPROLITE	SC	[Hatched Pattern]	40.00					<p>WELL CASING Interval: 0-96' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 86-96' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010 End Cap: 0.4</p> <p>FILTER PACK Interval: 83-96' Type: No. 20-40 Sand</p> <p>FILTER PACK SEAL Interval: 77-83' Type: 3/8" PEL-PLUG</p> <p>ANNULUS SEAL Interval: 0-77' Type: Portland Cement and Quick Gel Bentonite Mix</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
45	455	45.00 - 50.00 silty SAND with some clay and gravel; sand: fine to coarse; gravel: fine; grey; micaceous; non-cohesive; moist; compact to dense; SAPROLITE	SM	[Dotted Pattern]	455.5 45.00	S-4	ROTO SONIC	10.00 10.00		
50	450	50.00 - 60.00 silty SAND with some clay and gravel; sand: fine to coarse; gravel: fine; grey; micaceous; non-cohesive; moist to wet; dense to very dense; SAPROLITE	SM	[Dotted Pattern]	450.5 50.00		ROTO SONIC			
55	445		SM	[Dotted Pattern]	440.5 60.00	S-5	ROTO SONIC	8.50 10.00		
60	440	60.00 - 70.00 No Recovery Note: Assumed SAPROLITE based on surrounding samples								
65	435		SM	[Dotted Pattern]	430.5 70.00	S-6	ROTO SONIC	0.00 10.00		
70	430	70.00 - 77.00 silty SAND to silty GRAVEL; sand: fine to coarse; gravel: fine to coarse; black to dark grey; micaceous; non-cohesive; wet; dense to very dense; SAPROLITE	SM-GM	[Circular Pattern]						
75	425			[Circular Pattern]	423.5 77.00	S-7	ROTO SONIC	6.00 10.00		
80		77.00 - 80.00 silty SAND/GRAVEL ; sand: fine to coarse; gravel: fine to coarse; grey to dark grey; micaceous; non-cohesive; dry to moist; dense to very dense; TWR	TWR	[Circular Pattern]	420.5					

Log continued on next page

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-421

SHEET 3 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 105.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/20/18
 DATE COMPLETED: 8/21/18

NORTHING: 1,116,013.79
 EASTING: 2,405,294.12
 GS ELEVATION: 500.5
 TOC ELEVATION: 503.18 ft

DEPTH W.L.: 9.5'
 ELEVATION W.L.: 493.47'
 DATE W.L.: 8/22/18
 TIME W.L.: 15:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
80	420	80.00 - 84.50 silty SAND to silty GRAVEL; sand: fine to coarse; gravel: fine to coarse; dark grey, micaceous; non-cohesive; wet; dense to very dense; TWR	TWR		80.00					<p>WELL CASING Interval: 0-96' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 86-96' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010 End Cap: 0.4</p> <p>FILTER PACK Interval: 83-96' Type: No. 20-40 Sand</p> <p>FILTER PACK SEAL Interval: 77-83' Type: 3/8" PEL-PLUG</p> <p>ANNULUS SEAL Interval: 0-77' Type: Portland Cement and Quick Gel Bentonite Mix</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
85	415	84.50 - 85.00 BIOTITE GNEISS; moderately weathered; crystals: medium to coarse; gneissic banding; black/white; strong BEDROCK 85.00 - 90.00 No Recovery Note: Assumed BEDROCK do to gravel found in previous interval and drill chatter/hard drilling	BR		416 415.5 85.00	S-8	5.00 10.00			
90	410	90.00 - 95.00 BIOTITE GNEISS; moderately weathered; crystals: medium to coarse; gneissic banding; black/white; strong Note: Assumed BEDROCK do to gravel found in previous interval and drill chatter/hard drilling	BR		410.5 90.00					
95	405	95.00 - 100.00 No Recovery; possible high fracture zone Note: Assumed BEDROCK do to gravel found in previous interval and drill chatter/hard drilling	BR		405.5 95.00	S-9	5.00 10.00			
100	400	100.00 - 105.00 No recovery; rock dropped out of sample Note: Assumed BEDROCK do to gravel found in previous intervals and drill chatter/hard drilling	BR		400.5 100.00		0.00 5.00			
105	395	Boring completed at 105.00 ft			395.5					
110	390									
115	385									
120										

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-43S

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 55.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/17/18
 DATE COMPLETED: 8/17/18

NORTHING: 1,115,598.12
 EASTING: 2,405,507.16
 GS ELEVATION: 501.2
 TOC ELEVATION: 504.03 ft

DEPTH W.L.: 19.00
 ELEVATION W.L.: 485.00'
 DATE W.L.: 8/17/18
 TIME W.L.: 15:00:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	500	0.00 - 10.00 Hydrovac 0-10'							<p>WELL CASING Interval: 0-50.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 40.5-50.5' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010 End Cap: 0.4</p> <p>FILTER PACK Interval: 37.5-52' Type: No. 20-40 Sand</p> <p>FILTER PACK SEAL Interval: 32-37.5' Type: 3/8" PEL-PLUG</p> <p>ANNULUS SEAL Interval: 0-32' Type: Portland Cement and Quick Gel Bentonite Mix</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
5	495								
10	490	10.00 - 15.00 clayey SILT with some sand; sand: fine to coarse; red; non-cohesive; wet; loose to very loose; RESIDUUM	ML	| | | |	491.2 10.00				
15	485	15.00 - 20.00 clayey SILT with some sand; sand: fine to coarse; light reddish tan; micaceous; non-cohesive; wet; loose to compact; RESIDUUM	ML	| | | |	486.2 15.00	S-1	ROTO SONIC	6.50 10.00	
20	480	20.00 - 30.00 clayey SILT with sand; sand: fine to coarse; reddish brown to brown; micaceous; non-cohesive; moist to wet; compact to dense; RESIDUUM	ML	| | | |	481.2 20.00				
25	475		ML	| | | |	471.2 30.00	S-2	ROTO SONIC	10.00 10.00	
30	470	30.00 - 40.00 silty-clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse; brown; micaceous; non-cohesive; moist to wet; dense; SAPROLITE	SC-SM	| | | |	461.2	S-3	ROTO SONIC	10.00 10.00	
40		Log continued on next page							

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



RECORD OF BOREHOLE PZ-43S


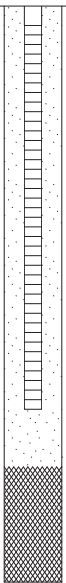


SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 55.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/17/18
 DATE COMPLETED: 8/17/18

NORTHING: 1,115,598.12
 EASTING: 2,405,507.16
 GS ELEVATION: 501.2
 TOC ELEVATION: 504.03 ft

DEPTH W.L.: 19.00
 ELEVATION W.L.: 485.00'
 DATE W.L.: 8/17/18
 TIME W.L.: 15:00:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40	460	40.00 - 45.00 silty-clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse; brown; micaceous; non-cohesive; moist to wet; dense; SAPROLITE	SC-SM		40.00					<p>WELL CASING Interval: 0-50.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 40.5-50.5' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010 End Cap: 0.4</p> <p>FILTER PACK Interval: 37.5-52' Type: No. 20-40 Sand</p> <p>FILTER PACK SEAL Interval: 32-37.5' Type: 3/8" PEL-PLUG</p> <p>ANNULUS SEAL Interval: 0-32' Type: Portland Cement and Quick Gel Bentonite Mix</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
45	455	45.00 - 50.00 silty-clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse; grey; micaceous; non-cohesive; moist to wet; dense to very dense; SAPROLITE	SM-GM		456.2 45.00	S-4	ROTO SONIC	10.00 10.00		
50	450	50.00 - 55.00 silty-clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse; grey; micaceous; non-cohesive; moist to wet; dense to very dense; SAPROLITE	SM-GM		451.2 50.00			10.00 10.00		
55		Boring completed at 55.00 ft			446.2	S-5	ROTO SONIC	10.00 10.00		
60	440									
65	435									
70	430									
75	425									
80										

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19



Location resurveyed May - July 2020

RECORD OF BOREHOLE PZ-44I

SHEET 1 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 114.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/23/18
 DATE COMPLETED: 9/5/18

NORTHING: 1,121,515.40
 EASTING: 2,404,330.23
 GS ELEVATION: 507.9
 TOC ELEVATION: 510.36 ft

DEPTH W.L.: 19.8'
 ELEVATION W.L.: 490.39'
 DATE W.L.: 9/7/18
 TIME W.L.: 07:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 5.00 silty CLAY with some sand; sand: fine; red; cohesive; w<PL; firm to stiff; FILL	CL		502.9	S-1	ROTO 8.00 SONIC 10.00		<p>WELL CASING Interval: 0-114' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 104-114' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010" End Cap: 0.4</p> <p>FILTER PACK Interval: 103-114' Type: No. 20-40 Sand Quantity: 200 lbs</p> <p>FILTER PACK SEAL Interval: 98-103' Type: 3/8" PEL-PLUG Quantity: 5 gallons</p> <p>ANNULUS SEAL Interval: 0-98' Type: Portland Cement and Quick Gel Bentonite Mix Quantity: Cement: 1128 lbs Quick Gel: 150 lbs Water: 120 gallons</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>	
5		5.00 - 10.00 silty CLAY-clayey SILT with trace sand; sand: fine; red; non-cohesive; wet; loose to compact; RESIDUUM	CL-ML		497.9					
10		10.00 - 15.00 clayey SILT with sand; sand: fine to coarse; orange brown; non-cohesive; moist to wet; compact; RESIDUUM	ML		492.9	S-2	ROTO 7.60 SONIC 10.00			
15		15.00 - 20.00 sandy SILT-silty SAND; sand: fine to coarse; orange brown; non-cohesive; wet; loose; RESIDUUM	ML-SM		487.9	S-3	ROTO 8.00 SONIC 10.00			
20		20.00 - 30.00 clayey-silty SAND with some gravel; sand: fine to coarse; gravel: fine, orange brown; micaceous; non-cohesive; moist to wet; compact to dense; RESIDUUM	SC-SM		477.9	S-4	ROTO 8.00 SONIC 10.00			
30		30.00 - 35.00 clayey SAND with silt and some gravel; sand: fine to coarse; gravel: fine to coarse; highly weathered rock fragments; orange-brown; micaceous; non-cohesive; moist to wet; dense; RESIDUUM	SC		472.9					
35		35.00 - 40.00 silty GRAVEL and SAND with some clay; sand: fine to coarse; gravel: fine to coarse; orange brown; micaceous; weathered rock and black carbon deposits; non-cohesive; moist to wet; dense to very dense; RESIDUUM	SM-GM		467.9					
40		Log continued on next page								

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 11/10/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19 Rev. 11/10/2020



Location resurveyed May - July 2020

RECORD OF BOREHOLE PZ-44I

SHEET 2 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 114.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/23/18
 DATE COMPLETED: 9/5/18

NORTHING: 1,121,515.40
 EASTING: 2,404,330.23
 GS ELEVATION: 507.9
 TOC ELEVATION: 510.36 ft

DEPTH W.L.: 19.8'
 ELEVATION W.L.: 490.39'
 DATE W.L.: 9/7/18
 TIME W.L.: 07:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		40.00 - 43.00 silty GRAVEL and SAND with some clay; sand: fine to coarse; gravel: fine to coarse; orange brown; micaceous; weathered rock and black carbon deposits; non-cohesive; moist to wet; dense to very dense; RESIDUUM	SM-GM	|	40.00					<p>WELL CASING Interval: 0-114' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 104-114' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010" End Cap: 0.4</p> <p>FILTER PACK Interval: 103-114' Type: No. 20-40 Sand Quantity: 200 lbs</p> <p>FILTER PACK SEAL Interval: 98-103' Type: 3/8" PEL-PLUG Quantity: 5 gallons</p> <p>ANNULUS SEAL Interval: 0-98' Type: Portland Cement and Quick Gel Bentonite Mix Quantity: Cement: 1128 lbs Quick Gel: 150 lbs Water: 120 gallons</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
465		42.00 - 45.00 silty GRAVEL and SAND with some clay; sand: fine to coarse; gravel: fine to coarse; tan to dark grey; micaceous; weathered rock fragments; non-cohesive; moist to wet; dense; SAPROLITE	SM-GM	|	464.9					
45		45.00 - 50.00 silty SAND with clay and gravel; sand: fine to coarse; gravel: fine to coarse; grey to dark grey; micaceous; weathered rock; non-cohesive; moist to wet; dense; SAPROLITE	SM	|	462.9 45.00	S-5	ROTO 8.00 SONIC 10.00			
460			SM	|	457.9 50.00					
50		50.00 - 60.00 silty SAND with clay and gravel; sand: fine to coarse; gravel: fine to coarse; grey to dark grey; micaceous; weathered rock; non-cohesive; moist to wet; dense; SAPROLITE	SM	|	447.9 60.00					
455			SM	|	447.9 60.00	S-6	ROTO 8.00 SONIC 10.00			
55			SM	|	438.4 437.9 70.00					
60		60.00 - 69.50 silty SAND with clay and gravel; sand: fine to coarse; gravel: fine to coarse; grey to dark grey; micaceous; weathered rock; non-cohesive; moist to wet; dense; SAPROLITE	SM	|	438.4 437.9 70.00	S-7	ROTO 8.70 SONIC 10.00			
445			SM	|	438.4 437.9 70.00					
65			SM	|	438.4 437.9 70.00	S-7	ROTO 8.70 SONIC 10.00			
440			SM	|	438.4 437.9 70.00					
70		69.50 - 70.00 silty GRAVEL with sand; sand: fine to coarse; gravel: fine; dark grey; micaceous; non-cohesive; moist; dense to very dense; SAPROLITE	GM	|	438.4 437.9 70.00					
435		70.00 - 80.00 silty SAND and silty GRAVEL; sand: fine to coarse; gravel: fine; dark grey; micaceous; non-cohesive; moist; dense to very dense; SAPROLITE	SM-GM	|	438.4 437.9 70.00	S-8	ROTO 10.00 SONIC 10.00			
75			SM-GM	|	438.4 437.9 70.00	S-8	ROTO 10.00 SONIC 10.00			
430			SM-GM	|	438.4 437.9 70.00					
80		Log continued on next page			427.9					

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT.GDT 11/10/2020

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19 Rev. 11/10/2020



Location resurveyed May - July 2020

RECORD OF BOREHOLE PZ-441

SHEET 3 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 166235004
 DRILLED DEPTH: 114.00 ft
 LOCATION:

DRILL RIG: Geoprobe 8140LC
 DATE STARTED: 8/23/18
 DATE COMPLETED: 9/5/18

NORTHING: 1,121,515.40
 EASTING: 2,404,330.23
 GS ELEVATION: 507.9
 TOC ELEVATION: 510.36 ft

DEPTH W.L.: 19.8'
 ELEVATION W.L.: 490.39'
 DATE W.L.: 9/7/18
 TIME W.L.: 07:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
80		80.00 - 90.00 silty SAND and silty GRAVEL; sand: fine to coarse; gravel: fine to coarse; dark grey; micaceous; non-cohesive; moist to wet; dense to very dense; SAPROLITE			80.00					<p>WELL CASING Interval: 0-114' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread</p> <p>WELL SCREEN Interval: 104-114' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010" End Cap: 0.4</p> <p>FILTER PACK Interval: 103-114' Type: No. 20-40 Sand Quantity: 200 lbs</p> <p>FILTER PACK SEAL Interval: 98-103' Type: 3/8" PEL-PLUG Quantity: 5 gallons</p> <p>ANNULUS SEAL Interval: 0-98' Type: Portland Cement and Quick Gel Bentonite Mix Quantity: Cement: 1128 lbs Quick Gel: 150 lbs Water: 120 gallons</p> <p>WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic</p>
425										
85			SM-GM			S-9	ROTO 9.00 SONIC 10.00			
420										
90		90.00 - 91.00 silty SAND and GRAVEL; sand: fine to coarse; gravel: fine to coarse; dark grey; micaceous; non-cohesive; wet; dense to very dense; SAPROLITE	SM-GM		417.9 90.00 416.9 91.00					
415		91.00 - 97.00 silty GRAVEL with sand; sand: fine to coarse; gravel: fine to coarse; dark grey; micaceous; non-cohesive; moist to wet; very dense; weathered; TWR	TWR			S-10	ROTO 9.50 SONIC 10.00			
95										
410		97.00 - 100.00 AMPHIBOLITE; fresh to slightly weathered; crystals fine to coarse; strong rock; BEDROCK	BR		410.9 97.00					
100		100.00 - 105.00 No Recovery Note: Assumed BEDROCK based on previous sample and hard drilling	BR		407.9 100.00					
405										
105		105.00 - 110.00 AMPHIBOLITE; fresh to slightly weathered; crystals fine to coarse; strong rock; BEDROCK	BR		402.9 105.00	S-11	ROTO 3.00 SONIC 10.00			
400										
110		110.00 - 115.00 AMPHIBOLITE; fresh to slightly weathered; crystals fine to coarse; very strong rock; BEDROCK	BR		397.9 110.00	S-12	ROTO 4.00 SONIC 4.00			
395										
115		Boring completed at 114.00 ft			392.9 115.00					
390										
120										

BOREHOLE RECORD PLANT_SCHERER_2018_10_12_SURVEY_UPDATED.GPJ PIEDMONT_GDT 11/10/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade
 DRILLER: M. Rodrigues

GA INSPECTOR: C. Tidwell
 CHECKED BY: Timothy Richards, PG
 DATE: 10/31/19 Rev. 11/10/2020



RECORD OF BOREHOLE PZ-45D

PROJECT: Plant Scherer
PROJECT NUMBER: 20139484
DRILLED DEPTH: 165.00 ft
LOCATION: Juliette, GA

DRILL RIG: TS 150
DATE STARTED: 3/8/20
DATE COMPLETED: 3/9/20

NORTHING: 1,125,296.24
EASTING: 2,400,250.55
GS ELEVATION: 509.7
TOC ELEVATION: 512.33 ft

SHEET 1 of 5
DEPTH W.L.: 23.50'
ELEVATION W.L.: 488.66'
DATE W.L.: 3/31/20
TIME W.L.: 8:20

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 10.00 Hydro-vac to clear utilities							WELL CASING Interval: 0' - 110' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 110' - 165' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 105' - 165' Type: #1 Sand Quantity: 20.5bags FILTER PACK SEAL Interval: 101.8' - 105' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 101.8' Type: Cement-Bentonite Quantity: 1100lbs Cement, 20lbs Bentonite, 160gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
5	505								
10	500	10.00 - 14.00 CL, CLAY, low to moderate plasticity, dark red, moist, w~PL, soft, quartz, vermiculite, plagioclase	CL	[Hatched]	499.7 10.00	1	ROTO 7.70 SONIC 5.00	Grout – Riser –	
15	495	14.00 - 15.00 CL, CLAY, low to moderate plasticity, orange-red brown, moist, w~PL, soft, quartz, vermiculite, plagioclase 15.00 - 25.00 CL, CLAY, low to moderate plasticity, dark red, moist, w~PL, soft, quartz, vermiculite, plagioclase	CL	[Hatched]	495.7 14.00 494.7 15.00				
20	490	23.5' - 25', SM, SILTY SAND, fine to medium sand, silvery white to tan, non to low plasticity, w<PL, soft/loose, quartz, biotite, feldspar	CL	[Hatched]		2	ROTO 7.00 SONIC 10.00		
25	485	25.00 - 35.00 CL, CLAY, low plasticity, orange red clay, soft, w~PL			484.7 25.00				
30	480	33'-35' SM, SILTY SAND, fine to medium sand, silvery white to tan, non to low plasticity, w<PL, soft/loose, quartz, biotite, feldspar	CL	[Hatched]		3	ROTO 6.00 SONIC 10.00		
35	475	35.00 - 53.50 SM, SILTY SAND, fine to medium sand, tannish brown, non to low plasticity, w<PL, soft/loose, quartz, biotite, feldspar, saprolitic	SM	[Vertical Lines]	474.7 35.00	4	ROTO 9.50 SONIC 10.00		
40	470	Log continued on next page							

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Vern Olsen

GA INSPECTOR: M. Boatman, PG
CHECKED BY: Rachel P. Kirkman, PG
DATE: 5/29/20



RECORD OF BOREHOLE PZ-45D

SHEET 2 of 5

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 165.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/8/20
 DATE COMPLETED: 3/9/20

NORTHING: 1,125,296.24
 EASTING: 2,400,250.55
 GS ELEVATION: 509.7
 TOC ELEVATION: 512.33 ft

DEPTH W.L.: 23.50'
 ELEVATION W.L.: 488.66'
 DATE W.L.: 3/31/20
 TIME W.L.: 8:20

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
40		35.00 - 53.50 SM, SILTY SAND, fine to medium sand, tannish brown, non to low plasticity, w<PL, soft/loose, quartz, biolite, feldspar, saprolitic <i>(Continued)</i>				4	ROTO <u>9.50</u> SONIC 10.00		<p>WELL CASING Interval: 0' - 110' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 110' - 165' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 105' - 165' Type: #1 Sand Quantity: 20.5bags</p> <p>FILTER PACK SEAL Interval: 101.8' - 105' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 101.8' Type: Cement-Bentonite Quantity: 1100lbs Cement, 20lbs Bentonite, 160gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
45	465		SM						
50	460				5	ROTO <u>11.00</u> SONIC 10.00			
55	455	53.50 - 55.00 SC, CLAYEY SAND, fine to coarse sand, dark green and white, loose/compact, soft, non to low plasticity, w<PL	SC	456.2 53.50					
60	450	55.00 - 65.00 SM, SILTY SAND, very fine grain, medium to dark green, low to non plastic, moist to wet, decreases with depth		454.7 55.00	6	ROTO <u>10.00</u> SONIC 10.00			
65	445	65.00 - 75.00 SM, SILTY SAND, fine to coarse, medium to dark green, low to non plastic, moist, decreases with depth		444.7 65.00					
70	440		SM		7	ROTO <u>10.00</u> SONIC 10.00			
75	435	75.00 - 85.00 SM, SILTY SAND, fine to coarse, medium to dark green, low to non plastic, dry to moist, chlorite, "schistose"/"meta-proxenite"		434.7 75.00					
80	430	massive water staining from 78'-80' 83'-85' metagabbro Log continued on next page	SM		8	ROTO <u>9.00</u> SONIC 10.00			

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olsen

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-45D

SHEET 3 of 5

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 165.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/8/20
 DATE COMPLETED: 3/9/20

NORTHING: 1,125,296.24
 EASTING: 2,400,250.55
 GS ELEVATION: 509.7
 TOC ELEVATION: 512.33 ft

DEPTH W.L.: 23.50'
 ELEVATION W.L.: 488.66'
 DATE W.L.: 3/31/20
 TIME W.L.: 8:20

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
80			SM			8	ROTO SONIC	9.00 10.00		<p>WELL CASING Interval: 0' - 110' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 110' - 165' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 105' - 165' Type: #1 Sand Quantity: 20.5bags</p> <p>FILTER PACK SEAL Interval: 101.8' - 105' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 101.8' Type: Cement-Bentonite Quantity: 1100lbs Cement, 20lbs Bentonite, 160gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
85	425	85.00 - 103.50 SM, SILTY SAND, Metagabbro/metapyroxenite, interlayered, light to dark green, gabbro- trace gravel, some clay, low plasticity, loose, dry to moist pyroxenite - moist, fine to moderate sand, trace gravel, non plastic, compact			424.7 85.00					
90	420					9	ROTO SONIC	13.50 10.00		
95	415		SM							
100	410					10	ROTO SONIC	12.00 10.00		
105	405	103.50 - 165.00 METAGABBRO, fine grain, pyrite, biotite, hornblende, unfoliated, poorly jointed, slightly to moderately weathered, medium strong			406.2 103.50					
110	400	Rock sample collected 136.5'-137.0'				11	ROTO SONIC	1.20 10.00		
		Rock sample collected 158.8'-159.4'	BR							
115	395									
120	390					12	ROTO SONIC	2.90 10.00		

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olsen

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-45D

SHEET 4 of 5

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 165.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/8/20
 DATE COMPLETED: 3/9/20

NORTHING: 1,125,296.24
 EASTING: 2,400,250.55
 GS ELEVATION: 509.7
 TOC ELEVATION: 512.33 ft

DEPTH W.L.: 23.50'
 ELEVATION W.L.: 488.66'
 DATE W.L.: 3/31/20
 TIME W.L.: 8:20

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
120		103.50 - 165.00 METAGABBRO, fine grain, pyrite, biotite, hornblende, unfoliated, poorly jointed, slightly to moderately weathered, medium strong				12	ROTO 2.90 SONIC 10.00		Sand -	<p>WELL CASING Interval: 0' - 110' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 110' - 165' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 105' - 165' Type: #1 Sand Quantity: 20.5bags</p> <p>FILTER PACK SEAL Interval: 101.8' - 105' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 101.8' Type: Cement-Bentonite Quantity: 1100lbs Cement, 20lbs Bentonite, 160gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
125	385	Rock sample collected 136.5'-137.0'								
130	380	Rock sample collected 158.8'-159.4' (Continued)				13	ROTO 3.80 SONIC 10.00			
135	375									
140	370		BR			14	ROTO 8.50 SONIC 10.00			
145	365									
150	360					15	ROTO 6.60 SONIC 10.00	0.010" Slotted - Screen		
155	355									
160	350					16	ROTO 8.80 SONIC 10.00			

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olsen

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-45D

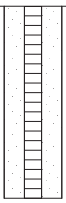
SHEET 5 of 5

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 165.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/8/20
 DATE COMPLETED: 3/9/20

NORTHING: 1,125,296.24
 EASTING: 2,400,250.55
 GS ELEVATION: 509.7
 TOC ELEVATION: 512.33 ft

DEPTH W.L.: 23.50'
 ELEVATION W.L.: 488.66'
 DATE W.L.: 3/31/20
 TIME W.L.: 8:20

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
160			BR			16	ROTO 8.80 SONIC 10.00			<p>WELL CASING Interval: 0' - 110' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 110' - 165' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 105' - 165' Type: #1 Sand Quantity: 20.5bags</p> <p>FILTER PACK SEAL Interval: 101.8' - 105' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 101.8' Type: Cement-Bentonite Quantity: 1100lbs Cement, 20lbs Bentonite, 160gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
165	345	Boring completed at 165.00 ft			344.7					
170	340									
175	335									
180	330									
185	325									
190	320									
195	315									
200	310									

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olsen

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-46D

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 53.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/16/20
 DATE COMPLETED: 3/17/20

NORTHING: 1,123,512.22
 EASTING: 2,400,923.25
 GS ELEVATION: 447.1
 TOC ELEVATION: 450.28 ft

DEPTH W.L.: 12.42'
 ELEVATION W.L.: 427.11'
 DATE W.L.: 3/31/20
 TIME W.L.: 12:42

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 5.00 Hand auger							WELL CASING Interval: 0' - 23.5' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 23.5' - 53.5' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 20' - 53.5' Type: #1 Sand Quantity: 9.5 Bags FILTER PACK SEAL Interval: 16' - 20' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 16' Type: Cement-Bentonite Quantity: 300lbs Cement, 10lbs Bentonite, 30gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
445		CL, SILTY CLAY, little to very fine sand, 7.5 YR 3/3 dark brown, vein quartz cobbles throughout, residual soil/colluvium	CL		442.1			Riser -	
5		5.00 - 15.00 Hand auger and core barrel overdrill			5.00				
440		ML, sandy CLAYEY SILT, very fine to medium sand, 5Y 4/2 olive gray, deeply weathered amphibolite with some partially weathered to unweathered amphibolite (river terrace deposits), foliated, quartz-plagioclase-biotite	ML					Grout -	
10									
435									
15		15.00 - 33.00 Transitionally Weathered Rock, amphibolite/hornblende gneiss, gley 2.5/1 blueish black to 5G 2/1 greenish black, fine grained quartz-plagioclase, biotite-hornblende, foliated, trace very fine pyrite (metallic luster, gold color). Driller notes rock interlayered with weathered material			432.1	1	8.00 10.00	Bentonite -	
430					15.00				
20									
425									
25									
420								Sand -	
30									
415									
35		33.00 - 53.00 AMPHIBOLITE/HORNBLLENDE GNEISS, fine grained, minor oxidation at 38' and 42.5', quartz-plagioclase-biotite-hornblende, trace pyrite, foliated	BR		414.1	3	10.00 10.00		
410					33.00				
40		Rock sample collected 49.0'-49.5'							

Log continued on next page

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olson

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-46D

SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 53.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/16/20
 DATE COMPLETED: 3/17/20

NORTHING: 1,123,512.22
 EASTING: 2,400,923.25
 GS ELEVATION: 447.1
 TOC ELEVATION: 450.28 ft

DEPTH W.L.: 12.42'
 ELEVATION W.L.: 427.11'
 DATE W.L.: 3/31/20
 TIME W.L.: 12:42

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		33.00 - 53.00 AMPHIBOLITE/HORNBLLENDE GNEISS, fine grained, minor oxidation at 38' and 42.5', quartz-plagioclase-biotite-hornblende, trace pyrite, foliated		[Yellow dotted pattern]					0.010" Slotted Screen	<p>WELL CASING Interval: 0' - 23.5' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 23.5' - 53.5' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 20' - 53.5' Type: #1 Sand Quantity: 9.5 Bags</p> <p>FILTER PACK SEAL Interval: 16' - 20' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 16' Type: Cement-Bentonite Quantity: 300lbs Cement, 10lbs Bentonite, 30gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
405					3	<u>10.00</u> 10.00				
45		Rock sample collected 49.0'-49.5' (Continued)	BR	[Yellow dotted pattern]						
450					4	<u>8.00</u> 10.00				
455		Boring completed at 53.00 ft		[Yellow dotted pattern]						
460					394.1					
465										
470										
475										
480										
485										
490										
495										
500										
505										
510										
515										
520										
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795										
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BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olson

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-47D

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 26.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/11/20
 DATE COMPLETED: 3/11/20

NORTHING: 1,126,623.42
 EASTING: 2,404,366.80
 GS ELEVATION: 406.8
 TOC ELEVATION: 410.01 ft

DEPTH W.L.: 9.70'
 ELEVATION W.L.: 400.19'
 DATE W.L.: 3/31/20
 TIME W.L.: 10:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	405	0.00 - 6.00 GRANITE, N4 medium dark grey, hard, quartz, plagioclase, biotite, no fractures.	BR		400.8	1	ROTO 1.00 SONIC 6.00	Sch 40 PVC Riser Grout Bentonite	WELL CASING Interval: 0' - 10.1' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 10.1' - 25.1' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"
5	400	6.00 - 16.00 GRANITE, strong, medium dark grey, 10R 5/4, pale reddish brown, quartz-rich, biotite, muscovite, plagioclase, thick lens of K-feldspar dominant, no fractures, very hard.	BR		390.8	2	ROTO 4.70 SONIC 10.00	Bentonite Sand	FILTER PACK Interval: 8' - 25.1' Type: 20/30 Sand Quantity: 5.5 Bags FILTER PACK SEAL Interval: 6' - 8' Type: Pel Plug Quantity: 1-5 gallon bucket ANNULUS SEAL Interval: 0' - 6' Type: Cement-Bentonite Quantity: 95lbs Cement, 5lbs Bentonite, 10gal Water
10	395	16.00 - 26.00 GRANITE, 5B 5/1, N4 medium blue-gray, small fractures at 16.5, 16.9, 17.7, 18.6, 22.1, 23.1, 24, 24.5, and 25 feet. No discoloration from weathering, breaks potential mechanical. Mineralogy consists of quartz, plagioclase, K-spar, biotite	BR		390.8	3	ROTO 10.00 SONIC 10.00	0.010" Slotted Screen	WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
15	385	Rock sample collected 19.7'-20.3'	BR		380.8				
20	380	Boring completed at 26.00 ft							
25	375								
30	370								
35	365								
40	360								

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: B. Steele, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-48S


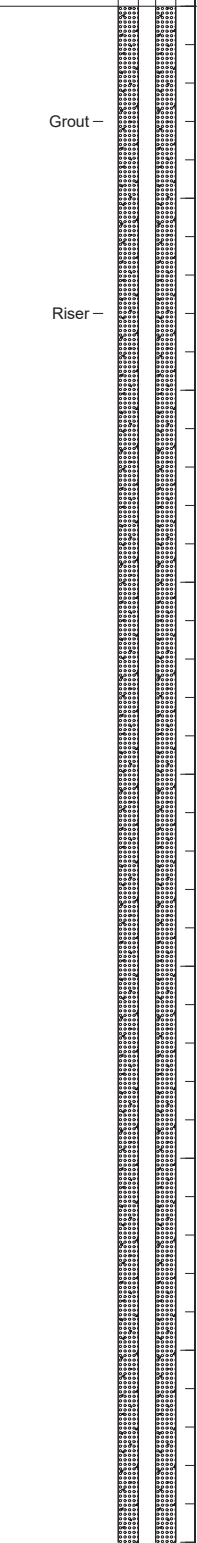
SHEET 1 of 2

PROJECT: Plant Scherer
PROJECT NUMBER: 20139484
DRILLED DEPTH: 65.00 ft
LOCATION: Juliette, GA

DRILL RIG: TS 150
DATE STARTED: 3/4/20
DATE COMPLETED: 3/4/20

NORTHING: 1,125,014.71
EASTING: 2,405,779.92
GS ELEVATION: 441.3
TOC ELEVATION: 444.33 ft

DEPTH W.L.: 30.50'
ELEVATION W.L.: 413.56'
DATE W.L.: 3/31/20
TIME W.L.: 10:35

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES		MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	TYPE			REC
0 440		0.00 - 10.00 CL, SILTY CLAY, 2.5 YR 4/6 red, residual soil, very weathered biotite gneiss, no foliation, very fine muscovite throughout, moist, very soft.	CL		431.3 10.00	1	ROTO 5.00 SONIC 5.00	<p>Grout –</p> <p>Riser –</p> 	<p>WELL CASING Interval: 0' - 50.75' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 50.75' - 60.75' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 48' - 60.75' Type: #1 Sand Quantity: 4 Bags</p> <p>FILTER PACK SEAL Interval: 44' - 48' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 44' Type: Cement-Bentonite Quantity: 600lb Cement, 30lb Bentonite, 70gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
5 435									
10 430		10.00 - 14.00 CL, SILTY CLAY, 2.5 YR 4/6 red, residual soil, very weathered biotite gneiss with interlayers of very weathered amphibolite (10 YR 5/6 yellowish brown), relict foliation not observed, very fine muscovite within very weathered biotite, moist, soft.	CL		427.3 14.00				
15 425		14.00 - 23.00 ML, CLAYEY SILT, residual soil, very weathered biotite gneiss, relict foliation, very weathered biotite-muscovite-plagioclase with trace quartz, moist, soft.	ML		418.3 23.00	2	ROTO -10.00 SONIC 10.00		
20 420									
25 415		23.00 - 30.00 ML, CLAYEY SILT, trace fine to medium sand, 2.5 Y 6/3 light yellowish brown, very weathered biotite gneiss, relict foliation, very weathered biotite-muscovite-plagioclase with trace quartz, moist, soft.	ML		411.3 30.00	3	ROTO -10.00 SONIC 10.00		
30 410									
35 405		30.00 - 36.00 ML, CLAYEY SILT, 10 YR 5/4 yellowish brown, very weathered biotite gneiss, relict foliation, thin 1" lens of slightly weathered biotite gneiss, some minerals highly weathered to a light green color (amphibolite).	ML		405.3 36.00	4	ROTO -10.00 SONIC 10.00		
40 400		36.00 - 39.00 ML, SILT, with very fine to fine sand, gley 3/1 very dark greenish grey and 10 YR 5/4 yellowish brown, ~6" very weathered amphibolite interlayered within biotite gneiss unit - two 6" layers weathered to highly weathered biotite gneiss, biotite-muscovite-plagioclase with some quartz, amphibolite-hornblende and plagioclase, SAPROLITE	ML		402.3 39.00				
		Log continued on next page							

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ PIEDMONT.GDT 8/19/20

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tom Ardito

GA INSPECTOR: S. George, PG
CHECKED BY: Rachel P. Kirkman, PG
DATE: 5/29/20



RECORD OF BOREHOLE PZ-48S

SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 65.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/4/20
 DATE COMPLETED: 3/4/20

NORTHING: 1,125,014.71
 EASTING: 2,405,779.92
 GS ELEVATION: 441.3
 TOC ELEVATION: 444.33 ft

DEPTH W.L.: 30.50'
 ELEVATION W.L.: 413.56'
 DATE W.L.: 3/31/20
 TIME W.L.: 10:35

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC			
40	400	39.00 - 61.00 ML, sandy SILT, very fine to fine sand, 2.5 Y 5/2 greyish brown, weathered biotite gneiss, muscovite rich layer, muscovite-biotite-plagioclase with trace quartz, moist, firm SAPROLITE (Continued)	ML					4	ROTO -10.00 SONIC 10.00		WELL CASING Interval: 0' - 50.75' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 50.75' - 60.75' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 48' - 60.75' Type: #1 Sand Quantity: 4 Bags FILTER PACK SEAL Interval: 44' - 48' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 44' Type: Cement-Bentonite Quantity: 600lb Cement, 30lb Bentonite, 70gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
45	395										
50	390										
55	385	61.00 - 65.00 ML, sandy SILT, Transitionally Weathered Rock, weathered biotite gneiss, driller noted first rock encountered at 61'	TWR					5	ROTO -10.00 SONIC 10.00		
60	380										
65	375										
70	370	Boring completed at 65.00 ft						6	ROTO 5.00 SONIC 10.00		
75	365										
80	360										

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT - 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-49D

SHEET 1 of 3

PROJECT: Plant Scherer
PROJECT NUMBER: 20139484
DRILLED DEPTH: 106.00 ft
LOCATION: Juliette, GA

DRILL RIG: TS 150
DATE STARTED: 3/3/20
DATE COMPLETED: 3/6/20

NORTHING: 1,123,429.73
EASTING: 2,410,615.29
GS ELEVATION: 364.9
TOC ELEVATION: 367.41 ft

DEPTH W.L.: 4.50'
ELEVATION W.L.: 362.79'
DATE W.L.: 3/31/20
TIME W.L.: 8:35

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	SAMPLE NO.	TYPE			REC	
					DEPTH (ft)						
0		0.00 - 2.00 SM, SILTY SAND, fine sand, brown, wet, w<PL, non-plastic, loose/soft, biotite and quartz	SM		362.9				WELL CASING Interval: 0' - 76' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded		
		2.00 - 4.00 SP, SAND, fine sand, non-plastic, w<PL, moist, compact, Salt and pepper with green hue, uniform graded	SP		2.00					WELL SCREEN Interval: 76' - 106' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"	
		4.00 - 8.00 SP, SAND, coarse sand, non-plastic, w<PL, moist, compact, Salt and pepper with green hue, uniform graded	SP		360.9						FILTER PACK Interval: 73.5' - 106' Type: #1 Sand Quantity: 9 Bags
5	360	8.00 - 15.00 SM, SAND and SILT, moist, dark green, w<PL, non-plastic, loose, firm, large white grain, plagioclase	SM		4.00							FILTER PACK SEAL Interval: 69.8' - 73.5' Type: Pel Plug Quantity: 5gal Bucket
		15.00 - 35.00 SM, Sand and Silt, moist, medium green, w<PL, non-plastic, loose, firm, large white grain, plagioclase, RESIDUUM/SAPROLITE	SM		356.9	1	ROTO 11.00 SONIC 5.00			ANNULUS SEAL Interval: 0' - 69.8' Type: Cement-Bentonite Quantity: 554lbs Cement, 20lbs Bentonite, 60gal Water	
10	355				8.00			WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum			
					349.9	2	ROTO 10.00 SONIC 10.00		DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic		
15	350				15.00						
						3	ROTO 10.00 SONIC 10.00				
20	345										
25	340										
30	335										
35	330	35.00 - 55.00 DIORITE, plagioclase, biotite, hornblende, medium grained, fresh to slightly weathered, poorly foliated, poorly jointed, light grey to dark green/black, dry to wet, last foot multiple fractures	BR		329.9 35.00	4	ROTO 6.00 SONIC 10.00				
40	325										

Log continued on next page

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Vern Olson

GA INSPECTOR: M. Boatman, PG
CHECKED BY: Rachel P. Kirkman, PG
DATE: 5/29/20



RECORD OF BOREHOLE PZ-49D

SHEET 2 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 106.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/3/20
 DATE COMPLETED: 3/6/20

NORTHING: 1,123,429.73
 EASTING: 2,410,615.29
 GS ELEVATION: 364.9
 TOC ELEVATION: 367.41 ft

DEPTH W.L.: 4.50'
 ELEVATION W.L.: 362.79'
 DATE W.L.: 3/31/20
 TIME W.L.: 8:35

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
40		35.00 - 55.00 DIORITE, plagioclase, biotite, hornblende, medium grained, fresh to slightly weathered, poorly foliated, poorly jointed, light grey to dark green/black, dry to wet, last foot multiple fractures <i>(Continued)</i>	BR	[Red X Pattern]				[Well Diagram]	WELL CASING Interval: 0' - 76' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 76' - 106' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 73.5' - 106' Type: #1 Sand Quantity: 9 Bags FILTER PACK SEAL Interval: 69.8' - 73.5' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 69.8' Type: Cement-Bentonite Quantity: 554lbs Cement, 20lbs Bentonite, 60gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
						4	ROTO 6.00 SONIC 10.00		
45	320								
50	315								
55	310	55.00 - 75.00 DIORITE, plagioclase, biotite, hornblende, medium grained, fresh to slightly weathered, poorly foliated, poorly jointed, light grey to dark green/black, dry to wet broken core at 58'-59' and 61'-62' Fractures at 66.2', 74.5'	BR	[Red X Pattern]	309.9				
					55.00	5	ROTO 10.00 SONIC 10.00		
60	305								
65	300		BR						
70	295						Bentonite -		
75	290				289.9				
			BR		75.00		Sand -		
80	285								

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olson

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-49D

SHEET 3 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 106.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/3/20
 DATE COMPLETED: 3/6/20

NORTHING: 1,123,429.73
 EASTING: 2,410,615.29
 GS ELEVATION: 364.9
 TOC ELEVATION: 367.41 ft

DEPTH W.L.: 4.50'
 ELEVATION W.L.: 362.79'
 DATE W.L.: 3/31/20
 TIME W.L.: 8:35

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
80		75.00 - 85.00 DIORITE, plagioclase, biotite, hornblende, medium grained, fresh to slightly weathered, poorly foliated, poorly jointed, light grey to dark green/black, dry to wet, at 77'-78' fine grain amphibolite, salt and pepper, plagioclase, quartz, hornblende, poorly foliated, poorly jointed, freshley weathered	BR	[Red X Pattern]		8	ROTO 10.00 SONIC 10.00	0.010" Slotted - Screen	<p>WELL CASING Interval: 0' - 76' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 76' - 106' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 73.5' - 106' Type: #1 Sand Quantity: 9 Bags</p> <p>FILTER PACK SEAL Interval: 69.8' - 73.5' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 69.8' Type: Cement-Bentonite Quantity: 554lbs Cement, 20lbs Bentonite, 60gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
85	280	Rock sampled collected at 77.8' - 78.9' 78-85' weakly foliated Fractures at 82.8', 83.1' (Continued)			279.9 85.00				
90	275	85.00 - 95.00 DIORITE, plagioclase, biotite, hornblende, medium grained, fresh to slightly weathered, poorly foliated, poorly jointed, light grey to dark green/black, dry to wet, starts to become more gneissic/foliated	BR	[Red X Pattern]		9	ROTO 8.50 SONIC 10.00		
95	270	95.00 - 106.00 Intermixed DIORITE and HORNBLENDE GNEISS, weak to well foliated, poorly jointed, fine to large grain, evidence of water at 96.2'			269.9 95.00				
100	265		BR	[Red X Pattern]		10	ROTO 7.70 SONIC 11.00		
		Boring completed at 106.00 ft			258.9				
110	255								
115	250								
120	245								

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olson

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-49S

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 25.50 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/7/20
 DATE COMPLETED: 3/7/20

NORTHING: 1,123,434.46
 EASTING: 2,410,605.99
 GS ELEVATION: 365.2
 TOC ELEVATION: 367.89 ft

DEPTH W.L.: 6.70'
 ELEVATION W.L.: 361.01'
 DATE W.L.: 3/31/20
 TIME W.L.: 8:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	365	0.00 - 10.00 Hydro-vac for utility clearance								<p>WELL CASING Interval: 0' - 15' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 15' - 25' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 13' - 25' Type: #1 Sand Quantity: 4.5 Bags</p> <p>FILTER PACK SEAL Interval: 7' - 13' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 7' Type: Cement-Bentonite Quantity: 200lbs Cement, 10lb Bentonite, 20gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
10	355	10.00 - 11.00 GP, SANDY GRAVEL, fine gravels with fine to coarse sand, poorly graded, greenish-brown, wet, W < PL, non-plastic, loose. 11.00 - 20.50 SM, SILTY SAND, wet, non to low plasticity, W < PL, loose to firm. Residuum soil after diorite.	GP		355.2 10.00 354.2 11.00	1	ROTO 7.00 SONIC 5.50			
20	345	20.50 - 25.50 CL, CLAY with some sand, dark to medium green, spotted, low plasticity, W < PL, moist to wet, soft to firm.	CL		344.7 20.50	2	ROTO 10.00 SONIC 10.00			
25	340	Boring completed at 25.50 ft								

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olson

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-50D

SHEET 1 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 100.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/17/20
 DATE COMPLETED: 3/18/20

NORTHING: 1,103,125.91
 EASTING: 2,408,306.87
 GS ELEVATION: 470.66
 TOC ELEVATION: 473.78 ft

DEPTH W.L.: 26.05
 ELEVATION W.L.: 447.73
 DATE W.L.: 3/21/2020
 TIME W.L.: 10:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	470	0.00 - 10.00 Hand auger for utility clearance.							WELL CASING Interval: 0' - 90' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 90' - 100' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 87' - 100' Type: U-Pack Prepack Quantity: 4 bags FILTER PACK SEAL Interval: 84' - 87' Type: Pel Plug Quantity: 2.5 gal bucket ANNULUS SEAL Interval: 0' - 84' Type: Cement-Bentonite Quantity: 277.2lbs Cement, 7lbs Bentonite, 17gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
5	465								
10	460	10.00 - 20.00 CL, CLAY with little silt and trace fine sand, dark green and white speckled, low PL, W < PL, soft to firm, residuum after metagabbro, plagioclase, moist.	CL		460.66 10.00	1	ROTO 5.00 SONIC 5.00		
15	455								
20	450	20.00 - 29.00 SM, SILTY SAND, non to low PL, dry to moist, dark green with weathering, W < PL, loose to compact, same host rock as above with less plagioclase and more mafic minerals.	SM		450.66 20.00	2	ROTO 10.00 SONIC 10.00		
25	445								
30	440	29.00 - 40.00 CL, CLAY with little silt and trace fine sand, dark green and white speckled, low PL, W < PL, soft to firm, residuum after metagabbro, plagioclase, moist.	CL		441.66 29.00	3	ROTO 10.00 SONIC 10.00		
35	435								
40	430				430.66	4	ROTO 10.00 SONIC 10.00		

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED (1).GPJ PIEDMONT.GDT 8/13/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-50D

SHEET 2 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 100.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/17/20
 DATE COMPLETED: 3/18/20

NORTHING: 1,103,125.91
 EASTING: 2,408,306.87
 GS ELEVATION: 470.66
 TOC ELEVATION: 473.78 ft

DEPTH W.L.: 26.05
 ELEVATION W.L.: 447.73
 DATE W.L.: 3/21/2020
 TIME W.L.: 10:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40	430	40.00 - 41.50 SC, CLAYEY SAND with trace to little fine gravels, dark green, low to moderate PL, W ~ PL, compact to firm, moist, subround to subangular gravels, vein quartz, fluvial/alluvial.	SC	[Hatched Pattern]	40.00 429.16 41.50	4	ROTO 10.00 SONIC 10.00			<p>WELL CASING Interval: 0' - 90' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 90' - 100' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 87' - 100' Type: U-Pack Prepack Quantity: 4 bags</p> <p>FILTER PACK SEAL Interval: 84' - 87' Type: Pel Plug Quantity: 2.5 gal bucket</p> <p>ANNULUS SEAL Interval: 0' - 84' Type: Cement-Bentonite Quantity: 277.2lbs Cement, 7lbs Bentonite, 17gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
	425	41.50 - 50.00 SM-GM, SILTY SAND to SILTY GRAVEL, well graded, light to dark green-black, non PL, W < PL, dry to wet (~45'), dense to very dense.	SM-GM	[Dotted Pattern]						
	420	50.00 - 55.00 SM, SILTY SAND, dark green, non-PL, W < PL, loose, dry to moist.	SM	[Vertical Lines]	420.66 50.00	5	ROTO 7.40 SONIC 10.00			
	415	55.00 - 70.00 Deeply weathered METAGABBRO, extremely weak to weak, plagioclase-amphibole, weathering rhine where fresher, salt/pepper fine to medium grained. 65-70 assumed same as above, washed out.	TWR	[Cross-hatched Pattern]	415.66 55.00	6	ROTO 8.20 SONIC 10.00			
	410		TWR	[Cross-hatched Pattern]						
	405		TWR	[Cross-hatched Pattern]						
	400	70.00 - 75.00 METAGRABBRO, dark green and white, fresh to slightly weathered, medium strong to strong, most of core is broken to fractures - indicative of water movement.	BR	[Vertical Lines]	400.66 70.00	7	ROTO 2.90 SONIC 10.00			
	395	75.00 - 100.00 METAGRABBRO, fine to medium grained, dark green to black and white, amphiboles and plagioclase, unfoliated, fresh to slightly weathered, medium strong to strong. Highly fractured zone 78'-80', water staining, appaers as gravel sized particles. Rock sample collected 94.0'-94.5'	BR	[Vertical Lines]	395.66 75.00	8	ROTO 7.75 SONIC 10.00			

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED (1).GPJ PIEDMONT.GDT 8/13/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



Log continued on next page

RECORD OF BOREHOLE PZ-50D

SHEET 3 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 100.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/17/20
 DATE COMPLETED: 3/18/20

NORTHING: 1,103,125.91
 EASTING: 2,408,306.87
 GS ELEVATION: 470.66
 TOC ELEVATION: 473.78 ft

DEPTH W.L.: 26.05
 ELEVATION W.L.: 447.73
 DATE W.L.: 3/21/2020
 TIME W.L.: 10:15

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED (1).GPJ | PIEDMONT.GDT 8/13/20

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
80	390	75.00 - 100.00 METAGABBRO, fine to medium grained, dark green to black and white, amphiboles and plagioclase, unfoliated, fresh to slightly weathered, medium strong to strong. Highly fractured zone 78'-80', water staining, appaers as gravel sized particles. Rock sample collected 94.0'-94.5' (Continued)	BR		8	ROTO 7.75 SONIC 10.00			WELL CASING Interval: 0' - 90' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 90' - 100' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 87' - 100' Type: U-Pack Prepack Quantity: 4 bags FILTER PACK SEAL Interval: 84' - 87' Type: Pel Plug Quantity: 2.5 gal bucket ANNULUS SEAL Interval: 0' - 84' Type: Cement-Bentonite Quantity: 277.2lbs Cement, 7lbs Bentonite, 17gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic	
85	385				9	ROTO 7.20 SONIC 10.00				
90	380				10	ROTO 4.60 SONIC 5.00				
100	370	Boring completed at 100.00 ft				370.66				
105	365									
110	360									
115	355									
120										

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-51D

SHEET 1 of 4

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 126.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/6/20
 DATE COMPLETED: 3/8/20

NORTHING: 1,119,239.99
 EASTING: 2,399,955.07
 GS ELEVATION: 543.2
 TOC ELEVATION: 546.04 ft

DEPTH W.L.: 38.4'
 ELEVATION W.L.: 507.58'
 DATE W.L.: 3/17/2020
 TIME W.L.: 13:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 10.00 CL, SILTY CLAY, trace very fine to fine sand, 2.5 YR 4/6 red, deeply weathered biotite gneiss, little to no relict foliation, very weathered biotite-muscovite-plagioclase, trace quartz, moist, very soft to soft, residual soil	CL		533.2			Riser — Grout —	WELL CASING Interval: 0' - 116' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 116' - 126' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 113' - 126' Type: 20/30 Sand Quantity: 6 Bags FILTER PACK SEAL Interval: 109.8' - 113' Type: Pel Plug Quantity: 5gal bucket ANNULUS SEAL Interval: 0' - 109.8' Type: Cement-Bentonite Quantity: 250lbs Cement, 15lbs Bentonite, 30gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
540									
5									
535									
10		10.00 - 16.00 CL, SILTY CLAY, trace very fine to fine sand, 2.5 YR 4/6 Red, deeply weathered to very weathered biotite gneiss, little to no relict foliation, very weathered biotite-muscovite-plagioclase, trace quartz, moist, very soft to soft, residual soil	CL		527.2	1	5.00 6.00		
530									
15									
525		16.00 - 20.00 CL, SILTY CLAY, trace very fine to fine sand, 2.5 YR 4/6 red, deeply weathered to very weathered biotite gneiss, little to no relict structure/foliation, very weathered biotite-muscovite-plagioclase, trace quartz, moist, very soft to sft, 6' lens of 5 YR	CL		523.2				
20		20.00 - 21.00 ML, sandy CLAYET SILT, very fine to fine sand, 2.5 YR 5/4 reddish brown, very weathered biotite gneiss, very weathered biotite-muscovite-plagioclase, little quartz, moist, soft	ML		522.2	2	5.00 10.00		
520		21.00 - 26.00 No Recovery			21.00				
25									
515		26.00 - 32.50 ML, CLAYEY SILT, some fine sand, 5 YR 5/6 yellowish red, very weathered biotite gneiss, very weathered biotite-muscovite quartz, moist, soft, SAA from 27.5-28.75, < 1mm pyroclucite	ML		517.2	3	6.50 10.00		
30									
510		32.50 - 36.00 Wash out			510.7				
35									
505		36.00 - 39.00 ML, CLAYEY SILT, some fine to medium sand, 5 YR 5/8 yellowish red, very weathered biotite gneiss, muscovite, biotite, some quartz, moist, very soft	ML		507.2	4	10.00 10.00		
40					504.2				
		Log continued on next page	ML		39.00				

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: C. Hall

GA INSPECTOR: B. Steele, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-51D

SHEET 2 of 4

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 126.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/6/20
 DATE COMPLETED: 3/8/20

NORTHING: 1,119,239.99
 EASTING: 2,399,955.07
 GS ELEVATION: 543.2
 TOC ELEVATION: 546.04 ft

DEPTH W.L.: 38.4'
 ELEVATION W.L.: 507.58'
 DATE W.L.: 3/17/2020
 TIME W.L.: 13:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		39.00 - 50.00 ML, CLAYEY SILT, little fine sand, 5 YR 5/6 yellowish red, very weathered biotite gneiss, muscovite rich, little quartz, moist, soft to firm (Continued)	ML	| | | | |	493.2	4		10.00		<p>WELL CASING Interval: 0' - 116' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 116' - 126' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 113' - 126' Type: 20/30 Sand Quantity: 6 Bags</p> <p>FILTER PACK SEAL Interval: 109.8' - 113' Type: Pel Plug Quantity: 5gal bucket</p> <p>ANNULUS SEAL Interval: 0' - 109.8' Type: Cement-Bentonite Quantity: 250lbs Cement, 15lbs Bentonite, 30gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
50		50.00 - 52.50 ML, sandy SILT, little clay, 5YR 5/3 olive, very weathered biotite gneiss, rich in biotite-muscovite-quartz, moist, soft	ML	| | | | |	50.00	5		9.00 10.00		
45		52.50 - 56.00 Transitionally Weathered Rock, weathered BIOTITE GNEISS, 5Y 5/3 olive, rich in muscovite, biotite, plagioclase, quartz, amphibolite bands, dry, compact	TWR	| | | | |	490.7					
495		56.00 - 59.50 MLS, sandy SILT, fine sand, 7.5 YR 5/3 brown, very weathered biotite gneiss, amphibolite, rich in muscovite-biotite, some quartz, moist, soft	ML	| | | | |	487.2					
50		59.50 - 66.00 Transitionally Weathered Rock, BIOTITE GNEISS with some amphibolite, grey 1 5/1 greenish grey, rich in hornblende, biotite, muscovite, plagioclase, compact	TWR	| | | | |	483.7	6		10.00 10.00		
55		66.00 - 68.00 MLS, sandy SILT, compact to loose sand, rich in muscovite-biotite, quartz, amphibolite, grey 1 5/1 greenish grey, wet, loose	ML	| | | | |	477.2					
485		68.00 - 76.00 Wash out		| | | | |	475.2					
60		76.00 - 80.90 BIOTITE GNEISS, 5Y 4/1 olive grey, biotite, plagioclase, quartz, weathered from fractures, hard	BR	| | | | |	467.2	7		2.00 10.00		
65				| | | | |	468.00	8		4.90 10.00		
70				| | | | |						
75				| | | | |						
80				| | | | |						

BOREHOLE RECORD - PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT - 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: C. Hall

GA INSPECTOR: B. Steele, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-51D








SHEET 3 of 4

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 126.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/6/20
 DATE COMPLETED: 3/8/20

NORTHING: 1,119,239.99
 EASTING: 2,399,955.07
 GS ELEVATION: 543.2
 TOC ELEVATION: 546.04 ft

DEPTH W.L.: 38.4'
 ELEVATION W.L.: 507.58'
 DATE W.L.: 3/17/2020
 TIME W.L.: 13:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
80		80.90 - 86.00 No Recovery	BR		462.3 80.90				<p>WELL CASING Interval: 0' - 116' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 116' - 126' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 116' - 126' Type: 20/30 Sand Quantity: 6 Bags</p> <p>FILTER PACK SEAL Interval: 109.8' - 113' Type: Pel Plug Quantity: 5gal bucket</p> <p>ANNULUS SEAL Interval: 113' - 126' Type: Cement-Bentonite Quantity: 250lbs Cement, 15lbs Bentonite, 30gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
460						8	4.90 10.00		
85		86.00 - 91.00 BIOTITE GNEISS, 5Y 4/1 olive grey to N4 medium dark grey, predominantly quartz, biotite, plagioclase, amphibolite, hard. Fractures at 86.6, 88.2, 89, 90, 91.	BR		457.2 86.00				
455									
90		91.00 - 92.00 BIOTITE GNEISS, 5Y 4/1 olive grey, biotite, plagioclase, quartz, weathered from fractures, hard	BR		452.2 91.00	9	6.00 10.00		
450		92.00 - 96.00 No Recovery			451.2 92.00				
95									
445		96.00 - 100.20 BIOTITE GNEISS, 5Y 4/1 olive grey to N4 medium dark grey, fractures at 97, 97.4, 98, 99, 100, rich in biotite-plagioclase-quartz, very little amphibolite, compact	BR		447.2 96.00				
100									
440		100.20 - 101.40 Transitionally Weathered Rock, silty SAND, rich in amphibolite-plagioclase-muscovite, some quartz, loose, highly weathered	BR		443 100.20	10	5.20 10.00		
105		101.40 - 106.00 No Recovery			441.8 101.40				
435		106.00 - 116.00 BIOTITE GNEISS, thin lens of Transitionally Weathered Rock (same as 100.2-101.4), weathered fractures throughout, rich in biotite-plagioclase-muscovite. N4 medium dark grey, compact, some broken	BR		437.2 106.00				
110									
430						11	3.80 10.00	Bentonite -	
115									
425		116.00 - 126.00 BIOTITE GNEISS, N4 medium dark grey, biotite-plagioclase-muscovite-quartz, heavily fractured. Quartz vein at 117', compact	BR		427.2 116.00	12	5.50 10.00	0.010" Slotted - Screen	
120		Rock sample collected 118.0'-118.5'							

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: C. Hall

GA INSPECTOR: B. Steele, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-51D

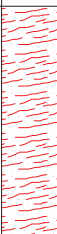
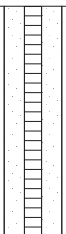
SHEET 4 of 4

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 126.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/6/20
 DATE COMPLETED: 3/8/20

NORTHING: 1,119,239.99
 EASTING: 2,399,955.07
 GS ELEVATION: 543.2
 TOC ELEVATION: 546.04 ft

DEPTH W.L.: 38.4'
 ELEVATION W.L.: 507.58'
 DATE W.L.: 3/17/2020
 TIME W.L.: 13:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
120		116.00 - 126.00 BIOTITE GNEISS, N4 medium dark grey, biotite-plagioclase-muscovite-quartz, heavily fractured. Quartz vein at 117', compact						Sand — 	<p>WELL CASING Interval: 0' - 116' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 116' - 126' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 113' - 126' Type: 20/30 Sand Quantity: 6 Bags</p> <p>FILTER PACK SEAL Interval: 109.8' - 113' Type: Pel Plug Quantity: 5gal bucket</p> <p>ANNULUS SEAL Interval: 0' - 109.8' Type: Cement-Bentonite Quantity: 250lbs Cement, 15lbs Bentonite, 30gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
420		Rock sample collected 118.0'-118.5' (Continued)	BR		12	5.50 10.00			
125		Boring completed at 126.00 ft							
415									
130									
410									
135									
405									
140									
400									
145									
395									
150									
390									
155									
385									
160									

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: C. Hall

GA INSPECTOR: B. Steele, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-52

SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 77.00 ft
 LOCATION: Juliette, GA

DRILL RIG: GSI CC Crawler
 DATE STARTED: 3/17/20
 DATE COMPLETED: 3/17/20

NORTHING: 1,122,822.91
 EASTING: 2,403,622.69
 GS ELEVATION: 519.4
 TOC ELEVATION: 521.84 ft

DEPTH W.L.: 32.50'
 ELEVATION W.L.: 489.12'
 DATE W.L.: 3/31/20
 TIME W.L.: 10:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		39.00 - 49.00 SM, SILTY SAND, fine sand, low plasticity, light olive grey to light olive brown, quartz-illite-plagioclase, relict foliation biotite gneiss parent, non-cohesive, moist, dense to loose. SAPROLITE <i>(Continued)</i>	SM	|		4	ROTO SONIC	10.00 10.00		<p>WELL CASING Interval: 0' - 67' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 67' - 77' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 65' - 77' Type: #6 Sand Quantity: 3 bags</p> <p>FILTER PACK SEAL Interval: 61.5' - 65' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 61.5' Type: Cement-Bentonite Quantity: 554.4lbs Cement, 20lbs Bentonite, 70gal water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
45	475									
50	470	49.00 - 54.00 SC, CLAYEY SAND, medium to high plasticity, fine grained sand, grey with trace dark yellowish orange, plagioclase-illite, no structure observed, cohesive, W > PL, firm.	SC	|	470.4 49.00					
55	465	54.00 - 77.00 SM, SILTY SAND, fine sand, low plasticity, blueish grey to greenish black, quartz-illite-biotite-hornblende/biotite interlayered. Biotite amphibolite gneiss with hornblende gneiss at 74' and 76', some relict foliation, non-cohesive, moist, dense to loose. SAPROLITE			465.4 54.00	5	ROTO SONIC	7.50 10.00		
60	460									
65	455		SM			6	ROTO SONIC	10.00 10.00		
70	450					7	ROTO SONIC	10.50 8.00		
75	445									
80	440	Boring completed at 77.00 ft			442.4					

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jimmy Hall

GA INSPECTOR: H. Brissey
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-53

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 45.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/18/20
 DATE COMPLETED: 3/19/20

NORTHING: 1,121,932.34
 EASTING: 2,404,813.43
 GS ELEVATION: 513.6
 TOC ELEVATION: 516.64 ft

DEPTH W.L.: 26.20'
 ELEVATION W.L.: 490.29'
 DATE W.L.: 3/31/20
 TIME W.L.: 9:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC			
0		0.00 - 8.00 Hydro-vac for utility clearance Soil type based on visual inspection of hole and surface soil - CL, silty CLAY, residual soil.								<p>WELL CASING Interval: 0' - 35' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 35' - 45' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 32' - 35' Type: #1 Sand Quantity: 3 Bags</p> <p>FILTER PACK SEAL Interval: 27' - 32' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 27' Type: Cement-Bentonite Quantity: 450lbs Cement, 17lbs Bentonite, 45gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>	
5.10			CL								
8.00		8.00 - 13.00 CL, SILTY CLAY, 7.5 YR 5/8 strong brown, no relict foliation, deeply weathered biotite-hornblende gneiss. Residual soil.	CL		505.6	8.00		1			ROTO 7.00 SONIC 7.00
13.00		13.00 - 17.00 ML, CLAYEY SILT, strong brown, minor relict foliation, deeply weathered biotite-hornblende gneiss. Residual soil.	ML		500.6	13.00					
17.00		17.00 - 20.00 ML, CLAYEY SILT, 7.5 YR 5/8 strong brown, very weathered hornblende gneiss, relict foliation.	ML		496.6	17.00					
20.00		20.00 - 25.00 ML, CLAYEY SILT, trace fine sand, 7.5 YR 5/4 weak red to pink to 10 YR 5/4 yellowish brown, deeply weathered biotite gneiss, weak relict foliation, cohesive, soft to firm, moist, deeply weathered quartz-muscovite-plagioclase-biotite, fine to medium grained minerals weathered to clay and silty. SAPROLITE.	ML		493.6	20.00		2			ROTO 10.00 SONIC 10.00
25.00		25.00 - 32.00 ML, CLAYEY SILT, trace fine sand, 7.5 YR 5/4 weak red to pink 10 YR 5/4 yellowish brown, deeply weathered biotite gneiss, foliation present, deeply weathered quartz-muscovite-plagioclase-hornblende-biotite, cohesive, soft to firm, moist to wet, W > PL. SAPROLITE.	ML		488.6	25.00					
32.00		32.00 - 35.00 No recovery			481.6	32.00		3			ROTO 7.00 SONIC 10.00
35.00		35.00 - 45.00 ML, CLAYEY SILT, some fine to very fine sand, strong brown 7.5 YR 5/8 to orange brown, lenses of light olive green, very weathered biotite-hornblende gneiss, foliation present, cohesive, firm to stiff, moist, moist to wet at 36", contact between biotite gneiss and biotite hornblende gneiss.	ML		478.6	35.00		4	ROTO 6.00 SONIC 10.00		

Log continued on next page

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olson

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-53

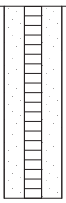
SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 45.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/18/20
 DATE COMPLETED: 3/19/20

NORTHING: 1,121,932.34
 EASTING: 2,404,813.43
 GS ELEVATION: 513.6
 TOC ELEVATION: 516.64 ft

DEPTH W.L.: 26.20'
 ELEVATION W.L.: 490.29'
 DATE W.L.: 3/31/20
 TIME W.L.: 9:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		35.00 - 45.00 ML, CLAYEY SILT, some fine to very fine sand, strong brown 7.5 YR 5/8 to orange brown, lenses of light olive green, very weathered biotite-hornblende gneiss, foliation present, cohesive, firm to stiff, moist, moist to wet at 36', contact between biotite gneiss and biotite hornblende gneiss. <i>(Continued)</i>	ML			4	ROTO 6.00 SONIC 10.00		 <p style="text-align: center;">0.010" Slotted - Screen</p>	<p>WELL CASING Interval: 0' - 35' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 35' - 45' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 32' - 35' Type: #1 Sand Quantity: 3 Bags</p> <p>FILTER PACK SEAL Interval: 27' - 32' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 27' Type: Cement-Bentonite Quantity: 450lbs Cement, 17lbs Bentonite, 45gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
45		Boring completed at 45.00 ft			468.6					
465										
50										
55										
60										
65										
70										
75										
80										

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olson

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-54

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 45.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/19/20
 DATE COMPLETED: 3/19/20

NORTHING: 1,121,509.71
 EASTING: 2,406,555.15
 GS ELEVATION: 490.2
 TOC ELEVATION: 492.96 ft

DEPTH W.L.: 29.00'
 ELEVATION W.L.: 463.62'
 DATE W.L.: 3/31/20
 TIME W.L.: 9:45

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	490	0.00 - 10.00 Hydro-vac for utility clearance.							WELL CASING Interval: 0' - 35' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 35' - 45' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 33' - 45' Type: #1 Sand Quantity: 4 Bags FILTER PACK SEAL Interval: 29' - 33' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 29' Type: Cement-Bentonite Quantity: 500lbs Cement, 17lbs Bentonite, 45gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
5	485								
10	480	10.00 - 20.80 CL, CLAY, red brown, soft to moist, low plasticity, minor muscovite and vermiculite, W < PL.	CL		480.2 10.00	1	ROTO 1.90 SONIC 5.00		
15	475								
20	470	20.80 - 23.00 CL, CLAY with trace to some fine sand, low plasticity, W < PL, wet outside of core, moist inside of core, firm.	CL		469.4 20.80	2	ROTO 4.20 SONIC 10.00		
25	465	23.00 - 24.00 CL, CLAY, red brown, soft to moist, low plasticity, minor muscovite and vermiculite, W < PL. 24.00 - 31.00 CL, CLAY with trace to some silt, ocherish brown, moderate plasticity, W ~ PL, moist, soft to firm.	CL		467.2 23.00 466.2 24.00				
30	460	31.00 - 45.00 ML, SILT with trace to some fine to medium sand, brown to bronze, non-plastic, dry to wet, W < PL, quartz-plagioclase-biotite.	ML		459.2 31.00	3	ROTO 10.00 SONIC 10.00		
35	455								
40									

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/19/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olson

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-54

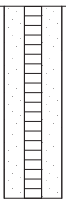
SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 45.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/19/20
 DATE COMPLETED: 3/19/20

NORTHING: 1,121,509.71
 EASTING: 2,406,555.15
 GS ELEVATION: 490.2
 TOC ELEVATION: 492.96 ft

DEPTH W.L.: 29.00'
 ELEVATION W.L.: 463.62'
 DATE W.L.: 3/31/20
 TIME W.L.: 9:45

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40	450	31.00 - 45.00 ML, SILT with trace to some fine to medium sand, brown to bronze, non-plastic, dry to wet, W < PL, quartz-plagioclase-biotite. <i>(Continued)</i>	ML			4	ROTO 8.20 SONIC 10.00		0.010" Slotted - Screen 	<p>WELL CASING Interval: 0' - 35' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 35' - 45' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 33' - 45' Type: #1 Sand Quantity: 4 Bags</p> <p>FILTER PACK SEAL Interval: 29' - 33' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 29' Type: Cement-Bentonite Quantity: 500lbs Cement, 17lbs Bentonite, 45gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
45	445	Boring completed at 45.00 ft						445.2		
50	440									
55	435									
60	430									
65	425									
70	420									
75	415									
80										

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Vern Olson

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-55

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 35.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/20/20
 DATE COMPLETED: 3/20/20

NORTHING: 1,121,931.60
 EASTING: 2,409,132.43
 GS ELEVATION: 444.2
 TOC ELEVATION: 447.21 ft

DEPTH W.L.: 20.00'
 ELEVATION W.L.: 426.98'
 DATE W.L.: 3/31/20
 TIME W.L.: 9:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 10.00 Hydro-vac for utility clearance. Logged by visual inspection and surface soil. CL, SILTY CLAY, 5 YR 5/8 yellowish red, no relict foliation, deeply weathered hornblende-biotite gneiss.	CL						<p>WELL CASING Interval: 0' - 26' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 26' - 36' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 24' - 36' Type: #1 Sand Quantity: 3.5 Bags</p> <p>FILTER PACK SEAL Interval: 18.5' - 24' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 18.5' Type: Cement-Bentonite Quantity: 300lbs Cement, 15lbs Bentonite, 35gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
440									
5									
435									
10		10.00 - 23.50 CL, SILTY CLAY, 5 YR 5/8 yellowish red, little to no relict foliation, deeply weathered hornblende-biotite gneiss. Residual soil.	CL		434.2				
15					10.00	1	ROTO 3.00 SONIC 5.00		
430									
15									
425									
20						2	ROTO -10.00 SONIC 10.00		
420		23.50 - 25.00 ML, SILT, weathered amphibolite, hornblende rich, gley 2 4/1 dark greenish grey. Saprolite.	ML		420.7				
25		25.00 - 36.00 Transitionally weathered rock, interlayered unweathered rock and saprolite, poor recovery (saprolite washed out).	TWR		419.2				
415					25.00	3	ROTO 4.00 SONIC 10.00		
410									
35									
405		Boring completed at 35.00 ft			408.2				
40					36.00				

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-56

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 46.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/19/20
 DATE COMPLETED: 3/19/20

NORTHING: 1,123,524.68
 EASTING: 2,409,037.21
 GS ELEVATION: 430.8
 TOC ELEVATION: 433.68 ft

DEPTH W.L.: 36.60'
 ELEVATION W.L.: 396.96'
 DATE W.L.: 3/31/20
 TIME W.L.: 9:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	430	0.00 - 10.00 Hydro-vac for utility clearance							WELL CASING Interval: 0' - 35.75' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 35.75' - 45.75' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 33' - 46' Type: #1 Sand Quantity: 4 bags FILTER PACK SEAL Interval: 30' - 33' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 30' Type: Cement Quantity: 600lbs Cement, 70gal water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
5	425								
10	420	10.00 - 18.80 SP, SAND, medium to some coarse and some fine, well sorted, primarily quartz, Na-plagioclase, biotite throughout, increased biotite content 12.5'-13.5', deeply weathered biotite gneiss, relict foliation present in some 1" pieces, dry to moist. Saprolite.	SP		420.8 10.00	1	ROTO 6.00 SONIC 6.00		
15	415								
20	410	18.80 - 20.60 ML, CLAYEY SILT, very fine sand, weathered hornblende gneiss, some relict foliation, gley 1 4/1 dark greenish grey, dry to moist.	ML		412 18.80	2	ROTO 5.00 SONIC 5.00		
		19.5-20.6 pulverized predominantly Na-plagioclase layer, 2.5 Y 7/3 pale brown.			410.2				
		20.60 - 21.00 TWR, weathered BIOTITE GNEISS, very dark grey to black, medium grained.	TWR						
		21.00 - 34.00 TWR, weathered BIOTITE GNEISS, slight to moderate oxidation throughout. oxidation staining at 28', fracture 30'-30.5'	TWR			3	ROTO 4.00 SONIC 5.00		
25	405								
30	400								
		34.00 - 36.00 Core barrel drop in soft zone, no recovery.			396.8 34.00				
35	395	36.00 - 46.00 BIOTITE GNEISS, fine to medium grained, hornblende-quartz-plagioclase-biotite.	BR		394.8 36.00	5	ROTO 8.50 SONIC 10.00		
40									

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-56

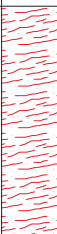
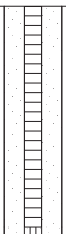
SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 46.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/19/20
 DATE COMPLETED: 3/19/20

NORTHING: 1,123,524.68
 EASTING: 2,409,037.21
 GS ELEVATION: 430.8
 TOC ELEVATION: 433.68 ft

DEPTH W.L.: 36.60'
 ELEVATION W.L.: 396.96'
 DATE W.L.: 3/31/20
 TIME W.L.: 9:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
40	390	36.00 - 46.00 BIOTITE GNEISS, fine to medium grained, hornblende-quartz-plagioclase-biotite. <i>(Continued)</i>	BR			5	ROTO 8.50 SONIC 10.00	 <p style="font-size: small;">0.010" Slotted Screen</p>	<p>WELL CASING Interval: 0' - 35.75' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 35.75' - 45.75' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 33' - 46' Type: #1 Sand Quantity: 4 bags</p> <p>FILTER PACK SEAL Interval: 30' - 33' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 30' Type: Cement Quantity: 600lbs Cement, 70gal water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
		Boring completed at 46.00 ft			384.8				

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT 8/19/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-57

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 59.00 ft
 LOCATION: Juliette, GA

DRILL RIG: GSI CC Crawler
 DATE STARTED: 3/18/20
 DATE COMPLETED: 3/19/20

NORTHING: 1,123,405.64
 EASTING: 2,407,361.88
 GS ELEVATION: 436.4
 TOC ELEVATION: 439.51 ft

DEPTH W.L.: 33.60'
 ELEVATION W.L.: 405.66'
 DATE W.L.: 3/31/20
 TIME W.L.: 9:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	435	0.00 - 5.00 Hand auger for utility clearance.						Grout - Riser -	WELL CASING Interval: 0' - 49' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 49' - 59' Material: U-Pack Prepack Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 46' - 59' Type: #6 Sand Quantity: 3 bags FILTER PACK SEAL Interval: 43' - 46' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 43' Type: Cement-Bentonite Quantity: 277.2lbs Cement, 10lbs Bentonite, 35gal water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
5	430	5.00 - 13.00 ML, sandy SILT, low PL, fine sand, dry - 2/5 Y 6/3 light yellowish brown, wet - gley G1 greenish grey, plagioclase-quartz-biotite weathered to illite, relict foliation, non-cohesive, dry to moist, dense. SAPROLITE.	ML		431.4 5.00	1	ROTO 7.00 SONIC 4.00		
10	425	13.00 - 15.00 ML, sandy SILT, low PL, fine sand, dry - 2.5 Y 5/2 greyish brown, wet - gleu 1 4/1 very dark greenish grey, quartz-plagioclase-biotite, hornblende gneiss parent rock, non-cohesive, dry to moist, dense. SAPROLITE.	ML		423.4 13.00	2	ROTO 10.00 SONIC 10.00		
15	420	15.00 - 18.00 ML, sandy SILT, low PL, fine sand, dry - 2/5 Y 6/3 light yellowish brown, wet - gley G1 greenish grey, plagioclase-quartz-biotite weathered to illite, relict foliation, non-cohesive, dry to moist, dense. SAPROLITE.	ML		421.4 15.00				
20	415	18.00 - 19.00 ML, sandy SILT, low PL, fine sand, dry - 2.5 Y 5/2 greyish brown, wet - gleu 1 4/1 very dark greenish grey, quartz-plagioclase-biotite, hornblende gneiss parent rock, non-cohesive, dry to moist, dense. SAPROLITE.	ML		418.4 18.00 417.4 19.00				
25	410	19.00 - 23.00 Transitionally weathered rock, highly weathered fracture zone, weakly foliated, very dark greenish grey, plagioclase-illite-hornblende amphibolite GNEISS.	TWR		413.4 23.00	3	ROTO 4.50 SONIC 10.00		
30	405	23.00 - 30.10 Transitionally weathered rock, moderately weathered oxidation throughout, well foliated, grey and white medium to coarse grained, strong, quartz-plagioclase-biotite/illite BIOTITE GNEISS.	TWR		406.3 30.10				
35	400	30.10 - 33.00 Transitionally weathered rock, highly weathered weakly foliated, porous, dark blue grey, fine to medium grained, weak, fracture zone 32'-33', plagioclase-illite hornblende/amphibolite GNEISS.	TWR		403.4				
40		33.10 - 40.00 Transitionally weathered rock, slightly to moderately weathered, foliated, grey and white, fine to medium grained, very strong, quartz-plagioclase BIOTITE GNEISS.	TWR			4	ROTO 8.20 SONIC 10.00		
		Log continued on next page			396.4	5	ROTO 9.00 SONIC 10.00		

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jimmy Hall

GA INSPECTOR: H. Brissey
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-57

SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 59.00 ft
 LOCATION: Juliette, GA

DRILL RIG: GSI CC Crawler
 DATE STARTED: 3/18/20
 DATE COMPLETED: 3/19/20

NORTHING: 1,123,405.64
 EASTING: 2,407,361.88
 GS ELEVATION: 436.4
 TOC ELEVATION: 439.51 ft

DEPTH W.L.: 33.60'
 ELEVATION W.L.: 405.66'
 DATE W.L.: 3/31/20
 TIME W.L.: 9:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40	395	40.00 - 41.20 Transitionally weathered rock, moderately weathered, weakly foliated, dark blue grey, fine grained, weak to medium strength, plagioclase-illite/biotite hornblende GNEISS.	TWR	[Red wavy lines]	40.00 395.2 41.20	5	ROTO 9.00 SONIC 10.00			<p>WELL CASING Interval: 0' - 49' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 43' - 59' Material: U-Pack Prepack Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 46' - 59' Type: #6 Sand Quantity: 3 bags</p> <p>FILTER PACK SEAL Interval: 43' - 46' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 43' Type: Cement-Bentonite Quantity: 277.2lbs Cement, 10lbs Bentonite, 35gal water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
45	390	41.20 - 59.00 Transitionally weathered rock, moderately weathered to fresh (50'-59'), well foliated, grey and white, medium to coarse grained, very strong, fracture zone 43.5'-45.5', quartz-plagioclase BIOTITE GNEISS.	TWR	[Red wavy lines]		6	ROTO 8.70 SONIC 10.00			
50	385			377.4						
55	380	Boring completed at 59.00 ft								
60	375									
65	370									
70	365									
75	360									
80										

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jimmy Hall

GA INSPECTOR: H. Brissey
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-58

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 46.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/16/20
 DATE COMPLETED: 3/16/20

NORTHING: 1,123,299.43
 EASTING: 2,405,207.09
 GS ELEVATION: 489.3
 TOC ELEVATION: 492.21 ft

DEPTH W.L.: 39.60'
 ELEVATION W.L.: 452.09'
 DATE W.L.: 3/31/20
 TIME W.L.: 10:05

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 11.50 (0'-10') Hydro-vac for utility clearance. (10'-11.5') Core loss.							WELL CASING Interval: 0' - 36' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 36' - 46' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 33.5' - 46' Type: #1 Sand Quantity: 5 Bags FILTER PACK SEAL Interval: 30.5' - 33.5' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 30.5' Type: Cement-Bentonite Quantity: 277lbs Cement, 10lbs Bentonite, 30gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
485									
5									
10									
480									
15									
475		11.50 - 13.50 CL, CLAY with trace fine sand, red brown, low to medium PL, W < PL, moist, soft to firm, vermiculite after biotite.	CL		477.8 11.50	1	ROTO 4.50 SONIC 6.00		
475		13.50 - 20.00 SM, SILTY SAND with trace clay and gravels, yellow brown, non PL, W < PL, dry to moist, loose.	SM		475.8 13.50				
470									
20		20.00 - 21.00 ML, SILT with trace sand and clay, soft, moist, non PL, W < PL, increased mica content, red-brown.	ML		469.3 20.00	2	ROTO 10.00 SONIC 10.00		
465		21.00 - 26.00 SM, SILTY SAND with trace gravels, light to dark green with brownish weathered rhine, dry to moist, W < PL, loose, ultramafic.	SM		468.3 21.00				
25									
460		26.00 - 34.00 SP, SAND, fine grain with trace to some silt, uniform graded, light to dark green to tan, compact.	SP		463.3 26.00	3	ROTO 9.20 SONIC 10.00		
30									
455		34.00 - 36.00 ML, sandy SILT to some sand, light green with brown, dry to moist, non to low PL, W < PL, loose.	ML		455.3 34.00				
35		36.00 - 46.00 SP-SM, SAND to SILTY SAND, fine to medium with some silt, trannish brown with light green hue, non to low PL, wet, W < PL, loose to compact.	SP-SM		453.3 36.00	4	ROTO 10.00 SONIC 10.00		
40									

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-58

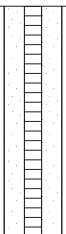
SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 46.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 3/16/20
 DATE COMPLETED: 3/16/20

NORTHING: 1,123,299.43
 EASTING: 2,405,207.09
 GS ELEVATION: 489.3
 TOC ELEVATION: 492.21 ft

DEPTH W.L.: 39.60'
 ELEVATION W.L.: 452.09'
 DATE W.L.: 3/31/20
 TIME W.L.: 10:05

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		36.00 - 46.00 SP-SM, SAND to SILTY SAND, fine to medium with some silt, trannish brown with light green hue, non to low PL, wet, W < PL, loose to compact. <i>(Continued)</i>	SP-SM	| | | | |		4	ROTO SONIC	-10.00 10.00	 <p style="text-align: center;">0.010" Slotted - Screen</p>	<p>WELL CASING Interval: 0' - 36' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 36' - 46' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 33.5' - 46' Type: #1 Sand Quantity: 5 Bags</p> <p>FILTER PACK SEAL Interval: 30.5' - 33.5' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 30.5' Type: Cement-Bentonite Quantity: 277lbs Cement, 10lbs Bentonite, 30gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
445		Boring completed at 46.00 ft			443.3					
45										
440										
50										
435										
55										
430										
60										
425										
65										
420										
70										
415										
75										
410										
80										

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-59D

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 69.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 3/26/20
 DATE COMPLETED: 3/27/20

NORTHING: 1,125,229.89
 EASTING: 2,407,668.93
 GS ELEVATION: 382.9
 TOC ELEVATION: 385.86 ft

DEPTH W.L.: 7.50'
 ELEVATION W.L.: 378.13"
 DATE W.L.: 4/7/2020
 TIME W.L.: 14:20

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 10.00 Hydro-vac for utility clearance Description from visual observation of hole and surface soil: CL SILTY CLAY, 7.5 YR 3/2 dark brown, cohesive, moist to wet, very soft, W -PL.							<p>WELL CASING Interval: 0' - 54' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 54' - 69' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 52' - 64' Type: #1 Sand Quantity: 5 bags</p> <p>FILTER PACK SEAL Interval: 49.7' - 52' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 49.7' Type: Cement-Bentonite Quantity: 900lbs Cement, 60lbs Bentonite, 120gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
380									
5									
375									
10				372.9					
		10.00 - 11.78 SP, SAND poorly graded, fine to coarse with some silt, gley 1 2.5/1 greenish black, primarily quartz-hornblende, some cobbles up to 2" diameter, weathered amphibolite. Residual soil/alluvium.	SP						
		11.78 - 27.00 ML, sandy CLAYEY SILT, very weathered amphibolite interlayered with biotite gneiss with varying amounts of biotite-plagioclase-quartz, 10 YR 4/3 brown to 5Y 4/3 olive, some relict foliation, moist, non-cohesive, very loose to dense. Saprolite		371.12					
370				11.78					
15					1	ROTO 9.00 SONIC 9.00			
365			ML						
20									
360					2	ROTO 8.00 SONIC 8.00			
25									
355		27.00: Driller noted top of rock at 27' 27.01 - 30.00 AMPHIBOLITE/HORNBLende GNEISS, quartz-plagioclase-biotite-hornblende with trace pyrite < 1mm diameter unweathered, fine to medium grained, well foliated	BR						
30				355.9					
350		30.00 - 39.00 AMPHIBOLITE/HORNBLende GNEISS, fracture/oxidized zone at ~38', moderate to strong, foliation, fine to medium grained, unweathered, competent, greenish black with white.		352.9					
35			BR	30.00					
345		38.00: Fracture/oxidized zone		343.9					
40			BR	39.00	5	ROTO 9.00 SONIC 10.00			

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-59D

SHEET 2 of 2


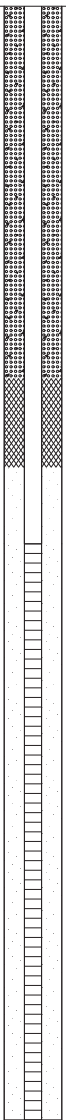

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 69.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 3/26/20
 DATE COMPLETED: 3/27/20

NORTHING: 1,125,229.89
 EASTING: 2,407,668.93
 GS ELEVATION: 382.9
 TOC ELEVATION: 385.86 ft

DEPTH W.L.: 7.50'
 ELEVATION W.L.: 378.13"
 DATE W.L.: 4/7/2020
 TIME W.L.: 14:20

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
40		39.00 - 59.00 AMPHIBOLITE/HORNBLLENDE GNEISS, moderate to strong foliation, pyrite-quartz-plagioclase-biotite-hornblende, greenish black with white, competent to slightly weathered. (Continued) 41.00: 41-42' Fracture/oxidized zones	BR						<p>WELL CASING Interval: 0' - 54' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 54' - 69' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 52' - 64' Type: #1 Sand Quantity: 5 bags</p> <p>FILTER PACK SEAL Interval: 49.7' - 52' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 49.7' Type: Cement-Bentonite Quantity: 900lbs Cement, 60lbs Bentonite, 120gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>	
340		44.00: 44-45" Fracture/oxidized zones				5	ROTO SONIC			9.00 10.00
45		46.60: fracture/oxidized zones								
335		48.00: 48-50' Fracture/oxidized zones								
50										
330		53.00: fracture/oxidized zones								
55										
325										
60		59.00: fracture/oxidized zones 59.01 - 69.00 BIOTITE GNEISS, moderate to well foliation, noticeably more competent than 49'-59' run, plagioclase-hornblende-quartz-biotite, perdominately fine-grained. 61.50: minor oxidation staining at 61.5'	BR							
320										
65		66.00: 66-67' interlayers of hornblende-rich rock								
315		68.00: "soft or fractured" at 68' (not recovered for verification)								
70		Boring completed at 69.00 ft								
310										
75										
305										
80										

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-59S

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 24.00 ft
 LOCATION: Juliette, GA

DRILL RIG: GSI CC Crawler
 DATE STARTED: 3/19/20
 DATE COMPLETED: 3/20/20

NORTHING: 1,125,213.65
 EASTING: 2,407,658.45
 GS ELEVATION: 382.8
 TOC ELEVATION: 385.93 ft

DEPTH W.L.: 3.23'
 ELEVATION W.L.: 383.48'
 DATE W.L.: 3/24/2020
 TIME W.L.: 14:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 7.00 Hand auger for utility clearance.								<p>WELL CASING Interval: 0' - 14' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 14' - 24' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 11.5' - 24' Type: #6 Sand Quantity: 3 bags</p> <p>FILTER PACK SEAL Interval: 7' - 11.5' Type: Pel-Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 7' Type: Cement-Bentonite Quantity: 46.2lbs Cement, 2lbs Bentonite, 10gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
380								Grout -		
5								Riser -		
375		7.00 - 8.75 SC, CLAYEY SAND, high PL, fine to medium sand increasing with depth, red brown to greenish grey, quartz - biotite gneiss, cohesive, W>PL to W~PL, firm. Residual soil.	SC	[Hatched Pattern]	375.8 7.00	1	ROTO 6.00 SONIC 2.00	Bentonite -		
10		8.75 - 11.75 SP, SAND, fine to medium grained, greenish grey, illite-hornblende/amphibolite-quartz, non-cohesive, wet, loose.	SP	[Dotted Pattern]	374.05 8.75					
370		11.75 - 19.00 ML, sandy SILT, low PL, fine sand, light yellowish brown, relict foliation, quartz-plagioclase-biotite weathered to illite/biotite gneiss, non-cohesive, moist, loose. SAPROLITE.	ML	[Vertical Lines]	371.05 11.75	2	ROTO 6.00 SONIC 10.00	#6 Sand -		
15								0.010" Slotted Screen		
365										
20		19.00 - 20.50 SP, SAND, medium to coarse grained, trace coarse gravel, greenish grey, hornblende-plagioclase-quartz, non-cohesive, wet to moist, loose.	SP	[Dotted Pattern]	363.8 19.00					
360		20.50 - 21.00 ML, sandy SILT, low PL, fine sand, light yellowish brown, relict foliation, quartz-plagioclase-biotite weathered to illite/biotite gneiss, non-cohesive, moist, loose. SAPROLITE.	ML	[Vertical Lines]	362.3 21.00	3	ROTO 6.50 SONIC 5.00			
25		21.00 - 22.00 SP, SAND, fine to medium grained, greenish grey, illite-hornblende/amphibolite-quartz, non-cohesive, wet, loose.	SP	[Dotted Pattern]	361.8 21.00					
355		22.00 - 24.00 ML, sandy SILT, low PL, fine sand, light yellowish brown, relict foliation, quartz-plagioclase-biotite weathered to illite/biotite gneiss, non-cohesive, moist, loose. SAPROLITE.	ML	[Vertical Lines]	360.8 22.00					
350										
345										
40		Boring completed at 24.00 ft								

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Jimmy Hall

GA INSPECTOR: H. Brissey
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-60D

SHEET 1 of 3

PROJECT: Plant Scherer
PROJECT NUMBER: 20139484
DRILLED DEPTH: 100.00 ft
LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
DATE STARTED: 3/28/20
DATE COMPLETED: 3/29/20

NORTHING: 1,124,410.72
EASTING: 2,408,242.87
GS ELEVATION: 386.4
TOC ELEVATION: 389.34 ft

DEPTH W.L.: 1.3'
ELEVATION W.L.: 387.78'
DATE W.L.: 3/30/2020
TIME W.L.: 8:00

Table with columns: SOIL PROFILE (Description, USCS, GRAPHIC LOG, ELEV., DEPTH), SAMPLES (SAMPLE NO., TYPE, REC), MONITORING WELL DIAGRAM and NOTES, WELL CONSTRUCTION DETAILS. Includes soil descriptions like 'CL, SILTY CLAY' and 'ML, CLAYEY SILT' across various depth intervals.

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/19/20

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
CHECKED BY: Rachel P. Kirkman, PG
DATE: 5/29/20



Log continued on next page

RECORD OF BOREHOLE PZ-60D

SHEET 2 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 100.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 3/28/20
 DATE COMPLETED: 3/29/20

NORTHING: 1,124,410.72
 EASTING: 2,408,242.87
 GS ELEVATION: 386.4
 TOC ELEVATION: 389.34 ft

DEPTH W.L.: 1.3'
 ELEVATION W.L.: 387.78'
 DATE W.L.: 3/30/2020
 TIME W.L.: 8:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40	345	40.00 - 45.50 Transitionally weathered rock, weathered to slightly weathered biotite gneiss at 40'-44'	TWR	[Graphic Log: Blue triangles]	40.00	4	ROTO 6.00 SONIC 8.00		Bentonite	[Well Construction Diagram]
		brown quartz-plagioclase-hornblende-biotite, slightly weathered hornblende gneiss 44'-45.5', dry to moist, foliation in cobbled size								
45	340	45.50 - 52.00 BIOTITE GNEISS interlayered with HORNBLLENDE GNEISS, fine grained, well foliated, primarily biotite gneiss	BR	[Graphic Log: Red wavy lines]	340.9	5	ROTO 6.00 SONIC 6.00		Bentonite	[Well Construction Diagram]
		Biotite slight oxidation zone at 46', trace <1mm-2mm red garnets throughout slight oxidation zone at 50.5' Migmatitic texture at 51'-52'								
50	335	52.00 - 60.50 BIOTITE GNEISS, well foliated, greenish black and white layers, fine grained plagioclase-quartz-hornblende-biotite	BR	[Graphic Log: Red wavy lines]	334.4	6	ROTO 7.00 SONIC 8.00		Bentonite	[Well Construction Diagram]
55	330									
60	325	60.50 - 70.00 HORNBLLENDE GNEISS, less quartz than above, fine grained, med grained biotite gneiss, greenish black and white, no fracture/oxidation observed, trace pyrite, plagioclase-quartz-hornblende-biotite	BR	[Graphic Log: Red wavy lines]	325.9	7	ROTO 11.00 SONIC 10.00		Bentonite	[Well Construction Diagram]
65	320									
70	315	70.00 - 80.00 BIOTITE GNEISS, fine to medium grained, greenish black to black and white, well foliated, migmatitic texture in some intervals with ptgymatic folds, plagioclase-quartz-hornblende-biotite, no oxidation zones observed	BR	[Graphic Log: Red wavy lines]	316.4	8	ROTO 10.00 SONIC 10.00		Sand	[Well Construction Diagram]
75	310									
80	306.4	Log continued on next page							0.010" Slotted Screen	

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-60D

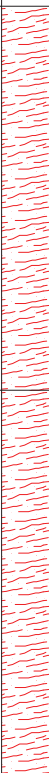
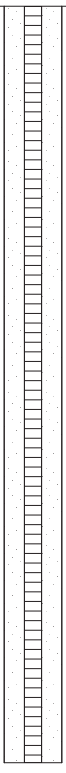
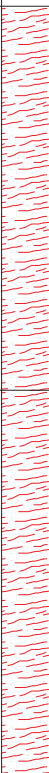
SHEET 3 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 100.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 3/28/20
 DATE COMPLETED: 3/29/20

NORTHING: 1,124,410.72
 EASTING: 2,408,242.87
 GS ELEVATION: 386.4
 TOC ELEVATION: 389.34 ft

DEPTH W.L.: 1.3'
 ELEVATION W.L.: 387.78'
 DATE W.L.: 3/30/2020
 TIME W.L.: 8:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
80	305	80.00 - 90.00 BIOTITE GNEISS, fine to medium grained, coarse grained migmatitic texture at 84'-85'	BR		80.00	9	ROTO 8.00 SONIC 10.00			<p>WELL CASING Interval: 0' - 69.4' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 69.4' - 99.7' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 66.6' - 99.7' Type: #1 Sand Quantity: 8.5 Bags</p> <p>FILTER PACK SEAL Interval: 62.3' - 66.6' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 66.6' Type: Cement-Bentonite Quantity: 1,050lbs Cement, 42lbs Bentonite, 140gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
		Possible fracture at 87'-87.5' very slight oxidation staining on break at a 60 degree to vertical trace pyrite-plagioclase-quartz-hornblende-biotite, well foliated			296.4					
90	295	90.00 - 100.00 BIOTITE GNEISS, well foliated	BR		286.4	10	ROTO 10.00 SONIC 10.00			
		Boring completed at 100.00 ft								

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-60S

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 20.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 3/31/20
 DATE COMPLETED: 3/31/20

NORTHING: 1,124,400.44
 EASTING: 2,408,243.59
 GS ELEVATION: 386.4
 TOC ELEVATION: 389.88 ft

DEPTH W.L.: 6.8'
 ELEVATION W.L.: 382.86'
 DATE W.L.: 4/8/2020
 TIME W.L.: 10:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES		MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC		
0	385	0.00 - 2.00 CL, SILTY CLAY, 2.5 YR 3/4 dark reddish brown, deeply weathered biotite gneiss, no structure observed, some mica flakes, very fine, cohesive, moist, plastic, w<PL, RESIDUUM	CL		384.4	1	ROTO -10.00 SONIC 10.00	Grout - Riser - Bentonite -	WELL CASING Interval: 0' - 10' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 10' - 20' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 8' - 20' Type: #1 Sand Quantity: 3 Bags FILTER PACK SEAL Interval: 5' - 8' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 5' Type: Cement-Bentonite Quantity: 200lbs Cement, 14lbs Bentonite, 30gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
		2.00 - 4.00 CL, SILTY CLAY, 2.5 YR 4/6 red, deeply weathered biotite gneiss, no structure observed, some mica flakes, very fine, cohesive, moist, plastic, w<PL, RESIDUUM	CL		382.4				
5		4.00 - 5.50 CL, SILTY CLAY, 5 YR 4/6 yellowish red, deeply weathered biotite gneiss, slightly mottled, moist, plastic, w<PL, RESIDUUM	CL		4.00				
	380	5.50 - 10.00 ML, CLAYEY SILT, cobble/gravel layer at 5.5' diameter up to 1.5", 5 YR 4/6 yellowish red, mottled, moist 5'-9', to wet 9'-10', non-cohesive, loose, w<PL, RESIDUUM	ML		5.50	2	ROTO -10.00 SONIC 10.00	Sand -	
10		10.00 - 12.50 ML, CLAYEY SILT, cobble/gravel layer at 5.5' diameter up to 1.5", 5 YR 4/6 yellowish red, mottled, very wet, non-cohesive, very loose, RESIDUUM	ML		376.4				
	375	12.50 - 20.00 ML, SILT, some clay, sandy silt at 14' - 16', mottled with relict foliations, varigated yellowish red to dark brown to brown, very weathered biotite gneiss, non-cohesive, loose to compact, non-plastic, moist to wet	ML		373.9				
15					12.50	Boring completed at 20.00 ft		0.010" Slotted - Screen	
	370				366.4				
20	365	Boring completed at 20.00 ft							
25	360								
30	355								
35	350								
40									

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT - 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-61

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 50.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/10/20
 DATE COMPLETED: 4/11/20

NORTHING: 1,122,537.21
 EASTING: 2,408,531.43
 GS ELEVATION: 436.8
 TOC ELEVATION: 439.27 ft

DEPTH W.L.: 12.80'
 ELEVATION W.L.: 426.37'
 DATE W.L.: 4/13/2020
 TIME W.L.: 14:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 10.00 Hydro-vac for utility clearance.								<p>WELL CASING Interval: 0' - 39.45' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 39.45' - 49.45' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 37.25' - 49.45' Type: #1 Sand Quantity: 3.5 Bags</p> <p>FILTER PACK SEAL Interval: 33.8' - 37.25' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 33.8' Type: Cement-Bentonite Quantity: 900lbs Cement, 45lbs Bentonite, 120gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
435										
5										
430										
10		10.00 - 11.50 CL, SILTY CLAY, yellowish red, deeply weathered biotite gneiss, slightly plastic, no structure, cohesive, moist, very soft, w<PL, RESIDUUM	CL		426.8 10.00					
425		11.50 - 19.50 ML, CLAYEY SILT and SILT, yellowish brown, deeply weathered biotite gneiss, faint to no structure, plagioclase ad biotite rich, cohesive, soft, non-plastic, moist, w<PL, RESIDUUM	ML		425.3 11.50					
15										
420										
20		19.50 - 20.00 SM, SILTY SAND, yellowish brown, fine to coarse sand, slightly to moderately weathered biotite gneiss, quartz rich, non-cohesive, non-plastic, wet, w<PL, compact	SM		417.3 416.8					
415		20.00 - 21.00 SM, SILTY SAND, fine to medium sand, yellowish brown, very weathered biotite gneiss, cohesive, moist, loose to compact, non-plastic, SAPROLITE	SM		20.00 415.8					
		21.00 - 24.00 ML, sandy SILT, very fine to fine sand, very pale brown, dry, non-cohesive, metagranitic, slight foliation, SAPROLITE	ML		21.00 412.8					
25		24.00 - 26.00 ML, SILT, weathered biotite gneiss, some relict foliation with clay lined slickenlines, moist, loose to compact, non-plastic, w<PL	ML		412.8 24.00					
410		26.00 - 32.00 ML, SILT, weathered amphibolite, olive grey, fine grained, slight to some relict foliation, moist, very stiff to hard, w<PL	ML		410.8 26.00					
30										
405		32.00 - 35.00 ML, SILT, Transitionally weathered rock, very pale brown, metagranitic, slightly foliated, medium grained, slightly weathered, dry	TWR		404.8 32.00					
35		35.00 - 38.00 ML, sandy CLAYEY SILT, very weathered biotite gneiss, greyish brown, well foliated, fine to medium grained, moist	ML		401.8 35.00					
400										
40		38.00 - 40.00 SP/SM, SAND to SILTY SAND, Transitionally weathered rock, weathered biotite gneiss, bottom is unweathered to slightly weathered	TWR		398.8 38.00					

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-61

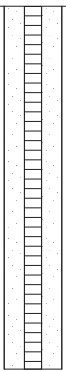
SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 50.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/10/20
 DATE COMPLETED: 4/11/20

NORTHING: 1,122,537.21
 EASTING: 2,408,531.43
 GS ELEVATION: 436.8
 TOC ELEVATION: 439.27 ft

DEPTH W.L.: 12.80'
 ELEVATION W.L.: 426.37'
 DATE W.L.: 4/13/2020
 TIME W.L.: 14:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		40.00 - 42.00 ML, CLAYEY SILT, Transitionally weathered rock, interlayered unweathered and weathered metagranite, moderately to well foliated, grey clay throughout	TWR	| | | |	40.00				 <p style="text-align: center;">0.010" Slotted - Screen</p>	<p>WELL CASING Interval: 0' - 39.45' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 39.45' - 49.45' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 37.25' - 49.45' Type: #1 Sand Quantity: 3.5 Bags</p> <p>FILTER PACK SEAL Interval: 33.8' - 37.25' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 33.8' Type: Cement-Bentonite Quantity: 900lbs Cement, 45lbs Bentonite, 120gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
395		42.00 - 46.00 ML, CLAYEY SILT, grey clay, no structure, non-cohesive, compact, SAPROLITE	ML	| | | |	394.8 42.00	4	ROTO 6.00 SONIC 6.00			
45		46.00 - 50.00 METAGRANITE, medium grained, moderately foliated at 46', 47-50' BIOTITE GNEISS, fine grained, well foliated, fractured with oxidation staining throughout	BR	| | | |	390.8 46.00	5	ROTO 4.00 SONIC 4.00			
390		Boring completed at 50.00 ft								
50		Boring completed at 50.00 ft								
385		Boring completed at 50.00 ft								
55		Boring completed at 50.00 ft								
380		Boring completed at 50.00 ft								
60		Boring completed at 50.00 ft								
375		Boring completed at 50.00 ft								
65		Boring completed at 50.00 ft								
370		Boring completed at 50.00 ft								
70		Boring completed at 50.00 ft								
365		Boring completed at 50.00 ft								
75		Boring completed at 50.00 ft								
360		Boring completed at 50.00 ft								
80		Boring completed at 50.00 ft								

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-62





SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 52.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/9/20
 DATE COMPLETED: 4/9/20

NORTHING: 1,122,370.34
 EASTING: 2,406,175.11
 GS ELEVATION: 498.3
 TOC ELEVATION: 501.32 ft

DEPTH W.L.: 41.00'
 ELEVATION W.L.: 460.23'
 DATE W.L.: 4/16/2020
 TIME W.L.: 14:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 10.00 CL, SILTY CLAY, red, no structure, deeply weathered biotite gneiss, cohesive, soft, moist, w<PL, RESIDUUM	CL					Grout - Riser -	WELL CASING Interval: 0' - 42.25' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 42.25' - 52.25' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 40' - 52.25' Type: #1 Sand Quantity: 3.5 Bags FILTER PACK SEAL Interval: 36.5' - 40' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 36.5' Type: Cement-Bentonite Quantity: 450lbs Cement, 30lbs Bentonite, 60gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
495									
5									
10		10.00 - 15.00 ML, SILT, very weathered biotite gneiss, yellowish brown, mica flakes, SAPROLITE	ML		488.3			Bentonite -	
15		15.00 - 20.00 ML, SILT to CLAYEY SILT, brown to yellowish brown, very weathered, biotite gneiss, dry to moist, loose, w<PL, trace relict foliation			10.00	1	ROTO 8.00 SONIC 10.00		
20		20.00 - 30.00 ML, CLAYEY SILT, primarily biotite and plagioclase, very weathered with some amphibolite and trace quartz, brown, cohesive, moist, soft to firm, w<PL, SAPROLITE	ML		483.3				
25		25.00 - 30.00 ML, CLAYEY SILT, primarily biotite and plagioclase, very weathered with some amphibolite and trace quartz, brown, cohesive, moist, soft to firm, w<PL, SAPROLITE			15.00	2	ROTO 8.00 SONIC 10.00		
30		30.00 - 35.00 ML, SILT, very weathered to weathered amphibolite, brownish green to greenish brown, fine to medium grained, weakly foliated, oxidated at 34', SAPROLITE	ML		478.3				
35		35.00 - 40.00 ML, SILT and clayey SILT, weathered biotite gneiss, mica flakes, brown to greyish brown, mottled, some foliation present, SAPROLITE			20.00	3	ROTO 10.00 SONIC 10.00		
40		Log continued on next page			468.3				
45					463.3				
50					458.3				

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-62

SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 52.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/9/20
 DATE COMPLETED: 4/9/20

NORTHING: 1,122,370.34
 EASTING: 2,406,175.11
 GS ELEVATION: 498.3
 TOC ELEVATION: 501.32 ft

DEPTH W.L.: 41.00'
 ELEVATION W.L.: 460.23'
 DATE W.L.: 4/16/2020
 TIME W.L.: 14:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
40		40.00 - 46.00 ML, SILT and clayey SILT, brown to greyish brown, weathered to very weathered biotite gneiss, no to faint relict foliation, mica flakes, moist to wet, soft to stiff, SAPROLITE	ML	| | | | |	40.00	4	ROTO 7.00 SONIC 6.00	<p style="font-size: small;">Sand - 0.010" Slotted - Screen</p>	<p>WELL CASING Interval: 0' - 42.25' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 42.25' - 52.25' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 40' - 52.25' Type: #1 Sand Quantity: 3.5 Bags</p> <p>FILTER PACK SEAL Interval: 36.5' - 40' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 36.5' Type: Cement-Bentonite Quantity: 450lbs Cement, 30lbs Bentonite, 60gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
45		46.00 - 50.00 Wash out		| | | | |	452.3 46.00	5	ROTO 0.00 SONIC 4.00		
45		50.00 - 52.00 ML, sandy SILT, very fine to fine sand, brownish grey to greyish brown, relict foliation, weathered biotite gneiss, very stiff, SAPROLITE	ML	| | | | |	448.3 50.00	6	ROTO 2.50 SONIC 2.00		
45		Boring completed at 52.00 ft							

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-63

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 40.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/12/20
 DATE COMPLETED: 4/12/20

NORTHING: 1,123,955.38
 EASTING: 2,404,060.61
 GS ELEVATION: 498.9
 TOC ELEVATION: 501.54 ft

DEPTH W.L.: 20.0'
 ELEVATION W.L.: 481.29'
 DATE W.L.: 4/22/2020
 TIME W.L.: 15:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 10.00 Hydro-vac for utility clearance.								WELL CASING Interval: 0' - 30' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 30' - 40' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 28' - 40' Type: #1 Sand Quantity: 3.5 Bags FILTER PACK SEAL Interval: 24.2' - 28' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 24.2' Type: Cement-Bentonite Quantity: 750lbs Cement, 35lbs Bentonite, 87gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
495								Grout -		
5										
490								Riser -		
10		10.00 - 11.50 SM, SILTY SAND, fine to medium sand, brown, weathered biotite gneiss, no structure, quartz-biotite-plagioclase, loose, moist, w<PL, SAPROLITE	SM		488.9 10.00					
		11.50 - 14.50 ML, sandy CLAYEY SILT, fine sand, yellowish brown, very weathered biotite gneiss, no structure, moist, non-cohesive, loose, w<PL	ML		487.4 11.50					
15		14.50 - 18.50 CL, CLAY, white to very pale brown, non-plastic, dry, soft	CL		484.4 14.50	1	ROTO 10.00 SONIC 10.00			
		18.50 - 20.00 SM, SILTY SAND, weathered biotite gneiss, greyish brown, trace relict foliation, fine grained, quartz-biotite-plagioclase, dry to moist, compact to dense, SAPROLITE	SM		480.4 18.50					
20		20.00 - 22.00 ML, sandy CLAYEY SILT, brown, relict foliation, with clay lenses, weathered biotite gneiss, compac, moist, w<PL, SAPROLITE	ML		478.9 20.00					
		22.00 - 23.00 CL, SILTY CLAY, no structure, olive brown, cohesive, soft to firm, moist	CL		476.9 22.00	2	ROTO 6.00 SONIC 6.00			
25		23.00 - 26.00 ML, sandy CLAYEY SILT, brown, relict foliation with clay lenses, weathered biotite gneiss, compact, moist, w<PL	ML		475.9 23.00			Bentonite -		
		26.00 - 28.00 BIOTITE GNEISS unweathered, well foliated, medium to fine grained, quartz-hornblende-blagioclase, dry	BR		472.9 26.00	3	ROTO 4.00 SONIC 4.00			
30		28.00 - 30.00 Transitionally Weathered Rock interlayered saprolite and unweathered BIOTITIE GNEISS, well foliated, fine to medium grained, moist, clay lenses throughout, moist to wet	BR		470.9 28.00					
		30.00 - 40.00 BIOTITE GNEISS, medium grained, moderately to well foliatd, fractured throughout, puck shaped discs primarily 2" thick or less, oxidation staining throughout, quartz-hornblendend-plagioclase	BR		468.9 30.00	4	ROTO 10.00 SONIC 10.00			
35								Sand -		
465								0.010" Slotted Screen		
460										
40		Boring completed at 40.00 ft				458.9				

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-64

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 70.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/8/20
 DATE COMPLETED: 4/8/20

NORTHING: 1,123,724.36
 EASTING: 2,406,404.18
 GS ELEVATION: 476.0
 TOC ELEVATION: 479.52 ft

DEPTH W.L.: 53.62'
 ELEVATION W.L.: 425.74'
 DATE W.L.: 4/15/2020
 TIME W.L.: 17:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	475	0.00 - 1.50 CL, SILTY CLAY, red, deeply weathered, no structure, deeply weathered biotite gneiss, cohesive, dry to moist, very soft to soft	CL		474.5			Grout - Riser -	<p>WELL CASING Interval: 0' - 59' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 59' - 69' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 57' - 69' Type: #1 Sand Quantity: 4.5 Bags</p> <p>FILTER PACK SEAL Interval: 53.3' - 57' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 53.3' Type: Cement-Bentonite Quantity: 600lbs Cement, 50lbs Bentonite, 80gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
5	470	1.50 - 10.00 ML, CLAYEY SILT, light reddish brown to brown, deeply weathered biotite, w<PL, gneiss, some relict foliation, cohesive, dry to moist, soft to firm, non-plastic	ML		1.50	1	ROTO 6.00 SONIC 10.00		
10	465	10.00 - 14.00 ML, SILT, brown, weathered biotite gneiss	ML		466				
15	460	14.00 - 15.00 SP/SM, SAND and SILTY SAND, fine to medium sand, granitic, dry to moist, plagioclase rich	SP-SM		462	2	ROTO 10.00 SONIC 10.00		
		15.00 - 17.00 ML, SILT, cobble sized granitic pieces, tan, slightly foliated, plagioclase rich, soft, dry, w<PL, non-plastic	ML		461				
		17.00 - 20.00 ML/CL, interlayered SILT and CLAY lenses, brown, weathered biotite gneiss, dry to moist, cohesive, hard, w<PL, SAPROLITE	ML		459				
20	455	20.00 - 26.00 SM, SILTY SAND, biotite gneiss, pale brown to bro, dry to wet, SAPROLITE	SM		456	3	ROTO 6.00 SONIC 6.00		
25	450	26.00 - 30.00 SM, SILTY SAND, Transitionally weathered rock, foliated, biotite rich, oxidation zones within transitionally weathered rock, medium grained, brown, wet, SAPROLITE	TWR		450	4	ROTO 4.00 SONIC 4.00		
30	445	30.00 - 40.00 BIOTITE GNEISS, biotite is medium grained, oxidation, amphibolite gneiss is foliated and fine grained	BR		446	5	ROTO 5.50 SONIC 10.00		
40		Log continued on next page			436				

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-64




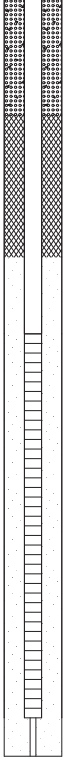

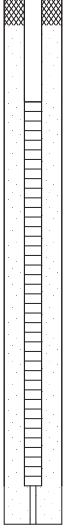

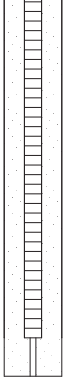

SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 70.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/8/20
 DATE COMPLETED: 4/8/20

NORTHING: 1,123,724.36
 EASTING: 2,406,404.18
 GS ELEVATION: 476.0
 TOC ELEVATION: 479.52 ft

DEPTH W.L.: 53.62'
 ELEVATION W.L.: 425.74'
 DATE W.L.: 4/15/2020
 TIME W.L.: 17:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40	435	40.00 - 50.00 BIOTITE GNEISS, poor recovery, weathered and highly fractured	BR		40.00	6	ROTO 1.50 SONIC 10.00		<p>WELL CASING Interval: 0' - 59' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 59' - 69' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 57' - 69' Type: #1 Sand Quantity: 4.5 Bags</p> <p>FILTER PACK SEAL Interval: 53.3' - 57' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 53.3' Type: Cement-Bentonite Quantity: 600lbs Cement, 50lbs Bentonite, 80gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>	
										426 50.00
45	430									
50	425	50.00 - 56.00 BIOTITE GNEISS, black with oxidation, quartz and biotite rich, weathered biotite, fine grained, foliated	BR		420 56.00	7	ROTO 6.00 SONIC 6.00		<p>ANNULUS SEAL Interval: 0' - 53.3' Type: Cement-Bentonite Quantity: 600lbs Cement, 50lbs Bentonite, 80gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>	
										420 56.00
55	420	56.00 - 60.00 BIOTITE GNEISS, slightly weathered to unweathered, well foliated, fine grained	BR		416 60.00	8	ROTO 2.50 SONIC 4.00		<p>ANNULUS SEAL Interval: 0' - 53.3' Type: Cement-Bentonite Quantity: 600lbs Cement, 50lbs Bentonite, 80gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>	
										416 60.00
60	415	60.00 - 70.00 BIOTITE GNEISS, foliated, medium grained, white and black	BR		406	9	ROTO 8.50 SONIC 10.00		<p>ANNULUS SEAL Interval: 0' - 53.3' Type: Cement-Bentonite Quantity: 600lbs Cement, 50lbs Bentonite, 80gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>	
										406
70	405	Boring completed at 70.00 ft							<p>ANNULUS SEAL Interval: 0' - 53.3' Type: Cement-Bentonite Quantity: 600lbs Cement, 50lbs Bentonite, 80gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>	
75	400									
80										

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-65

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 30.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/11/20
 DATE COMPLETED: 4/11/20

NORTHING: 1,121,937.16
 EASTING: 2,407,733.04
 GS ELEVATION: 429.6
 TOC ELEVATION: 432.42 ft

DEPTH W.L.: 15.46'
 ELEVATION W.L.: 416.89'
 DATE W.L.: 4/16/2020
 TIME W.L.: 1515

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 2.00 CL, SILTY CLAY, 2.5 YR 4/6 red, no structure, deeply weathered, cohesive, firm to stiff, dry to moist, trace very fine mica, RESIDUUM	CL		427.6					<p>WELL CASING Interval: 0' - 20' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 20' - 30' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 17.5" - 30' Type: #1 Sand Quantity: 3.5 Bags</p> <p>FILTER PACK SEAL Interval: 14' - 17.5' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 14' Type: Cement-Bentonite Quantity: 400lbs Cement, 24lbs Bentonite, 60gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
2.00 - 13.00		ML, CLAYEY SILT, 10 YR 5/3 brown, deeply weathered, little to no structure, mica flakes, dry to moist, cohesive, soft to firm, some mottling at 12', RESIDUUM	ML		2.00	1	ROTO 7.00 SONIC 10.00			
13.00 - 20.00		ML, SILT, some clay, trace fine sand, 10 YR 5/3 brown to olive brown, deeply weathered, interlayered biotite gneiss-amphibolite, trace to faint relict foliation, cohesive, firm to stiff, moist, biotite-hornblende-plagioclase, SAPROLITE	ML		416.6	2	ROTO 9.50 SONIC 10.00			
20.00 - 23.50		SM, SILTY SAND, fine sand, weathered biotite gneiss with higher quartz content, faint relict foliation, mottling, moist to wet, stiff to very stiff, cohesive, SAPROLITE	SM		409.6					
23.50 - 26.50		ML, CLAYEY SILT, trace very fine sand, brown to live brown to yellowish brown, deeply weathered biotite gneiss and amphibolite interlayered, trace quartz, mottled, faint relict foliation, moist, firm to very stiff, cohesive, SAPROLITE	ML		406.1	3	ROTO 12.00 SONIC 10.00			
26.50 - 28.50		SM, clayey SILTY SAND, yellowish brown to brown, deeply weathered, interlayered biotite gneiss and amphibolite, mottled, moist to wet, trace relict foliation, soft to firm, SAPROLITE	SM		403.1					
28.50 - 30.00		SM-ML, SILT and SILTY SAND, very fine to fine sand, brown to olive brown, weathered interlayered biotite amphibolite, relict foliation, SAPROLITE	SM-ML		401.1					
		Boring completed at 30.00 ft								

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-66

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 60.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/1/20
 DATE COMPLETED: 4/2/20

NORTHING: 1,124,664.10
 EASTING: 2,409,115.98
 GS ELEVATION: 418.4
 TOC ELEVATION: 421.24 ft

DEPTH W.L.: 31.83'
 ELEVATION W.L.: 389.30'
 DATE W.L.: 4/7/2020
 TIME W.L.: 15:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 5.00 CL, SILTY CLAY, red, deeply weathered biotite gneiss, no structure, trace mica, cohesive, firm to stiff, dry to moist, w<PL	CL		413.4			Cement -	<p>WELL CASING Interval: 0' - 45' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 45' - 60' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 41.8' - 60' Type: #1 Sand Quantity: 5.5 Bags</p> <p>FILTER PACK SEAL Interval: 38' - 41.8' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 38' Type: Cement-Bentonite Quantity: 600lbs Cement, 46lbs Bentonite, 70gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
415									
5		5.00 - 10.00 ML, CLAYEY SILT, red, deeply weathered biotite gneiss, no structure, trace mica, cohesive, soft, dry to moist, w<PL	ML		5.00	1	ROTO 8.50 SONIC 10.00		
410									
10		10.00 - 30.00 ML, CLAYEY SILT, yellowish brown to strong brown to brown, deeply weathered biotite gneiss, some relict foliation, cohesive, sft, moist, w<PL	ML		408.4			Riser -	
405									
15						2	ROTO 6.50 SONIC 10.00		
400									
20			ML						
395									
25						3	ROTO 9.50 SONIC 10.00		
390									
30		30.00 - 39.00 ML, SILT, brown, very weathered biotite gneiss, cohesive, moist, soft w<PL	ML		388.4			Bentonite -	
385									
35						4	ROTO 10.00 SONIC 10.00		
380									
40		Log continued on next page	SM		379.4				
					39.00				

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-66

SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 60.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/1/20
 DATE COMPLETED: 4/2/20

NORTHING: 1,124,664.10
 EASTING: 2,409,115.98
 GS ELEVATION: 418.4
 TOC ELEVATION: 421.24 ft

DEPTH W.L.: 31.83'
 ELEVATION W.L.: 389.30'
 DATE W.L.: 4/7/2020
 TIME W.L.: 15:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		39.00 - 44.00 SM, SILTY SAND, gley, very dark greenish grey, very weathered hornblende gneiss, non ohesive, loose to compact, moist, to wet, SAPROLITE (Continued)	SM	| | |		5	ROTO 4.00 SONIC 4.00		<p style="font-size: small;">0.010" Slotted - Screen</p>	<p>WELL CASING Interval: 0' - 45' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 45' - 60' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 41.8' - 60' Type: #1 Sand Quantity: 5.5 Bags</p> <p>FILTER PACK SEAL Interval: 38' - 41.8' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 38' Type: Cement-Bentonite Quantity: 600lbs Cement, 46lbs Bentonite, 70gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
37.5		44.00 - 60.00 BIOTITE GNEISS, oxidation staining, well foliated, fine grained, greenish black to black with white foliations 44.50: Oxidation staining		| | |	374.4 44.00	6	ROTO 6.00 SONIC 6.00	Sand -		
45		50.00: Oxidation staining		| | |						
370		54.80: Oxidation staining 55.50: Oxidation staining		| | |		7	ROTO 10.00 SONIC 10.00			
50		58.00: Oxidation staining	BR	| | |						
365		60.00: Oxidation staining Boring completed at 60.00 ft		| | |	358.4					
55				| | |						
60				| | |						
360				| | |						
65				| | |						
70				| | |						
350				| | |						
75				| | |						
345				| | |						
80				| | |						

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-66D

SHEET 1 of 7

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 266.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/26/20
 DATE COMPLETED: 5/6/20

NORTHING: 1,124,644.48
 EASTING: 2,409,028.45
 GS ELEVATION: 424.4
 TOC ELEVATION: 427.60 ft

DEPTH W.L.: 39.70
 ELEVATION W.L.: 387.90
 DATE W.L.: 5/8/2020
 TIME W.L.: 12:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 6.00 Hand auger for utility clearance.							Grout -	<p>WELL CASING Interval: 0'-69' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</p> <p>WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A</p> <p>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</p> <p>FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A</p> <p>ANNULUS SEAL Interval: 0'-69' Type: Cement Quantity: 1504lbs Cement, 120gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
5	420	6.00 - 16.00 SM, SILTY SAND, brown dark brown and grey, some clay, loose, rich in muscovite and weathered biotite, soft dry			418.4 6.00					
10	415		SM			1	ROTO 5.00 SONIC 10.00			
15	410				408.4 16.00					
20	405	16.00 - 33.00 SM, SILTY SAND, tan, brown and grey, with clay, loose, weathered biotite, soft, dry, some weathered amphibolite								
25	400		SM			2	ROTO 4.50 SONIC 10.00			
30	395					3	ROTO 10.00 SONIC 10.00			
35	390	33.00 - 36.00 SM, SILTY SAND, grey dark brown, weathered biotite gneiss, rich in biotite-plagioclase-quartz, SAPROLITE			391.4 33.00					
40	385	36.00 - 46.00 SM, SILTY SAND, greenish grey, transitionally weathered rock biotite gneiss, rich in biotite-plagioclase-quartz-hornblende, soft, loose, moist			388.4 36.00					
			TWR			4	ROTO 10.00 SONIC 10.00	6" Casing -		

Log continued on next page

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-66D

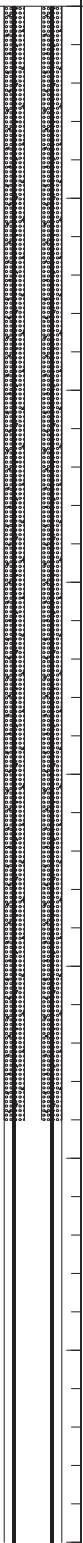
SHEET 2 of 7

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 266.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/26/20
 DATE COMPLETED: 5/6/20

NORTHING: 1,124,644.48
 EASTING: 2,409,028.45
 GS ELEVATION: 424.4
 TOC ELEVATION: 427.60 ft

DEPTH W.L.: 39.70
 ELEVATION W.L.: 387.90
 DATE W.L.: 5/8/2020
 TIME W.L.: 12:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		36.00 - 46.00 SM, SILTY SAND, greenish grey, transitionally weathered rock biotite gneiss, rich in biotite-plagioclase-quartz-hornblende, soft, loose, moist (<i>Continued</i>)	TWR		378.4	4	ROTO 10.00 SONIC 10.00		Open Boring - 	<p>WELL CASING Interval: 0'-69' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</p> <p>WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A</p> <p>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</p> <p>FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A</p> <p>ANNULUS SEAL Interval: 0'-69' Type: Cement Quantity: 1504lbs Cement, 120gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
45		46.00 - 56.00 BIOTITE GNEISS, fine grained, well foliated, black, white and grey, rich in quartz-hornblende-plagioclase-biotite, very hard, stiff, no obvious fractures	BR		368.4	5	ROTO 9.00 SONIC 10.00			
50		56.00 - 69.00 BIOTITE GNEISS, black white grey, fine grained, well foliated, small fractures, weathering discoloration observed at 58'-59', rich in hornblende-plagioclase-biotite-quartz, hard, very dense	BR		368.4	6	ROTO 10.00 SONIC 10.00			
55		69.00 - 76.00 BIOTITE GNEISS, black white grey, fine grained, some fractures at 69'-70', moderately foliated, quartz-hornblende-plagioclase-biotite, hard, very dense	BR		355.4	7	ROTO 3.00 SONIC 3.00			
60		76.00 - 86.00 BIOTITE GNEISS, black white grey, fine grained, well foliated, rich in plagioclase-quartz-biotite, some fractures at 79' and 82', hard, very dense Some amphibolite from 79'-81' and 83'-84'	BR		348.4	8	ROTO 7.00 SONIC 7.00			
65						9	ROTO 10.00 SONIC 10.00			
70										
75										
80										

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-66D

SHEET 3 of 7

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 266.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/26/20
 DATE COMPLETED: 5/6/20

NORTHING: 1,124,644.48
 EASTING: 2,409,028.45
 GS ELEVATION: 424.4
 TOC ELEVATION: 427.60 ft

DEPTH W.L.: 39.70
 ELEVATION W.L.: 387.90
 DATE W.L.: 5/8/2020
 TIME W.L.: 12:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
80		76.00 - 86.00 BIOTITE GNEISS, black white grey, fine grained, well foliated, rich in plagioclase-quartz-biotite, some fractures at 79' and 82', hard, very dense Some amphibolite from 79'-81' and 83'-84' (Continued)	BR	[Red hatched graphic log]	338.4 86.00	9	ROTO SONIC	10.00 10.00		<p>WELL CASING Interval: 0'-69' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</p> <p>WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A</p> <p>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</p> <p>FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A</p> <p>ANNULUS SEAL Interval: 0'-69' Type: Cement Quantity: 1504lbs Cement, 120gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
85	340	86.00 - 96.00 BIOTITE GNEISS, black white grey, moderately foliated, rich in plagioclase-biotite, some hornblende, very hard, little fractures	BR	[Red hatched graphic log]	328.4 96.00	10	ROTO SONIC	9.50 10.00		
90	335	96.00 - 106.00 BIOTITE GNEISS and AMPHIBOLITE, black white grey, amphibolite from 99'-101.6' and 105.5'-106', biotite gneiss has hornblende-plagioclase-biotite, amphibolite with pyrite-hornblende-amphibole, fractures throughout, hard, dense	BR	[Red hatched graphic log]	318.4 106.00	11	ROTO SONIC	10.00 10.00	Open Boring _ 6" Diameter	
95	330	106.00 - 116.00 BIOTITE GNEISS, feldspar, quartz, fine to medium grained, weakly to strongly foliated, poorly jointed, fresh to slightly weathered Fractures at 109.5'	BR	[Red hatched graphic log]	308.4 116.00	12	ROTO SONIC	10.00 10.00		
100	325	116.00 - 126.00 AMPHIBOLITE/HORNBLLENDE GNEISS, salt and pepper to dark green, fine to moderately grained, poorly jointed, moderately foliated, quartz-biotite-hornblende, fresh to moderately weathered, deeply weathered almost saprolitic Fractures 122.1', 124.75'	BR	[Red hatched graphic log]		13	ROTO SONIC	9.60 10.00		
105	320	Log continued on next page								

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-66D

SHEET 4 of 7

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 266.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/26/20
 DATE COMPLETED: 5/6/20

NORTHING: 1,124,644.48
 EASTING: 2,409,028.45
 GS ELEVATION: 424.4
 TOC ELEVATION: 427.60 ft

DEPTH W.L.: 39.70
 ELEVATION W.L.: 387.90
 DATE W.L.: 5/8/2020
 TIME W.L.: 12:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
120		116.00 - 126.00 AMPHIBOLITE/HORNBLLENDE GNEISS, salt and pepper to dark green, fine to moderately grained, poorly jointed, moderately foliated, quartz-biotite-hornblende, fresh to moderately weathered, deeply weathered almost saprolitic Fractures 122.1', 124.75' (Continued)	BR		298.4 126.00	13	ROTO 9.60 SONIC 10.00		<p>WELL CASING Interval: 0'-69' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</p> <p>WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A</p> <p>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</p> <p>FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A</p> <p>ANNULUS SEAL Interval: 0'-69' Type: Cement Quantity: 1504lbs Cement, 120gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
125	300	126.00 - 136.00 AMPHIBOLITE/HORNBLLENDE GNEISS, salt and pepper to dark green, fine to moderately grained, poorly jointed, moderately foliated, quartz-biotite-hornblende, fresh to moderately weathered, deeply weathered Fractures 127.9', 133', 133.6'	BR		288.4 136.00	14	ROTO 8.50 SONIC 10.00		
130	295	136.00 - 146.00 HORNBLLENDE/BIOTITE GNEISS, quartz, well foliated, slightly jointed, fresh to moderately weathered, rock moving more towards biotite gneiss Fractures 136.6', 138.1-138.5'	BR		278.4 146.00	15	ROTO 9.50 SONIC 10.00	Open Boring _ 6" Diameter	
135	290	146.00 - 156.00 HORNBLLENDE/BIOTITE GNEISS, quartz, well foliated, slightly jointed, fresh to moderately weathered, rock becoming more felsic than mafic Fractures 146.6', 147.5', 148.5' 152'	BR		268.4 156.00	16	ROTO 10.00 SONIC 10.00		
140	285	156.00 - 166.00 HORNBLLENDE/BIOTITE GNEISS, quartz, well foliated, slightly jointed, fresh to moderately weathered 164' Amphibolite, salt and pepper, fresh weathered Fracture 157.75', 160.4', 161.4', 161.4', 162.4', 164'	BR		268.4 156.00	17	ROTO 9.75 SONIC 10.00		
145	280	Log continued on next page							

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-66D

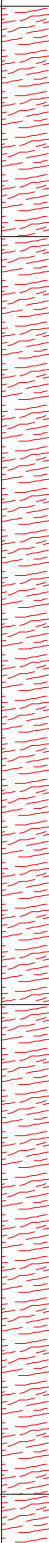
SHEET 5 of 7

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 266.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/26/20
 DATE COMPLETED: 5/6/20

NORTHING: 1,124,644.48
 EASTING: 2,409,028.45
 GS ELEVATION: 424.4
 TOC ELEVATION: 427.60 ft

DEPTH W.L.: 39.70
 ELEVATION W.L.: 387.90
 DATE W.L.: 5/8/2020
 TIME W.L.: 12:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
160		156.00 - 166.00 HORNBLLENDE/BIOTITE GNEISS, quartz, well foliated, slightly jointed, fresh to moderately weathered 164' Amphibolite, salt and pepper, fresh weathered Fracture 157.75', 160.4', 161.4', 161.4', 162.4', 164' (Continued)	BR		258.4 166.00	17	ROTO SONIC	9.75 10.00	WELL CASING Interval: 0'-69' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A FILTER PACK Interval: N/A Type: N/A Quantity: N/A FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A ANNULUS SEAL Interval: 0'-69' Type: Cement Quantity: 1504lbs Cement, 120gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
165		166.00 - 186.00 BIOTITE/HORNBLLENDE GNEISS, fine to medium grained, fresh to slightly weathered, well foliated, poorly jointed	BR		238.4 186.00	18	ROTO SONIC	10.00 10.00	
170			BR			19	ROTO SONIC	10.00 10.00	
175			BR			20	ROTO SONIC	10.00 10.00	
180			BR			21	ROTO SONIC	9.00 10.00	
185		186.00 - 198.75 BIOTITE GNEISS, feldspar, quartz, biotite, black to light grey, fresh to moderately weathered, fine to medium grained, feldspar has weathered out, Fractures 194', 197.45'	BR		225.65 198.75				
190			BR						
195			BR						
200		Log continued on next page	BR						

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-66D

SHEET 6 of 7

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 266.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/26/20
 DATE COMPLETED: 5/6/20

NORTHING: 1,124,644.48
 EASTING: 2,409,028.45
 GS ELEVATION: 424.4
 TOC ELEVATION: 427.60 ft

DEPTH W.L.: 39.70
 ELEVATION W.L.: 387.90
 DATE W.L.: 5/8/2020
 TIME W.L.: 12:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
200		198.75 - 206.00 AMPHIBOLITE/ BIOTITE GNEISS, fine grained, weakly foliated, poorly jointed (<i>Continued</i>)	BR		218.4	21	ROTO SONIC	9.00 10.00	<p>WELL CASING Interval: 0'-69' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</p> <p>WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A</p> <p>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</p> <p>FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A</p> <p>ANNULUS SEAL Interval: 0'- 69' Type: Cement Quantity: 1504lbs Cement, 120gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
205		206.00 - 216.00 HORNBLLENDE/BIOTITE GNEISS, fresh to slightly weathered, locally contained quartz, well foliated well jointed, water staining 212.5'-214' Fractures, 207', 207.5', 208.2', 209.5', 209.6', 209.9', 212.25'	BR		206.00	22	ROTO SONIC	10.00 10.00	
210		216.00 - 236.00 HORNBLLENDE/BIOTITE GNEISS, fresh to slightly weathered, locally contained quartz, well foliated well jointed,	BR		208.4	23	ROTO SONIC	8.75 10.00	
215		216.00 - 236.00 HORNBLLENDE/BIOTITE GNEISS, fresh to slightly weathered, locally contained quartz, well foliated well jointed,	BR		216.00	24	ROTO SONIC	10.00 10.00	
220		236.00 - 246.00 HORNBLLENDE/BIOTITE GNEISS, fresh to slightly weathered, locally contained quartz, well foliated well jointed, gneiss becoming more migmatite, locally contains pygmatic folds starting at 241'	BR		188.4 236.00	25	ROTO SONIC	9.00 10.00	
225								Open Boring _ 6" Diameter	
230									
235									
240									

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-66D

SHEET 7 of 7

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 266.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/26/20
 DATE COMPLETED: 5/6/20

NORTHING: 1,124,644.48
 EASTING: 2,409,028.45
 GS ELEVATION: 424.4
 TOC ELEVATION: 427.60 ft

DEPTH W.L.: 39.70
 ELEVATION W.L.: 387.90
 DATE W.L.: 5/8/2020
 TIME W.L.: 12:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
240		236.00 - 246.00 HORNBLLENDE/BIOTITE GNEISS, fresh to slightly weathered, locally contained quartz, well foliated well jointed, gneiss becoming more migmatite, locally contains pygmatic folds starting at 241' (Continued)	BR	[Red wavy lines]		25	ROTO SONIC	9.00 10.00	Open Boring _ 6" Diameter	<p>WELL CASING Interval: 0'-69' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</p> <p>WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A</p> <p>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</p> <p>FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A</p> <p>ANNULUS SEAL Interval: 0'-69' Type: Cement Quantity: 1504lbs Cement, 120gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
245	180	246.00 - 256.00 MIGMATIT, plagioclase quartz biotite with hornblende, fresh to moderately weathered, poorly foliated, poorly jointed, entire run has water staining, fractures every 1/4'	BR	[Red wavy lines]	178.4 246.00					
250	175	256.00 - 266.00 HORNBLLENDE/BIOTITE GNEISS, fresh to slightly weathered, locally contained quartz, well foliated well jointed Fracture 257'	BR	[Red wavy lines]	168.4 256.00					
255	170		BR	[Red wavy lines]	158.4					
260	165	Boring completed at 266.00 ft		[Red wavy lines]	158.4					
265	160			[Red wavy lines]						
270	155			[Red wavy lines]						
275	150			[Red wavy lines]						
280	145			[Red wavy lines]						

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-67

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 40.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/1/20
 DATE COMPLETED: 4/1/20

NORTHING: 1,125,782.26
 EASTING: 2,408,248.89
 GS ELEVATION: 423.2
 TOC ELEVATION: 425.94 ft

DEPTH W.L.: 25.5'
 ELEVATION W.L.: 400.36'
 DATE W.L.: 4/14/2020
 TIME W.L.: 11:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 10.00 CL, SILTY CLAY, 2.5 YR 3/4 reddish brown, no structure, deeply weathered biotite gneiss, trace mica, cohesive, plastic, moist, w<PL, RESIDUUM	CL		413.2				<p>WELL CASING Interval: 0' - 29.75' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 29.75' - 39.75' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 27.75' - 39.75' Type: #1 Sand Quantity: 3.25 Bags</p> <p>FILTER PACK SEAL Interval: 24.5' - 27.5' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 24.5' Type: Cement - Bentonite Quantity: 600lbs Cement, 40lbs Bentonite, 80gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>	
420							Grout -			
5										
415										
10		10.00 - 13.00 ML, CLAYEY SILT, 2.5YR 4/6 red, deeply weathered biotite gneiss, no structure, trace mica, cohesive, non-plastic, w<PI, soft to firm, moist, RESIDUUM	ML		410.2					Riser -
410		13.00 - 15.00 ML, CLAYEY SILT, 5 YR 5/8 yellowish red, deeply weathered biotite gneiss, no structure, some mica, cohesive, soft to firm, w<PL, moist, RESIDUUM	ML		408.2					
15		15.00 - 24.00 ML, CLAYEY SILT, trace relict foliation, very weathered biotite gneiss, non-cohesive, loose, moist, w<PL, most to wet 20-24' RESIDUUM	ML		399.2	1	ROTO 7.00 SONIC 10.00			
405										
20										
400										
25		24.00 - 30.00 ML, CLAYEY SILT, 10 YR 5/6 yellowish brown, weathered biotite gneiss, foliated, quartz-hornblende-plagioclase-biotite, cohesive, stiff, w<PL, moist, SAPROLITE	ML		393.2	2	ROTO 10.00 SONIC 10.00	Bentonite -		
395										
30		30.00 - 38.00 ML, SILT 10 YR 5/6 yellowish brown, slightly foliated, mottled, very weathered biotite gneiss, wet 30-32', moist to wet 32-38', some sand, very fine to fine sand, SAPROLITE	ML		385.2	3	ROTO 10.00 SONIC 10.00	Sand -		
390										
35										
385		38.00 - 40.00 Transitionally weathered rock, saprolitic rock, BIOTITE GNEISS, interlayered with saprolite very weathered, slightly foliated	TWR		383.2			0.010" Slotted Screen		
40		Boring completed at 40.00 ft								

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-67D



SHEET 1 of 8

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 301.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/15/20
 DATE COMPLETED: 4/25/20

NORTHING: 1,125,764.81
 EASTING: 2,408,259.40
 GS ELEVATION: 424.7
 TOC ELEVATION: 428.48 ft

DEPTH W.L.: 40.32
 ELEVATION W.L.: 388.16
 DATE W.L.: 5/6/2020
 TIME W.L.: 10:24

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 6.00 SM, SILTY SAND with trace clay, low to non plastic, non-cohesive, w<PL, loose/soft, high mica content	SM		418.7 6.00	1	ROTO <u>2.20</u> SONIC 6.00		Grout -	WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A FILTER PACK Interval: N/A Type: N/A Quantity: N/A FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A ANNULUS SEAL Interval: 0' - 83' Type: Cement-Bentonite Quantity: 1200lbs Cement, 45lbs Bentonite, 90gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
5	420	6.00 - 16.00 ML, SILT, with trace sand and clay, red brown to bronze, non to low plasticity, dry to moist, loose, w<PL, high mica content, RESIDUUM	ML		415	2	ROTO <u>5.25</u> SONIC 10.00			
10	415	16.00 - 26.00 ML, SILT, with trace sand and clay, red brown, non to low plasticity, dry to moist, loose, w<PL, high mica content, RESIDUUM	ML		410	3	ROTO <u>5.00</u> SONIC 10.00			
15	410	26.00 - 29.50 ML, SILT, with trace sand and clay, red brown to bronze, non to low plasticity, dry to moist, loose, w<PL, high mica content, RESIDUUM	ML		405	4	ROTO <u>9.50</u> SONIC 10.00			
20	405	29.50 - 36.00 GW, sandy GRAVEL, Transitionally weathered rock, well graded, fine to coarse, non-plastic, loose, dry, w<PL, amphibolite, fine-medium grained, moderately weathered, quartz, plagioclase, hornblende	TWR		400	5	ROTO <u>9.20</u> SONIC 10.00			
25	400	36.00 - 42.00 CL, CLAY, some very fine sand, low plasticity, dark green, wet to moist, very soft, w<PL	CL		395					
30	395				390					
35	390				385					

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-67D

SHEET 2 of 8

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 301.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/15/20
 DATE COMPLETED: 4/25/20

NORTHING: 1,125,764.81
 EASTING: 2,408,259.40
 GS ELEVATION: 424.7
 TOC ELEVATION: 428.48 ft

DEPTH W.L.: 40.32
 ELEVATION W.L.: 388.16
 DATE W.L.: 5/6/2020
 TIME W.L.: 10:24

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
40		36.00 - 42.00 CL, CLAY, some very fine sand, low plasticity, dark green, wet to moist, very soft, w<PL (Continued)	CL		382.7				6 1/4" Casing	<p>WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</p> <p>WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A</p> <p>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</p> <p>FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A</p> <p>ANNULUS SEAL Interval: 0' - 83' Type: Cement-Bentonite Quantity: 1200lbs Cement, 45lbs Bentonite, 90gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
		42.00 - 44.00 SM, SILTY SAND, with trace gravel, medium green to brown green non-plastic, w<PL, compact to dense	SM		42.00	5	ROTO 9.20 SONIC 10.00			
45	380	44.00 - 46.00 SM, SILTY SAND, trace gravel, tan to brown, fine to coarse sand, gravel quartz and feldspar, dry to moist, w<PL, non to low plasticity, loose-compact, biotite gneiss	SM		44.00					
		46.00 - 49.00 CL, CLAY, with sand and trace gravel, medium green to dark green, moist to dry, w<PL, non-cohesive, compact, RESIDUUM	CL		46.00					
		49.00 - 53.50 ML, SILT, with trace fine gravel, light green, low plasticity, loose, dry, w<PL,	ML		49.00	6	ROTO 9.50 SONIC 10.00			
55	370	53.50 - 56.00 SM, SILTY SAND, trace clay, fine to medium sand, low plasticity, dry to moist, w<PL, compact, RESIDUUM	SM		53.50					
		56.00 - 66.00 AMPHIBOLITE, black and white with dark green/black and white quartz, biotite, plagioclase, hornblende, fresh to moderately weathered, poorly jointed, weakly to slightly foliated			56.00					
60	365	59.50: Fracture 59.80 - 61.10 large vein quartz zone	BR		363.6	7	ROTO 9.60 SONIC 10.00			
		61.40: Fracture								
65	360	66.00 - 76.00 AMPHIBOLITE, white to green, medium grained, fresh to slightly weathered			66.00					
		68.60: Fracture								
70	355	75.00: Fracture	BR			8	ROTO 10.00 SONIC 10.00			
		76.00 - 86.00 AMPHIBOLITE, fresh rock, medium grained, white to green	BR		76.00	9	ROTO 7.00 SONIC 7.00			
80	345	Log continued on next page								

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-67D

SHEET 3 of 8

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 301.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/15/20
 DATE COMPLETED: 4/25/20

NORTHING: 1,125,764.81
 EASTING: 2,408,259.40
 GS ELEVATION: 424.7
 TOC ELEVATION: 428.48 ft

DEPTH W.L.: 40.32
 ELEVATION W.L.: 388.16
 DATE W.L.: 5/6/2020
 TIME W.L.: 10:24

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
80		76.00 - 86.00 AMPHIBOLITE, fresh rock, medium grained, white to green (Continued)	BR					Open Boring --	<p>WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</p> <p>WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A</p> <p>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</p> <p>FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A</p> <p>ANNULUS SEAL Interval: 0' - 83' Type: Cement-Bentonite Quantity: 1200lbs Cement, 45lbs Bentonite, 90gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>	
		81.90: Fracture				9	ROTO 7.00 SONIC 7.00			
85	340	84.70: Fracture			10	ROTO 3.00 SONIC 3.00				
		86.00 - 96.00 AMPHIBOLITE, fresh rock, medium grained, white to green, pyrite throughout	BR							
		92.00: Rock becomes more gneissic 92.01: Fracture 92.85: Fracture				11	ROTO 7.00 SONIC 10.00			
95	330	94.20: Fracture								
		95.50: Fracture								
		96.00 - 106.00 AMPHIBOLITE, fresh rock, medium grained, white to green, pyrite throughout	BR							
		98.20: Fracture				12	ROTO 10.00 SONIC 10.00			
100	325									
		106.00 - 166.00 AMPHIBOLITE, black to white to dark green, fine to medium grained, poorly jointed, weakly foliated, fresh to slightly weathered	BR							
		106.80: Fracture				13	ROTO 10.00 SONIC 10.00			
110	315									
					14	ROTO 9.40 SONIC 10.00				
120	305									

BOREHOLE RECORD: PLANT SCHERER CR6 INVESTIGATION BORING LOGS - SURVEY UPDATED.GPJ - PIEDMONT.GDT - 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-67D

SHEET 4 of 8

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 301.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/15/20
 DATE COMPLETED: 4/25/20

NORTHING: 1,125,764.81
 EASTING: 2,408,259.40
 GS ELEVATION: 424.7
 TOC ELEVATION: 428.48 ft

DEPTH W.L.: 40.32
 ELEVATION W.L.: 388.16
 DATE W.L.: 5/6/2020
 TIME W.L.: 10:24

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
120		106.00 - 166.00 AMPHIBOLITE, black to white to dark green, fine to medium grained, poorly jointed, weakly foliated, fresh to slightly weathered <i>(Continued)</i>							WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A FILTER PACK Interval: N/A Type: N/A Quantity: N/A FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A ANNULUS SEAL Interval: 0' - 83' Type: Cement-Bentonite Quantity: 1200lbs Cement, 45lbs Bentonite, 90gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
125	300								
130	295								
135	290						Open Boring _ 6" Diameter		
140	285		BR						
145	280								
150	275								
155	270								
160	265	157.00: Fracture							
		Log continued on next page							

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-67D

SHEET 5 of 8

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 301.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/15/20
 DATE COMPLETED: 4/25/20

NORTHING: 1,125,764.81
 EASTING: 2,408,259.40
 GS ELEVATION: 424.7
 TOC ELEVATION: 428.48 ft

DEPTH W.L.: 40.32
 ELEVATION W.L.: 388.16
 DATE W.L.: 5/6/2020
 TIME W.L.: 10:24

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
160		106.00 - 166.00 AMPHIBOLITE, black to white to dark green, fine to medium grained, poorly jointed, weakly foliated, fresh to slightly weathered <i>(Continued)</i> 160.15: Fracture	BR			18	ROTO <u>10.00</u> SONIC 10.00		<p>WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</p> <p>WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A</p> <p>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</p> <p>FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A</p> <p>ANNULUS SEAL Interval: 0' - 83' Type: Cement-Bentonite Quantity: 1200lbs Cement, 45lbs Bentonite, 90gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
165	260	164.50: Fracture 165.20: Fracture 165.60: Fracture 166.00 - 176.00 AMPHIBOLITE, quartz, plagioclase, biotite, fine to moderately grained, weakly foliated, poorly jointed, fresh to slightly weathered, locally contains pyrite and vein quartz 168.40: Fracture			258.7 166.00				
170	255	171.20: Fracture 172.20: Fracture	BR			19	ROTO <u>10.00</u> SONIC 10.00		
175	250	176.00 - 186.00 AMPHIBOLITE, quartz, plagioclase, biotite, fine to moderately grained, moderately foliated, poorly jointed, fresh to slightly weathered, locally contains pyrite and vein quartz 176.80: Fracture			248.7 176.00				
180	245	180.10: Fracture	BR			20	ROTO <u>8.50</u> SONIC 10.00	Open Boring - 6" Diameter	
185	240	186.00 - 196.00 AMPHIBOLITE/HORNBLLENDE GNEISS, fine to moderately grained, moderately to well foliated, poorly jointed, fresh to slightly weathered, locally contains pyrite and vein quartz. 187.00: Fracture			238.7 186.00				
190	235	189.25: Fracture 189.50: Fracture 191.10: Fracture	BR			21	ROTO <u>8.80</u> SONIC 10.00		
195	230	194.00: Fracture			228.7 196.00				
200	225	196.00 - 226.00 AMPHIBOLITE/HORNBLLENDE GNEISS, fine to medium grained, fresh to slightly weathered, moderately foliated	BR			22	ROTO <u>9.50</u> SONIC 10.00		
		Log continued on next page							

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-67D


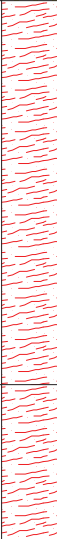
SHEET 6 of 8

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 301.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/15/20
 DATE COMPLETED: 4/25/20

NORTHING: 1,125,764.81
 EASTING: 2,408,259.40
 GS ELEVATION: 424.7
 TOC ELEVATION: 428.48 ft

DEPTH W.L.: 40.32
 ELEVATION W.L.: 388.16
 DATE W.L.: 5/6/2020
 TIME W.L.: 10:24

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
200		196.00 - 226.00 AMPHIBOLITE/HORNBLLENDE GNEISS, fine to medium grained, fresh to slightly weathered, moderately foliated <i>(Continued)</i>	BR					Open Boring - 6" Diameter	<p>WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</p> <p>WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A</p> <p>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</p> <p>FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A</p> <p>ANNULUS SEAL Interval: 0' - 83' Type: Cement-Bentonite Quantity: 1200lbs Cement, 45lbs Bentonite, 90gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>	
205	220									
210	215									
215	210	215.85: Fracture								
220	205									
225	200									
230	195	226.00 - 236.00 BIOTITE GNEISS feldspar, garnet, biotite, weak to well foliated, fine to medium grained, black to gray, locally contains quartz veins	BR		198.7	226.00				
235	190									
240	185	236.00 - 246.00 BIOTITE GNEISS, interlayered with amphibolite, black and white to dark grey, fine to medium grained, fair to weakly foliated, poorly jointed, fresh, gneiss locally contains garnets, locally contain quartz veins 236.60: Fracture 238.30: Fracture	BR		188.7	236.00				

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

Log continued on next page

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-67D

SHEET 7 of 8

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 301.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/15/20
 DATE COMPLETED: 4/25/20

NORTHING: 1,125,764.81
 EASTING: 2,408,259.40
 GS ELEVATION: 424.7
 TOC ELEVATION: 428.48 ft

DEPTH W.L.: 40.32
 ELEVATION W.L.: 388.16
 DATE W.L.: 5/6/2020
 TIME W.L.: 10:24

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
240		236.00 - 246.00 BIOTITE GNEISS, interlayered with amphibolite, black and white to dark grey, fine to medium grained, fair to weakly foliated, poorly jointed, fresh, gneiss locally contains garnets, locally contain quartz veins (<i>Continued</i>)	BR			26	ROTO 9.70 SONIC 10.00		<p>WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</p> <p>WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A</p> <p>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</p> <p>FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A</p> <p>ANNULUS SEAL Interval: 0' - 83' Type: Cement-Bentonite Quantity: 1200lbs Cement, 45lbs Bentonite, 90gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>	
245	180	244.40: Fracture								
		246.00 - 276.00 AMPHIBOLITE/HORNBLende GNEISS, quartz and plagioclase, locally contains small pyrite, fresh, medium grained, weak to moderately foliated, poorly jointed Amphibolite and hornblende have dark green hue starting 266' Fractures 246.8', 252.7', 256', 258.1', 265.8' 267.3', 273.9' 246.80: Fracture			178.7 246.00	27	ROTO 9.60 SONIC 10.00			
250	175	252.70: Fracture								
255	170	256.00: Fracture								
260	165	258.10: Fracture	BR			28	ROTO 10.00 SONIC 10.00	Open Boring _ 6" Diameter		
265	160	265.80: Fracture								
270	155	267.30: Fracture				29	ROTO 10.00 SONIC 10.00			
275	150	273.90: Fracture								
280	145	Log continued on next page	BR		148.7 276.00	30	ROTO 10.00 SONIC 10.00			

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-67D

SHEET 8 of 8

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 301.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TS 150
 DATE STARTED: 4/15/20
 DATE COMPLETED: 4/25/20

NORTHING: 1,125,764.81
 EASTING: 2,408,259.40
 GS ELEVATION: 424.7
 TOC ELEVATION: 428.48 ft

DEPTH W.L.: 40.32
 ELEVATION W.L.: 388.16
 DATE W.L.: 5/6/2020
 TIME W.L.: 10:24

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
280		276.00 - 286.00 AMPHIBOLITE, black/white/dark green, hornblende gneiss, fine to medium grained, weakly to slightly foliated, poorly jointed, fresh Approximately 282' amphibolite becomes coarse grained, minor quartz biotite amphiboles and plagioclase appears to be more dioritic <i>(Continued)</i>	BR		138.7 286.00	30	ROTO 10.00 SONIC 10.00	Open Boring _ 6" Diameter	WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A FILTER PACK Interval: N/A Type: N/A Quantity: N/A FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A ANNULUS SEAL Interval: 0' - 83' Type: Cement-Bentonite Quantity: 1200lbs Cement, 45lbs Bentonite, 90gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
285	140	286.00 - 301.00 AMPHIBOLITE/HORNBLLENDE GNEISS, quartz and plagioclase, locally contains small pyrite, fresh, medium grained, weak to moderately foliated, poorly jointed	BR			31	ROTO 9.60 SONIC 10.00		
290	135	289.50: Fracture				32	ROTO 5.00 SONIC 5.00		
295	130	Boring completed at 301.00 ft			123.7				
300	125								
305	120								
310	115								
315	110								
320	105								

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Logan Hall

GA INSPECTOR: M. Boatman, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE PZ-68

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 20139484
 DRILLED DEPTH: 20.00 ft
 LOCATION: Juliette, GA

DRILL RIG: TSI CC Crawler
 DATE STARTED: 4/15/20
 DATE COMPLETED: 4/15/20

NORTHING: 1,125,116.59
 EASTING: 2,407,181.92
 GS ELEVATION: 392.1
 TOC ELEVATION: 395.55 ft

DEPTH W.L.: 14.0'
 ELEVATION W.L.: 381.40'
 DATE W.L.: 4/17/2020
 TIME W.L.: 16:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 1.00 CL, sandy SILTY CLAY, 2.5 YR 4/6 red, cohesive, plastic, soft to firm, moist to wet, w~PL, no structure, deeply weathered biotite gneiss, RESIDUUM	CL	[Hatched Pattern]	391.1 1.00					<p>WELL CASING Interval: 0' - 10' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 10' - 20' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"</p> <p>FILTER PACK Interval: 7.2' - 20' Type: #1 Sand Quantity: 3.5 Bags</p> <p>FILTER PACK SEAL Interval: 4' - 7.2' Type: Pel Plug Quantity: 5gal Bucket</p> <p>ANNULUS SEAL Interval: 0' - 4' Type: Cement - Bentonite Quantity: 50lbs Cement, 3lbs Bentonite, 6gal Water</p> <p>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic</p>
390		1.00 - 5.00 CL, SILTY CLAY, 2.5 YR 4/6 red, cohesive, plastic, firm to stiff, w~PL, no structure, deeply weathered biotite gneiss, RESIDUUM	CL	[Hatched Pattern]	387.1 5.00	1	ROTO 9.00 SONIC 10.00			
5		5.00 - 9.50 ML, CLAYEY SILT, 7.5 YR 4/4 brown, deeply weathered biotite gneiss, mica flakes, no structure, stiff, moist, slightly plastic, w<PL, RESIDUUM	ML	[Vertical Lines]	382.6 9.50					
10		9.50 - 11.00 SP-SM, SAND and SILTY SAND, fine sand, 7.5 YR 4/4 brown, deeply weathered biotite gneiss, moist to wet, mica flakes, non-plastic, non-cohesive, loose	SP-SM	[Vertical Lines]	381.1 11.00					
380		11.00 - 13.00 SM, clayey SILTY SAND, very weathered biotite, gneiss with clay 10 YR 6/3 pale brown, fine to medium grained, some foliation, mottled, moist, loose, non-plastic, SAPROLITE	SM	[Vertical Lines]	379.1 13.00	2	ROTO 5.00 SONIC 5.00			
15		13.00 - 14.00 ML, CLAYEY SILT, some very fine sand, 10 YR 5/4 yellowish brown, very weathered biotite gneiss, some foliation, firm, w<PL, moist	ML	[Vertical Lines]	378.1 14.00					
375		14.00 - 15.00 SM, SILTY SAND, with clay, some foliation, 10 YR 6/3 pale brown, weathered biotite gneiss, dry	SM	[Vertical Lines]	377.1 15.00					
20		15.00 - 20.00 Transitionally weathered rock to unweathered BIOTITE GNEISS, slightly foliated, fine to medium grained, quartz plagioclase, biotite	TWR	[Triangle Pattern]	372.1	3	ROTO 2.00 SONIC 5.00	0.010" Slotted Screen		
370		Boring completed at 20.00 ft								

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

LOG SCALE: 1 in = 5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Chris Turner

GA INSPECTOR: S. George, PG
 CHECKED BY: Rachel P. Kirkman, PG
 DATE: 5/29/20



RECORD OF BOREHOLE LPZ-01

SHEET 1 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 65.80 ft
 LOCATION: Juliette, GA

DRILL RIG: CME 550X (98977) Track
 Mounted Rig
 DATE STARTED: 11/6/15
 DATE COMPLETED: 11/10/15

NORTHING: 1,117,001.58
 EASTING: 2,398,513.19
 GS ELEVATION: 550.0
 TOC ELEVATION: 553.29 ft

DEPTH W.L.: 53.78'
 ELEVATION W.L.:
 DATE W.L.: 11/11/15
 TIME W.L.: 11:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC	
0	550	0.00 - 2.50 CLAYEY SILT; red/brown clay, trace to little sand, firm to stiff, dry, W<PL	MH		547.5						Portland Type I/ Type - II/ Gel mix		WELL CASING Interval: -3'-54' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded WELL SCREEN Interval: 54'-64' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 47.7'-65.8' Type: #1 sand FILTER PACK SEAL Interval: 45.1'-47.7' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-45.1' Type: Portland Type I/Type II/Gel Mix WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Steel DRILLING METHODS Soil Drill: 3.25" HSA/HQ Rotary Rock Drill: 3.25" HSA/HQ Rotary
		2.50 - 5.00 reddish brown/beige mottled clay with trace fine sand, some mica, stiff to very stiff, dry to moist, W<PL			545	1	DO	4-5-7	12	$\frac{1.20}{1.50}$			
5	545	5.00 - 8.50 more clay noted, reddish brown clay with trace fine sand and mica			541.5	2	DO	6-12-17	29	$\frac{1.50}{1.50}$			
		8.50 - 13.50 not mottled			536.5	3	DO	4-10-13	23	$\frac{1.50}{1.50}$			
			535.5	4	DO	5-10-13	23	$\frac{1.50}{1.50}$					
15	535	13.50 - 14.50 reddish brown clay with trace fine sand and mica	533	5	DO	2-7-5	12	$\frac{1.00}{1.50}$					
		14.50 - 17.00 SILTY SAND; deeply weathered granitic gneiss, some quartz, partially weathered rock, white sand and silt, compact, dry, W<PL	530										
		17.00 - 20.00 SILT; light brown silt with trace fine sand, some mica, non-plastic, soft, dry to moist, W<PL	525	6	DO	3-3-4	7	$\frac{1.20}{1.50}$					
20	530	20.00 - 25.00 light beige/white silver silt, lots of mica, non-plastic, trace fine sand, soft, dry, W<PL	520	7	DO	3-4-4	8	$\frac{1.10}{1.50}$					
		25.00 - 30.00 light beige/white silt with mica and trace fine sand to deeply weathered granitic gneiss with quartz, partially weathered rock, white sand and silt, compact, dry, W<PL	517	8	DO	4-8-7	15	$\frac{1.30}{1.50}$					
30	520	30.00 - 33.00 light to medium brown silt, trace to little sand, non-plastic, silt appears to be made of biotite gneiss interlayered with quartz veins, soft, dry to moist, W<PL	510	9	DO	3-6-8	14	$\frac{1.40}{1.50}$					
		33.00 - 40.00 SILTY SAND; light to medium brown silt with trace fine sand, greenish weathering, non-plastic, soft, moist, W<PL	510	10	DO	6-27-42	69	$\frac{1.50}{1.50}$					
40	510	40.00 - 53.00 brown/white/green fine to coarse sand, non to low plasticity, dry to moist, soft, W<PL											
45	505	Log continued on next page											

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: DJ Wideman

GA INSPECTOR: Michael Boatman
 CHECKED BY: Rachel P. Kirkman, P.G.
 DATE: 2/1/16



RECORD OF BOREHOLE LPZ-01

SHEET 2 of 2

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 65.80 ft
 LOCATION: Juliette, GA

DRILL RIG: CME 550X (98977) Track
 Mounted Rig
 DATE STARTED: 11/6/15
 DATE COMPLETED: 11/10/15

NORTHING: 1,117,001.58
 EASTING: 2,398,513.19
 GS ELEVATION: 550.0
 TOC ELEVATION: 553.29 ft

DEPTH W.L.: 53.78'
 ELEVATION W.L.:
 DATE W.L.: 11/11/15
 TIME W.L.: 11:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE	REC	
45	505	40.00 - 53.00 brown/white/green fine to coarse sand, non to low plasticity, dry to moist, soft, W<PL <i>(Continued)</i>			497	11	DO	12-20-17	37	<u>1.30</u> 1.50	3/8" Bentonite chips	WELL CASING Interval: -3'-54' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded WELL SCREEN Interval: 54'-64' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 47.7'-65.8' Type: #1 sand FILTER PACK SEAL Interval: 45.1'-47.7' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-45.1' Type: Portland Type I/Type II/Gel Mix WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Steel DRILLING METHODS Soil Drill: 3.25" HSA/HQ Rotary Rock Drill: 3.25" HSA/HQ Rotary	
					497								
50	500	53.00 - 58.00 PARTIALLY WEATHERED ROCK; biotite gneiss with quartz and hornblende	PWR		492	13	DO	50/3	50	<u>0.20</u> 0.30	#1 sand		
					492								
55	495	58.00 - 65.80 ROCK: biotite gneiss, no recovery in spoon *No auger refusal noted due to drilling conditions Core Run (58.3'-59.8'): RQD=0%; REC=67% Core Run (59.8'-64.8'): RQD=44%; REC=98% Core Run (64.8'-65.8'): RQD=82%; REC=90%	BR		492	14	CORE			<u>1.00</u> 1.50	0.010" slot screen		
60	490							15	CORE				<u>4.90</u> 5.00
65	485							16	CORE				<u>0.90</u> 1.00
		Boring completed at 65.80 ft											

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ | PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: DJ Wideman

GA INSPECTOR: Michael Boatman
 CHECKED BY: Rachel P. Kirkman, P.G.
 DATE: 2/1/16



RECORD OF BOREHOLE LPZ-02



SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 20.00 ft
 LOCATION: Juliette, GA

DRILL RIG: CME 550X (98977) Track
 Mounted Rig
 DATE STARTED: 11/20/15
 DATE COMPLETED: 11/20/15

NORTHING: 1,119,972.34
 EASTING: 2,398,004.93
 GS ELEVATION: 511.1
 TOC ELEVATION: 514.52 ft

DEPTH W.L.: 2.05'
 ELEVATION W.L.:
 DATE W.L.: 11/21/15
 TIME W.L.: 08:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS								
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC							
0	510	0.00 - 2.50 CLAYEY SAND; red/brown clayey sand, fine to medium grain, non-plastic, some organic material, soft, moist to wet, W<PL	SC		508.6	1	DO	4-4-3	7	0.80 1.50	Portland Type I/ Type II/ Gel mix	WELL CASING Interval: -3'-10' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded							
2.50	505.1	2			DO								3-3-3	6	1.30 1.50	3/8" Bentonite chips	WELL SCREEN Interval: 10'-20' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC		
5	503.6	3			DO								3-4-8	12	1.50 1.50			#1 sand - 0.010" slot screen	FILTER PACK Interval: 8.3'-20' Type: #1 sand
6.00 - 7.50 red/brown clayey sand to orange/yellow clay with trace fine sand, low plasticity, soft, moist, W<PL	6.00	4			DO								2-3-3	6	1.50 1.50					ANNULUS SEAL Interval: 0'-5.3' Type: Portland Type I/Type II/Gel Mix
7.50 - 13.00 blue grey sandy clay, trace organic material, low plasticity, firm to stiff, moist, W<PL	503.6		5	DO															
13.00 - 15.00 sand and clay, soft, loose, low to non-plastic, moist to wet	498.1	6			DO								10-50/4	50	0.50 0.80				
15.00 - 20.00 SILTY SAND; brownish white sand, trace to some silt, some mica, soft, loose, non-plastic, looks like weathered quartz vein or pegmatite, W<PL	496.1		Boring completed at 20.00 ft																
15	495	15.00 - 20.00 brown/bronze and white sand with trace to some silt, non-plastic, loose, moist, W<PL	SM		13.00	5	DO	13-12-10	22	1.40 1.50	#1 sand - 0.010" slot screen	ANNULUS SEAL Interval: 0'-5.3' Type: Portland Type I/Type II/Gel Mix							
15	495	15.00 - 20.00 brown/bronze and white sand with trace to some silt, non-plastic, loose, moist, W<PL			15.00								6	DO	10-50/4	50	0.50 0.80	WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Steel	
20	490	Boring completed at 20.00 ft																	
20	490	Boring completed at 20.00 ft																	
25	485	Boring completed at 20.00 ft																	
30	480	Boring completed at 20.00 ft																	
35	475	Boring completed at 20.00 ft																	
40	470	Boring completed at 20.00 ft																	
45		Boring completed at 20.00 ft																	

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ | PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: DJ Wideman

GA INSPECTOR: Michael Boatman
 CHECKED BY: Rachel P. Kirkman, P.G.
 DATE: 2/1/16



RECORD OF BOREHOLE LPZ-03

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 35.00 ft
 LOCATION: Juliette, GA

DRILL RIG: CME 550X (98977) Track Mounted Rig
 DATE STARTED: 11/17/15
 DATE COMPLETED: 11/18/15

NORTHING: 1,117,883.86
 EASTING: 2,398,657.00
 GS ELEVATION: 512.2
 TOC ELEVATION: 515.45 ft

DEPTH W.L.: 6.48
 ELEVATION W.L.:
 DATE W.L.: 1/14/16
 TIME W.L.: 11:13

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	510	0.00 - 2.50 CLAY; with some silt, orange/yellow/beige mottled clay with trace fine sand, low plasticity, very stiff to hard, dry to moist, W<PL	CH		509.7						<p>Portland Type I/ Type II/ Gel mix</p> <p>3/8" Bentonite chips</p> <p>#1 sand</p> <p>0.010" slot screen</p>	<p>WELL CASING Interval: -3'-25' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 25'-35' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 20'-35' Type: #1 sand *Heaving sands during well construction</p> <p>FILTER PACK SEAL Interval: 17.7'-20' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-17.7' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Steel</p> <p>DRILLING METHODS Soil Drill: 3.25" HSA/HQ Rotary Rock Drill: 3.25" HSA/HQ Rotary</p>
		2.50 - 4.00 red brown mottled clay with trace fine sand, dry to moist, W<PL			508.2	1	DO	4-6-10	16	<u>1.40</u> 1.50		
		4.00 - 13.00 Shelby Tube Collected: 4'-6" CLAYEY SILT; light green and brown mottled clay, trace fine sand, stiff to very stiff, low plasticity, moist W<PL	MH		4.00							
						2	DO	5-10-12	22	<u>1.50</u> 1.50		
						3	DO	5-7-9	16	<u>1.50</u> 1.50		
						4	DO	3-5-8	13	<u>1.50</u> 1.50		
					499.2							
		13.00 - 18.00 CLAYEY SAND; light green to beige sand, fine to coarse, trace clay and gravel, non to low plasticity, compact, soft, very moist, W<PL	SC		13.00							
						5	DO	2-1-2	3	<u>1.50</u> 1.50		
					494.2							
		18.00 - 20.00 CLAYEY SILT; beige to brown spotted clay, moderate to high plasticity, soft to firm, moist, W=PL	MH		18.00							
		20.00 - 25.00 beige to brown spotted clay, moderate to high plasticity, soft to firm, moist, W=PL			492.2	6	DO	1-2-1	3	<u>1.50</u> 1.50		
					487.2							
		25.00 - 30.30 yellow brown clay, trace to some fine to medium sand, low to moderate plasticity, soft to very soft, wet, W>PL			25.00	7	DO	1-2-2	4	<u>1.50</u> 1.50		
					481.9							
		30.30 - 35.00 SAPROLITE; white/black/brown sand and clay, low to non-plastic, deeply weathered granitic biotite gneiss, soft, wet	SC		30.30	8	DO	1-2-2	4	<u>0.90</u> 1.50		
					477.2							
		Boring completed at 35.00 ft				9	DO	1-2-3	5	<u>1.50</u> 1.50		

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: DJ Wideman

GA INSPECTOR: Michael Boatman
 CHECKED BY: Rachel P. Kirkman, P.G.
 DATE: 2/1/16



RECORD OF BOREHOLE LPZ-04

SHEET 1 of 1

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 40.00 ft
 LOCATION: Juliette, GA

DRILL RIG: CME 550X (98977) Track Mounted Rig
 DATE STARTED: 11/18/15
 DATE COMPLETED: 11/19/15

NORTHING: 1,115,962.59
 EASTING: 2,397,083.47
 GS ELEVATION: 458.1
 TOC ELEVATION: 461.24 ft

DEPTH W.L.: 15.09'
 ELEVATION W.L.:
 DATE W.L.: 11/19/15
 TIME W.L.: 14:20

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0		0.00 - 2.50 SILTY CLAY; reddish brown clay, firm to stiff, low plasticity, moist, W<PL	CL		455.6						Portland Type I/ Type II/ Gel mix 3/8" Bentonite chips 0.010" slot screen #1 sand 3/8" Bentonite chips	WELL CASING Interval: -3'-18' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded WELL SCREEN Interval: 18'-28' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 16.5'-31.9' Type: #1 sand FILTER PACK SEAL Interval: 12.5'-16.5' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-12.5' Type: Portland Type I/Type II/Gel Mix WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Steel DRILLING METHODS Soil Drill: 3.25" HSA/HQ Rotary Rock Drill: 3.25" HSA/HQ Rotary
455	2.50 - 6.00 reddish brown clay, firm to stiff, low plasticity, moist, W<PL	2.50			1	DO	4-5-8	13	1.50	1.50		
5												
	6.00 - 7.50 CLAY; yellowish orange clay with fine to medium sand, low plasticity, stiff, moist, W<PL	CH		452.1	2	DO	2-5-7	12	1.30			
450	7.50 - 10.00 grayish white clay with trace to some fine to medium sand, low plasticity, very stiff to hard, dry to moist, W<PL			450.6	3	DO	5-7-8	15	1.20	1.50		
10												
	10.00 - 13.00 CLAYEY SAND; yellowish orange fine to medium sand, some clay, firm to stiff, non to low plasticity, dry to moist, W<PL Shelby Tube Collected: 10'-12'	SC		448.1	4	DO	7-9-10	19	1.50			
445	13.00 - 18.00 red/brown/black/silver silt with some clay and trace coarse sand, non-plastic, mica, extremely moist, saturated but not wet, possible water around 17'			445.1								
15												
	18.00 - 25.00 SILTY SAND; red/brown/black/silver silt with some clay and trace coarse sand, non to low plasticity, soft, moist to wet, W>PL	SM		440.1								
440				18.00	6	DO	2-2-2	4	1.50	1.50		
435												
	25.00 - 30.00 SAPROLITE; top 4 inches fine grain granitic texture, sand, trace silt, non-plastic, loose, soft, W>PL; bottom 10 inches saprolite, fine to medium grain biotite gneiss, sand, silt, fine to coarse, soft, compact, W>PL			433.1	7	DO	2-3-4	7	1.50			
430												
	30.00 - 35.00 interlayered fine grain granitic sand with trace silt and fine to medium grain biotite gneiss saprolite with fine to coarse sand and silt			428.1	8	DO	1-4-3	7	1.20			
425				30.00					1.50			
	35.00 - 40.00 interlayered sequence: fine grain granitic sand with trace silt and fine to medium grain biotite gneiss saprolite with fine to coarse sand and silt, moist to wet, W>PL			423.1	9	DO	3-5-11	15	1.20			
420				35.00					1.50			
40				418.1								
	Boring completed at 40.00 ft				10	DO	11-17-20	37	0.90			
415									1.50			
45												

BOREHOLE RECORD: SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: DJ Wideman

GA INSPECTOR: Michael Boatman
 CHECKED BY: Rachel P. Kirkman, P.G.
 DATE: 2/1/16



RECORD OF BOREHOLE LPZ-05

SHEET 1 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 103.40 ft
 LOCATION: Juliette, GA

DRILL RIG: CME 550X (98977) Track Mounted Rig
 DATE STARTED: 10/28/15
 DATE COMPLETED: 11/5/15

NORTHING: 1,115,328.95
 EASTING: 2,399,698.53
 GS ELEVATION: 521.5
 TOC ELEVATION: 524.51 ft

DEPTH W.L.: 45.10'
 ELEVATION W.L.:
 DATE W.L.: 11/5/15
 TIME W.L.: 10:40

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	520	0.00 - 2.50 SILT; soft sandy top soil followed by red silt and clay with mica, low plasticity, dry, compact, W>PL	ML		519						<p>WELL CASING Interval: -3.5'-43.1' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 42.1'-52.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 37.5'-53.1' Type: #1 sand</p> <p>FILTER PACK SEAL Interval: 34.9'-37.5' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-34.9' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Steel</p> <p>DRILLING METHODS Soil Drill: 3.25" HSA/HQ Rotary Rock Drill: 3.25" HSA/HQ Rotary</p>
		2.50 - 5.00 red silt and clay, contains mica, low plasticity, compact, dry, W>PL			1	DO	3-5-8	13	$\frac{1.30}{1.50}$		
5	515	5.00 - 8.00 red/brown silt, contains mica, non-plastic, 1 inch thick pegmatite lense at 6.7 feet, dry to moist	CL		516.5						
		8.00 - 10.00 SILTY CLAY; red/brown clay with some silt, contains mica, low plasticity, loose to firm, dry to moist			2	DO	4-8-11	19	$\frac{1.10}{1.50}$		
		10.00 - 18.20 red/brown clay with some silt, contains mica, coarse biotite and feldspar crystals, low plasticity, loose to firm, dry to moist	SM		513.5						
		18.20 - 23.00 SILTY SAND; tan to white sand, fine to coarse, trace silt, non-plastic, loose; orange-brown silt with trace sand, fine to medium, weathered amphibolite, firm, dry, moist; then to silty sand with biotite/quartz/feldspar pegmatite, non-plastic, soft, dry to moist			3	DO	5-5-5	10	$\frac{1.20}{1.50}$		
10	510		ML		511.5						
					4	DO	2-4-5	9	$\frac{0.90}{1.50}$		
			ML		503.3						
					5	DO	2-3-4	7	$\frac{0.90}{1.50}$		
15	505		SM		500.3						
					6	DO	3-4-3	7	$\frac{0.90}{1.50}$		
20	500		ML		498.5						
					7	DO	5-6-6	12	$\frac{1.50}{1.50}$		
25	495		SM		488.3						
					8	DO	5-6-10	16	$\frac{1.30}{1.50}$		
30	490		ML		486.5						
					9	DO	19-33-20	>50	$\frac{1.40}{1.50}$		
35	485		SM		481.5						
					10	DO	32-50/3	>50	$\frac{0.80}{0.80}$		
40	480				476.5						

BOREHOLE RECORD: SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ | PIEDMONT.GDT 9/4/20

Log continued on next page

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: DJ Wideman

GA INSPECTOR: Michael Boatman
 CHECKED BY: Rachel P. Kirkman, P.G.
 DATE: 2/1/16



RECORD OF BOREHOLE LPZ-05

SHEET 2 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 103.40 ft
 LOCATION: Juliette, GA

DRILL RIG: CME 550X (98977) Track
 Mounted Rig
 DATE STARTED: 10/28/15
 DATE COMPLETED: 11/5/15

NORTHING: 1,115,328.95
 EASTING: 2,399,698.53
 GS ELEVATION: 521.5
 TOC ELEVATION: 524.51 ft

DEPTH W.L.: 45.10'
 ELEVATION W.L.: 45.10'
 DATE W.L.: 11/5/15
 TIME W.L.: 10:40

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC		
45	475	45.00 - 50.00 green salt and pepper texture, sand, some silt, fine to coarse, some mica, iron staining evident, thin vein of quartz, compact, non-plastic, moist to wet			45.00	11	DO	6-7-11	18	<u>1.30</u> 1.50	<p>#1 sand 0.010" slot screen 3/8" Bentonite chips</p>	<p>WELL CASING Interval: -3.5'-43.1' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 42.1'-52.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 37.5'-53.1' Type: #1 sand</p> <p>FILTER PACK SEAL Interval: 34.9'-37.5' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-34.9' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Steel</p> <p>DRILLING METHODS Soil Drill: 3.25" HSA/HQ Rotary Rock Drill: 3.25" HSA/HQ Rotary</p>		
50	470	50.00 - 53.90 green salt and pepper texture, fine to coarse sand and silt, some mica, iron staining evident, compact, wet					471.5 50.00	12	DO	5-8-10			18	<u>1.50</u> 1.50
55	465	53.90 - 63.00 SAPROLITE; biotite/gneiss/quartz/feldspar saprolite, silt with some fine to coarse sand, brown and white, non-plastic, compact to dense, wet,	ML		467.6 53.90	13	DO	3-15-15	30	<u>1.50</u> 1.50				
60	460						458.5 63.00	14	DO	7-9-15			24	<u>1.50</u> 1.50
65	455	63.00 - 68.00 SILTY SAND; white/black/green silty sand, fine to coarse, trace silt, non-plastic, compact, moist, W<PL <i>Auger Refusal at 68 feet</i> Core Run (67.3'-73.5'); RQD=56%; REC=78%			SM			15	DO	10-17-25			42	<u>1.50</u> 1.50
70	450	68.00 - 103.00 BEDROCK; deeply weathered gneiss						16	CORE					<u>4.80</u> 6.20
75	445	76.60: Core Run (76.6'-81.2'); no recovery	BR										<u>0.00</u> 4.60	
80	440	81.20: Core Run (81.2'-85.7'); no recovery												<u>0.00</u> 4.50
85	435	85.70: Core Run (85.7'-93'); no recovery												<u>0.00</u> 7.30
90		Log continued on next page												

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: DJ Wideman

GA INSPECTOR: Michael Boatman
 CHECKED BY: Rachel P. Kirkman, P.G.
 DATE: 2/1/16



RECORD OF BOREHOLE LPZ-05

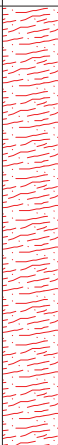
SHEET 3 of 3

PROJECT: Plant Scherer
 PROJECT NUMBER: 1542702
 DRILLED DEPTH: 103.40 ft
 LOCATION: Juliette, GA

DRILL RIG: CME 550X (98977) Track
 Mounted Rig
 DATE STARTED: 10/28/15
 DATE COMPLETED: 11/5/15

NORTHING: 1,115,328.95
 EASTING: 2,399,698.53
 GS ELEVATION: 521.5
 TOC ELEVATION: 524.51 ft

DEPTH W.L.: 45.10'
 ELEVATION W.L.:
 DATE W.L.: 11/5/15
 TIME W.L.: 10:40

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
90	430	68.00 - 103.00 BEDROCK; deeply weathered gneiss (Continued)	BR		19	CORE			0.00 7.30	<p>WELL CASING Interval: -3.5'-43.1' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 42.1'-52.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 37.5'-53.1' Type: #1 sand</p> <p>FILTER PACK SEAL Interval: 34.9'-37.5' Type: 3/8" Bentonite Pellets</p> <p>ANNULUS SEAL Interval: 0'-34.9' Type: Portland Type I/Type II/Gel Mix</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Steel</p> <p>DRILLING METHODS Soil Drill: 3.25" HSA/HQ Rotary Rock Drill: 3.25" HSA/HQ Rotary</p>	
95	425	93.00: Core Run (93'-98'): RQD=0%; REC=20%			20	CORE			1.00 5.00		
100	420	98.00: Core Run (98'-103.4'): RQD=62%; REC=90%			21	CORE			4.90 5.40		
		Boring completed at 103.40 ft		418.5 103.00							

BOREHOLE RECORD - SCHERER BORING LOGS (2)_SURVEY UPDATED.GPJ_PIEDMONT.GDT 9/4/20

LOG SCALE: 1 in = 5.5 ft
 DRILLING COMPANY: Southern Company Services
 DRILLER: DJ Wideman

GA INSPECTOR: Michael Boatman
 CHECKED BY: Rachel P. Kirkman, P.G.
 DATE: 2/1/16



APPENDIX A

Drilling Bonds

CLIENT'S COPY

SURETY BOND CONTINUATION CERTIFICATE

TO: State of Georgia
Division of Environmental Protection
2 Martin Luther King Jr. Drive SE
Suite 1252
Atlanta, GA 30334

To be attached to and form a part of: Performance Bond for Well Contractors and Drillers

Principal on the Bond: Michael C. Rice/Cascade Drilling, L.P.

Surety Bond Number: K08315607

Bond Amount: Twenty Thousand and 00/100 Dollars (\$20,000.00)

In consideration of the agreed premium charged for this bond, it is understood and agreed that the following change shall be made to this obligation:

[x] CONTINUATION CERTIFICATE

This certificate extends the life of the bond to June 30, 2017. It is executed upon the express condition that the surety's liability under said bond, together with this and all previous continuation certificates, shall not be cumulative and shall in no event exceed the amount specifically set forth in said bond or any existing certificate changing the amount of said bond.

Signed, sealed and dated this 26th day of May , 2015 .

Westchester Fire Insurance Company

By: Katie J

Katie Snider, Attorney-in-Fact

Surety of Record: Westchester Fire Insurance Company
436 Walnut Street
Philadelphia, PA 19106
Phone: (415) 547-4513

Agent of Record: Kibble & Prentice, a USI Company
601 Union Street, Suite 1000
Seattle, WA 98101
Phone: (206) 441-6300

Power of Attorney

WESTCHESTER FIRE INSURANCE COMPANY

Know all men by these presents: That WESTCHESTER FIRE INSURANCE COMPANY, a corporation of the Commonwealth of Pennsylvania pursuant to the following Resolution, adopted by the Board of Directors of the said Company on December 11, 2006, to wit:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into the ordinary course of business (each a "Written Commitment"):

- (1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.
- (2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such persons written appointment as such attorney-in-fact.
- (3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (4) Each of the Chairman, the President and Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested.

Does hereby nominate, constitute and appoint Heather Allen, Holly E Ulfers, Katie Snider, Nancy N Hill, Roxana Palacios, Steven W Palmer, all of the City of SEATTLE, Washington, each individually if there be more than one named, its true and lawful attorney-in-fact, to make, execute, seal and deliver on its behalf, and as its act and deed any and all bonds, undertakings, recognizances, contracts and other writings in the nature thereof in penalties not exceeding Fifteen million dollars & zero cents (\$15,000,000.00) and the execution of such writings in pursuance of these presents shall be as binding upon said Company, as fully and amply as if they had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office,

IN WITNESS WHEREOF, the said Stephen M. Haney, Vice-President, has hereunto subscribed his name and affixed the Corporate seal of the said WESTCHESTER FIRE INSURANCE COMPANY this 22 day of December 2014.



WESTCHESTER FIRE INSURANCE COMPANY

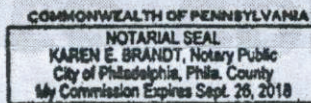
Stephen M. Haney, Vice President

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF PHILADELPHIA

ss.

On this 22 day of December, AD. 2014 before me, a Notary Public of the Commonwealth of Pennsylvania in and for the County of Philadelphia came Stephen M. Haney, Vice-President of the WESTCHESTER FIRE INSURANCE COMPANY to me personally known to be the individual and officer who executed the preceding instrument, and he acknowledged that he executed the same, and that the seal affixed to the preceding instrument is the corporate seal of said Company; that the said corporate seal and his signature were duly affixed by the authority and direction of the said corporation, and that Resolution, adopted by the Board of Directors of said Company, referred to in the preceding instrument, is now in force.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at the City of Philadelphia the day and year first above written.



Notary Public

I, the undersigned Assistant Secretary of the WESTCHESTER FIRE INSURANCE COMPANY, do hereby certify that the original POWER OF ATTORNEY, of which the foregoing is a substantially true and correct copy, is in full force and effect.

In witness whereof, I have hereunto subscribed my name as Assistant Secretary, and affixed the corporate seal of the Corporation, this 26th day of May, 2015.



William L. Kelly, Assistant Secretary

THIS POWER OF ATTORNEY MAY NOT BE USED TO EXECUTE ANY BOND WITH AN INCEPTION DATE AFTER December 22, 2016.



CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America

, Surety upon

a certain Bond No. 4993104

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

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

and in favor of Georgia - Dept. of Natural Resources
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2016
(MONTH-DAY-YEAR)

and ending on June 30, 2017
(MONTH-DAY-YEAR)

Amount of bond \$10,000.00

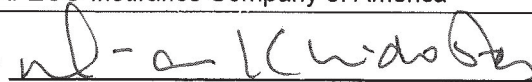
Description of bond Water Well Contractors & Drillers

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 April 07, 2016
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By



D-Ann Kleidosty, Attorney-in-Fact

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

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

Certificate No. 7310252

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

POWER OF ATTORNEY

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

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

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 1st day of April, 2016.



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 1st day of April, 2016, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

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



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2017
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-law and Authorizations of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

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

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes 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, Gregory W. Davenport, the undersigned, Assistant Secretary, of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 7th day of April, 2016.



By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

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

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

CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America

, Surety upon

a certain Bond No. 4993104

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

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

and in favor of Georgia - Dept. of Natural Resources
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2016
(MONTH-DAY-YEAR)

and ending on June 30, 2017
(MONTH-DAY-YEAR)

Amount of bond \$10,000.00

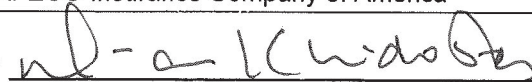
Description of bond Water Well Contractors & Drillers

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 April 07, 2016
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By



D-Ann Kleidosty, Attorney-in-Fact

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

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

Certificate No. 7310252

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

POWER OF ATTORNEY

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

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

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 1st day of April, 2016.



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 1st day of April, 2016, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

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



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2017
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-law and Authorizations of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

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

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes 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, Gregory W. Davenport, the undersigned, Assistant Secretary, of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 7th day of April, 2016.



By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

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

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

GENERAL PURPOSE RIDER

To be attached to and form part of Bond Number 09157828 effective June 30, 2015 issued by the Fidelity and Deposit Company of Maryland in the amount of Twenty Thousand and No/100 (\$20,000.00), on behalf of Craig Penton dba Terracon Consultants, Inc. as Principal, and in favor of Director of the Environmental Protection Division, Department of Natural Resources, State of Georgia as Obligee:

NOW Therefore, it is agreed that:

The expiration date of the bond is hereby amended to:

June 30, 2017

It is further understood and agreed that all other terms and conditions of this bond shall remain unchanged.

This rider is to be effective the 30th day of June , 2015 .

Signed, sealed and dated this 4th day of November , 2015 .

Craig Penton dba Terracon Consultants, Inc.
Principal

Fidelity and Deposit Company of Maryland
Surety

Christy M. Braile, Attorney-in-Fact

6/4/14 sent to
Craig Penton
(Stacy Adams)

FOR YOUR RECORDS

Bond Number 09157828

Performance Bond For Water Well Contractors And Drillers

Name of Water Well Contractor or Driller Craig Penton dba Terracon Consultants, Inc.

Know All Men By These Present

That we Craig Penton dba Terracon Consultants, Inc. AND ANY AND ALL EMPLOYEES, OFFICERS AND PARTNERS, as Principal, and Fidelity and Deposit Company of Maryland as Surety, are held and firmly bound unto the Director of the Environmental Protection Division (Director), Department of Natural Resources, State of Georgia and his or her Successor or Successors in office, as Obligee, in the full sum of **TWENTY THOUSAND AND NO/00 DOLLARS (\$20,000.00)** for the payment of which will and truly to be made, we bind ourselves, our heir, administrators, successors and assigns, jointly and severally, by the present.

WHEREAS, the WATER WELL STANDARDS ACT OF 1985 (Ga. Laws 1985, p. 1192) (the "ACT") requires that water well contractors and drillers file performance bonds 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 of 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 date of issuance and shall continue in effect until terminated by expiration, mutual agreement or cancellation upon sixty (60) days written notice to Principal and Obligee; provided that the rights of the obligee and beneficiaries under this bond which arose prior to such termination shall continue.

The bond is effective June 4, 2014 and unless sooner terminated, this bond shall terminate June 30, 2015. In Witness Thereof the Principal and Surety have caused these present to be duly signed and sealed, this 4th day of, June 2014.

PRINCIPAL, BY _____ (L.S.) TITLE: _____

SURETY BY: Christy M. McCart, Attorney-in-Fact

GEORGIA REGISTERED AGENT N/A SEAL:

Revised December 2012

COPY

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company

, Surety upon

a certain Bond No. **800031223**

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

on behalf of Michael C. Rice and Cascade Drilling, L.P., any and all employees, officers and partners
(PRINCIPAL)

and in favor of State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2019
(MONTH-DAY-YEAR)

and ending on June 30, 2021
(MONTH-DAY-YEAR)

Amount of bond Thirty Thousand and Zero/100 (\$30,000.00)

Description of bond Water Well Contractor Performance Bond

Premium: \$1,200.00

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 May 9, 2019
(MONTH-DAY-YEAR)
Atlantic Specialty Insurance Company

By _____
Attorney-in-Fact Elizabeth R. Hahn

Parker, Smith & Feek, Inc.
Agent

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

(425) 709-3600
Telephone Number of Agent

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**, 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

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-sixth day of October, 2017.

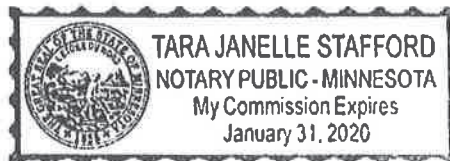
STATE OF MINNESOTA
HENNEPIN COUNTY



By

Paul J. Brehm, Senior Vice President

On this twenty-sixth day of October, 2017, 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.



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 9 day of May 2019

This Power of Attorney expires
October 1, 2019



Christopher V. Jerry, Secretary

APPENDIX A

Certified Well

Survey Report

Plant Scherer

1st data set: North Property Wells

NETWORK WELL ID	PVC CASING LATITUDE	PVC CASING LONGITUDE	CONTROL NAIL NORTHING	CONTROL NAIL EASTING	CONTROL NAIL ELEVATION	PVC CASING NORTHING	PVC CASING EASTING	ELEVATION TOP OF PVC CASING	GROUND ELEVATION	COMMENTS
PZ-45D	33.09322971 °	-83.82816330 °	1125296.00	2400249.51	509.94	1125296.24	2400250.55	512.33	509.7	
PZ-46D	33.08832034 °	-83.82598568 °	1123511.13	2400923.42	447.37	1123512.22	2400923.25	450.28	447.1	
PZ-47D	33.09684023 °	-83.81470823 °	1126623.84	2404365.89	406.91	1126623.42	2404366.80	410.01	406.8	
PZ-48S	33.09240559 °	-83.81011172 °	1125015.59	2405780.34	441.45	1125014.71	2405779.92	444.33	441.3	
PZ-49D	33.08800314 °	-83.79434166 °	1123430.38	2410614.46	365.13	1123429.73	2410615.29	367.41	364.9	
PZ-49S	33.08801621 °	-83.79437196 °	1123434.99	2410605.11	365.29	1123434.46	2410605.99	367.89	365.2	
PZ-51D	33.07658668 °	-83.82919170 °	1119239.94	2399954.09	543.47	1119239.99	2399955.07	546.04	543.2	
PZ-52	33.08640137 °	-83.81717935 °	1122822.91	2403621.89	519.68	1122822.91	2403622.69	521.84	519.4	
PZ-53	33.08394269 °	-83.81330140 °	1121931.72	2404814.17	513.81	1121932.34	2404813.43	516.64	513.6	
PZ-54	33.08276482 °	-83.80761959 °	1121509.00	2406555.91	490.27	1121509.71	2406555.15	492.96	490.2	
PZ-55	33.08389990 °	-83.79920035 °	1121930.63	2409132.43	444.25	1121931.60	2409132.43	447.21	444.2	
PZ-56	33.08827939 °	-83.79943044 °	1123523.72	2409037.56	431.10	1123524.68	2409037.21	433.68	430.8	
PZ-57	33.08796818 °	-83.80496443 °	1123404.88	2407362.68	436.55	1123405.64	2407361.88	439.51	436.4	
PZ-58	33.08769650 °	-83.81200107 °	1123298.42	2405206.74	489.35	1123299.43	2405207.09	492.21	489.3	
PZ-59D	33.09297923 °	-83.80394129 °	1125230.79	2407669.66	383.16	1125229.89	2407668.93	385.86	382.9	
PZ-59S	33.09293469 °	-83.80397571 °	1125214.48	2407659.05	383.13	1125213.65	2407658.45	385.93	382.8	
PZ-60D	33.09072228 °	-83.80207655 °	1124410.58	2408242.14	386.53	1124410.72	2408242.87	389.34	386.4	
PZ-60S	33.09069400 °	-83.80207431 °	1124400.33	2408242.82	386.66	1124400.44	2408243.59	389.88	386.4	
PZ-61	33.08557017 °	-83.80115566 °	1122536.81	2408532.14	436.84	1122537.21	2408531.43	439.27	436.8	
PZ-62	33.08513385 °	-83.80885081 °	1122370.22	2406176.10	498.45	1122370.34	2406175.11	501.32	498.3	
PZ-63	33.08950995 °	-83.81573718 °	1123956.15	2404059.66	499.12	1123955.38	2404060.61	501.54	498.9	
PZ-64	33.08885322 °	-83.80808779 °	1123723.25	2406405.08	476.09	1123724.36	2406404.18	479.52	476.0	
PZ-65	33.08392854 °	-83.80376913 °	1121936.26	2407732.50	429.77	1121937.16	2407733.04	432.42	429.6	
PZ-66D	33.09135724 °	-83.79950884 °	1124644.65	2409027.58	424.64	1124644.48	2409028.45	427.60	424.4	
PZ-66	33.09141030 °	-83.79922285 °	1124664.50	2409114.81	418.68	1124664.10	2409115.98	421.24	418.4	
PZ-67D	33.09444381 °	-83.80200723 °	1125764.90	2408260.40	424.86	1125764.81	2408259.40	428.48	424.7	
PZ-67	33.09449189 °	-83.80204133 °	1125782.52	2408250.00	423.37	1125782.26	2408248.89	425.94	423.2	
PZ-68	33.09267242 °	-83.80553278 °	1125117.30	2407182.87	392.34	1125116.59	2407181.92	395.55	392.1	



I certify that top of casing and PK nail elevations reflect a relative vertical accuracy of 0.01 feet referencing NAVD88 and were collected using a Topcon DL-502 digital level with closures meeting First Order, Class I level classification. Horizontal positions of casings and PK nails reflect accuracies of 0.50 feet or better and were collected using a JAVAD Triumph-LS dual-frequency RTK global positioning system receiver with eGPS VRS corrections referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet.
 Issued 6/29/20.

Reissued 8/10/20
 to list Network
 Well ID

Plant Scherer

2nd data set: AP1 wells/piezometers

NETWORK WELL ID	PVC CASING LATITUDE	PVC CASING LONGITUDE	CONTROL NAIL NORTHING	CONTROL NAIL EASTING	CONTROL NAIL ELEVATION	PVC CASING NORTHING	PVC CASING EASTING	TOP OF PVC CASING ELEV.	GROUND ELEVATION	COMMENTS
PZ-10S	33.08508549 °	-83.82323706 °	1122338.53	2401768.08	514.78	1122338.03	2401768.92	517.53	514.4	
PZ-11S	33.08736100 °	-83.81996800 °	1123170.19	2402767.80	526.19	1123169.22	2402767.44	529.31	526.0	
PZ-12S	33.08602210 °	-83.81719466 °	1122685.28	2403619.28	514.64	1122684.90	2403618.46	517.69	514.5	
PZ-13S	33.08401596 °	-83.81521422 °	1121956.37	2404228.09	517.68	1121957.03	2404227.47	520.51	517.5	
PZ-14i	33.08376126 °	-83.81327276 °	1121865.36	2404821.96	510.03	1121866.36	2404822.43	512.89	509.7	
PZ-14S	33.08372400 °	-83.81327900 °	1121851.80	2404820.15	509.03	1121852.80	2404820.56	512.13	508.7	
PZ-15S	33.08271165 °	-83.81087348 °	1121485.86	2405558.82	497.59	1121486.96	2405558.59	500.60	497.4	
PZ-17i	33.07913315 °	-83.80583149 °	1120190.44	2407106.31	480.20	1120190.27	2407107.37	483.03	479.9	
PZ-19i	33.07472925 °	-83.80537876 °	1118589.46	2407251.40	414.74	1118588.47	2407251.56	417.76	414.5	
PZ-19S	33.07472596 °	-83.80541146 °	1118588.13	2407241.65	414.79	1118587.24	2407241.54	417.80	414.5	
PZ-20i	33.07398605 °	-83.80531062 °	1118318.72	2407272.52	414.46	1118318.15	2407273.36	417.41	414.3	
PZ-21S	33.07212246 °	-83.80618934 °	1117639.29	2407007.47	470.85	1117639.19	2407006.52	473.74	470.6	
PZ-25i	33.08368507 °	-83.81408728 °	1121836.89	2404573.11	526.02	1121837.80	2404573.04	528.39	525.8	
PZ-25S	33.08371344 °	-83.81410520 °	1121847.35	2404567.67	525.78	1121848.11	2404567.52	528.24	525.5	
PZ-26S	33.08328634 °	-83.81030096 °	1121695.69	2405732.96	489.17	1121696.65	2405733.23	491.65	489.1	
PZ-27D	33.08290514 °	-83.80935590 °	1121558.20	2406023.06	472.66	1121558.94	2406023.17	475.43	472.4	
PZ-27S	33.08292266 °	-83.80933923 °	1121564.39	2406028.18	473.18	1121565.33	2406028.25	475.80	473.1	
PZ-28i	33.08244868 °	-83.80821251 °	1121393.51	2406374.88	481.59	1121394.06	2406373.94	484.18	481.4	
PZ-29S	33.08210318 °	-83.80741616 °	1121268.18	2406617.83	488.70	1121269.19	2406618.29	491.31	488.5	
PZ-2i	33.06640333 °	-83.81932122 °	1115545.82	2402991.10	515.06	1115544.85	2402990.76	517.56	514.8	
PZ30i	33.08156107 °	-83.80591422 °	1121072.64	2407079.10	475.71	1121073.53	2407078.99	478.31	475.6	
PZ-31i	33.08191626 °	-83.80471544 °	1121202.96	2407445.90	464.16	1121204.03	2407445.73	466.89	464.0	
PZ-32D	33.08159927 °	-83.80382334 °	1121089.46	2407718.47	462.56	1121089.64	2407719.37	465.42	462.4	
PZ-32S	33.08159833 °	-83.80389169 °	1121088.90	2407697.44	462.52	1121089.22	2407698.44	465.06	462.3	
PZ-33i	33.08201411 °	-83.79943146 °	1121245.41	2409063.30	466.55	1121245.25	2409064.05	469.38	466.4	
PZ34S	33.08224927 °	-83.79869810 °	1121330.71	2409288.05	441.08	1121331.59	2409288.37	443.67	440.8	
PZ-35i	33.08301374 °	-83.80924066 °	1121598.17	2406059.15	474.72	1121598.57	2406058.33	474.40	474.6	Flush mount
PZ-36i	33.07973840 °	-83.80534295 °	1120410.91	2407285.90	478.96	1120410.99	2407256.25	481.52	478.9	
PZ-36S	33.07971111 °	-83.80536989 °	1120390.25	2407210.09	479.50	1120401.04	2407248.04	482.35	479.4	
PZ-37i	33.08183679 °	-83.80153755 °	1121177.58	2408419.44	479.68	1121178.48	2408419.19	482.18	479.5	
PZ-38i	33.08267369 °	-83.80828005 °	1121475.60	2406353.86	482.38	1121475.86	2406352.98	482.24	482.2	Flush mount
PZ-39S	33.07909718 °	-83.80464616 °	1120177.69	2407469.94	471.99	1120178.43	2407470.49	474.58	471.8	
PZ-3S	33.06789221 °	-83.82080703 °	1116085.44	2402534.69	514.57	1116085.04	2402533.80	517.29	514.4	
PZ-40i	33.07025744 °	-83.80643134 °	1116959.65	2406934.18	510.19	1116960.39	2406934.72	512.55	510.1	



I certify that top of casing and PK nail elevations reflect a relative vertical accuracy of 0.01 feet referencing NAVD88 and were collected using a Topcon DL-502 digital level with closures meeting First Order, Class I level classification. Horizontal positions of casings and PK nails reflect accuracies of 0.50 feet or better and were collected using a JAVAD Triumph-LS dual-frequency RTK global positioning system receiver with eGPS VRS corrections referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet.
 Issued 7/17/20.

Reissued 8/10/20 to list Network Well ID

Plant Scherer

2nd data set: AP1 wells/piezometers

NETWORK WELL ID	PVC CASING LATITUDE	PVC CASING LONGITUDE	CONTROL NAIL NORTHING	CONTROL NAIL EASTING	CONTROL NAIL ELEVATION	PVC CASING NORTHING	PVC CASING EASTING	TOP OF PVC CASING ELEV.	GROUND ELEVATION	COMMENTS
PZ-41S	33.06981255 °	-83.80581206 °	1116798.94	2407126.11	488.66	1116799.18	2407124.98	491.50	488.6	
PZ-42i	33.06767107 °	-83.81179732 °	1116014.70	2405294.31	500.65	1116013.79	2405294.12	503.18	500.5	
PZ-43S	33.06652661 °	-83.81110650 °	1115598.33	2405508.23	501.34	1115598.12	2405507.16	504.03	501.2	
PZ-44i	33.08280119 °	-83.81488357 °	1121515.14	2404331.45	507.91	1121515.40	2404330.23	510.36	507.9	
PZ-5S	33.07174413 °	-83.82313290 °	1117483.92	2401817.76	520.73	1117484.15	2401816.71	523.26	520.6	
PZ-6S	33.07291903 °	-83.82273710 °	1117910.82	2401936.63	529.22	1117912.01	2401936.55	531.54	529.0	
PZ-9i	33.08021416 °	-83.82621441 °	1120562.95	2400862.02	523.61	1120562.72	2400862.76	526.57	523.3	
SGWA-1	33.07656824 °	-83.82937216 °	1119232.67	2399899.20	544.27	1119233.10	2399899.81	546.83	544.1	
SGWA-2	33.07658071 °	-83.82934477 °	1119237.34	2399907.22	544.20	1119237.67	2399908.19	546.94	544.0	
SGWA-24	33.07350677 °	-83.82662952 °	1118123.12	2400743.74	489.47	1118121.96	2400743.52	492.38	489.3	
SGWA-25	33.08019376 °	-83.82623303 °	1120556.28	2400856.87	523.45	1120555.28	2400857.08	526.49	523.2	
SGWA-3	33.07929746 °	-83.83133096 °	1120224.89	2399295.73	543.03	1120224.15	2399296.64	545.83	542.9	
SGWA-4	33.08272488 °	-83.82534974 °	1121478.07	2401124.27	544.96	1121477.05	2401124.64	547.66	544.8	
SGWA-5	33.07344366 °	-83.83745909 °	1118087.26	2397426.71	505.93	1118088.42	2397426.26	508.48	505.7	
SGWC-10	33.08384947 °	-83.81580437 °	1121896.53	2404047.19	506.80	1121895.85	2404046.92	509.41	506.6	
SGWC-11	33.08287457 °	-83.81487709 °	1121542.20	2404332.76	508.77	1121542.11	2404332.12	511.47	508.6	
SGWC-12	33.08296352 °	-83.81266381 °	1121576.11	2405009.73	497.80	1121576.75	2405009.92	500.53	497.7	
SGWC-13	33.08212677 °	-83.81021432 °	1121274.24	2405760.67	480.17	1121274.85	2405761.20	482.71	479.9	
SGWC-14	33.08127293 °	-83.80836108 °	1120965.54	2406329.11	473.52	1120966.13	2406329.89	476.72	473.3	
SGWC-15	33.07913585 °	-83.80587541 °	1120191.24	2407092.94	479.76	1120191.20	2407093.92	482.75	479.7	
SGWC-16	33.07646981 °	-83.80568398 °	1119221.32	2407154.80	457.18	1119221.42	2407155.89	460.31	457.0	
SGWC-17	33.07396034 °	-83.80533006 °	1118309.31	2407266.47	415.13	1118308.77	2407267.44	418.00	414.9	
SGWC-18	33.07022272 °	-83.80644257 °	1116946.85	2406930.82	510.41	1116947.75	2406931.32	513.29	510.3	
SGWC-19	33.06769326 °	-83.80917619 °	1116023.96	2406096.87	476.13	1116024.59	2406097.05	478.94	475.8	
SGWC-20	33.06769000 °	-83.81175300 °	1116021.41	2405308.01	501.69	1116020.73	2405307.67	504.60	501.5	
SGWC-21	33.06602134 °	-83.81538416 °	1115410.87	2404197.33	484.92	1115409.88	2404197.33	487.67	484.7	
SGWC-22	33.06639012 °	-83.81928520 °	1115540.82	2403002.51	515.51	1115540.08	2403001.81	518.02	515.4	
SGWC-23	33.06956902 °	-83.82211514 °	1116694.67	2402131.78	520.17	1116693.80	2402131.07	523.10	520.0	
SGWC-6	33.08461401 °	-83.82254980 °	1122168.22	2401979.68	507.87	1122167.18	2401979.98	510.49	507.7	
SGWC-7	33.08598968 °	-83.82163099 °	1122669.73	2402259.63	503.65	1122668.61	2402259.75	506.40	503.5	
SGWC-8	33.08652561 °	-83.81927889 °	1122866.63	2402979.75	511.68	1122865.98	2402979.50	514.28	511.5	
SGWC-9	33.08588545 °	-83.81772829 °	1122634.98	2403455.80	507.88	1122634.64	2403455.19	510.62	507.6	



I certify that top of casing and PK nail elevations reflect a relative vertical accuracy of 0.01 feet referencing NAVD88 and were collected using a Topcon DL-502 digital level with closures meeting First Order, Class I level classification. Horizontal positions of casings and PK nails reflect accuracies of 0.50 feet or better and were collected using a JAVAD Triumph-LS dual-frequency RTK global positioning system receiver with eGPS VRS corrections referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet.
 Issued 7/17/20.

Reissued 8/10/20 to list Network Well ID

Plant Scherer

3rd data set: LF Wells

NETWORK WELL ID	PVC CASING LATITUDE	PVC CASING LONGITUDE	CONTROL NAIL NORTHING	CONTROL NAIL EASTING	CONTROL NAIL ELEVATION	PVC CASING NORTHING	PVC CASING EASTING	TOP OF PVC CASING ELEV.	GROUND ELEVATION	COMMENTS
GWC-1	33.07878129	-83.79131155	No nail	No nail	371.77*	1120077.85	2411555.32	374.95	371.6	*Pad elev (no nail)
GWC-2	33.07806384	-83.79151634	No nail	No nail	377.02*	1119816.59	2411493.53	380.22	376.9	*Pad elev (no nail)
GWC-3	33.07750983	-83.79246763	No nail	No nail	407.36*	1119613.99	2411202.86	410.44	407.1	*Pad elev (no nail)
GWC-4	33.07652737	-83.79299751	No nail	No nail	408.50*	1119255.96	2411041.82	411.75	408.4	*Pad elev (no nail)
GWC-5	33.07554291	-83.79305371	1118898.01	2411024.23	393.37	1118897.72	2411025.88	396.69	393.3	
GWC-6	33.07465931	-83.79355797	1118575.49	2410871.44	412.48	1118575.69	2410872.56	415.80	412.4	
GWC-7	33.07374897	-83.79430173	1118244.68	2410644.68	414.51	1118243.67	2410645.91	418.27	414.4	
GWC-8A	33.07285463	-83.79518936	1117918.66	2410375.13	398.65	1117917.32	2410375.16	401.62	398.6	
GWC-9	33.07296130	-83.79586603	1117955.66	2410165.91	383.21	1117955.40	2410167.75	386.18	382.8	
GWC-10	33.07392850	-83.79634992	1118307.27	2410019.38	389.49	1118306.77	2410018.28	392.87	388.9	
GWC-11	33.07487138	-83.79712763	1118649.69	2409779.78	399.21	1118648.98	2409778.84	402.33	398.8	
GWC-12	33.07577749	-83.79785602	1118978.18	2409555.72	409.66	1118977.87	2409554.57	412.89	409.2	
GWC-13	33.07677077	-83.79838604	1119339.29	2409391.96	416.71	1119338.68	2409390.95	419.77	416.5	
GWC-14	33.07764300	-83.79929390	1119655.22	2409112.94	400.41	1119655.05	2409111.75	403.60	400.2	
GWA-15	33.07861529	-83.79873262	1120008.91	2409283.54	412.00	1120009.40	2409282.43	415.01	411.7	
GWA-16	33.07927008	-83.79775923	1120247.82	2409580.61	441.01	1120248.68	2409579.75	444.24	440.9	
GWA-17	33.07916177	-83.79656159	1120209.73	2409945.86	442.92	1120210.57	2409946.73	445.84	442.8	
GWC-18	33.07857646	-83.79553524	1119997.61	2410261.31	436.40	1119998.73	2410261.85	439.66	436.3	
GWC-19	33.07760179	-83.79406581	1119646.10	2410712.10	426.34	1119645.70	2410713.20	430.20	426.3	
GWC-20	33.07843484	-83.79248811	1119951.51	2411194.45	423.03	1119950.51	2411195.38	426.30	423.0	
GWA-21	33.08044495	-83.79813647	No nail	No nail	419.81*	1120675.73	2409462.70	422.58	419.7	*Pad elev (no nail)
GWA-22	33.08123199	-83.79809884	1120961.49	2409475.41	442.01	1120962.12	2409473.22	444.50	442.0	
GWC-29	33.07825289	-83.80057699	1119878.12	2408718.22	396.98	1119875.58	2408717.95	399.64	396.9	
GWC-30	33.07685172	-83.79973920	1119366.69	2408975.21	392.19	1119366.69	2408976.35	394.49	392.0	
GWC-31	33.07576062	-83.79946406	1118969.72	2409060.85	390.13	1118970.00	2409062.02	392.78	390.0	
GWC-32	33.07515444	-83.79939211	1118749.23	2409083.89	407.25	1118749.53	2409084.83	410.03	406.9	
GWC-33A	33.07435239	-83.79849852	1118457.51	2409359.70	391.32	1118458.68	2409359.58	393.96	390.9	
GWC-34	33.07377095	-83.79745357	1118247.67	2409679.54	386.48	1118248.26	2409680.41	389.29	386.2	
GWC-35	33.07270288	-83.79672091	1117860.31	2409905.20	385.35	1117860.46	2409906.21	387.90	385.1	
GWC-36	33.07188280	-83.79745810	1117561.62	2409680.48	422.52	1117561.29	2409681.44	425.12	422.0	
GWC-37	33.07099933	-83.79760828	1117239.61	2409635.60	427.38	1117239.70	2409636.56	429.80	427.2	
GWC-38	33.06975458	-83.79795117	1116787.37	2409532.78	416.23	1116786.45	2409533.11	418.68	416.0	
GWA-39	33.07026066	-83.80076113	1116968.30	2408672.39	454.59	1116967.57	2408671.68	457.62	454.2	



I certify that top of casing and PK nail elevations reflect a relative vertical accuracy of 0.01 feet referencing NAVD88 and were collected using a Topcon DL-502 digital level with closures meeting First Order, Class I level classification. Horizontal positions of casings and PK nails reflect accuracies of 0.50 feet or better and were collected using a JAVAD Triumph-LS dual-frequency RTK global positioning system receiver with eGPS VRS corrections referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet.
 Issued 7/29/20.

Reissued 8/10/20 to list Network Well ID

Plant Scherer

3rd data set: LF Wells

NETWORK WELL ID	PVC CASING LATITUDE	PVC CASING LONGITUDE	CONTROL NAIL NORTHING	CONTROL NAIL EASTING	CONTROL NAIL ELEVATION	PVC CASING NORTHING	PVC CASING EASTING	TOP OF PVC CASING ELEV.	GROUND ELEVATION	COMMENTS
GWA-40	33.07135310 °	-83.80056612 °	1117365.04	2408731.04	461.25	1117365.24	2408730.04	463.84	461.2	
GWA-41	33.07336732 °	-83.80159552 °	1118096.35	2408413.11	431.70	1118096.97	2408412.15	434.12	431.4	
GWA-42	33.07447862 °	-83.80217405 °	1118501.16	2408234.42	402.57	1118500.68	2408233.53	405.19	402.2	
GWA-43	33.07546760 °	-83.80135092 °	1118860.39	2408484.93	398.42	1118861.38	2408484.42	400.94	398.1	
GWA-44A	33.07666407 °	-83.80106739 °	1119296.97	2408571.05	396.83	1119296.99	2408569.76	399.62	396.5	
GWA-45	33.08044161 °	-83.80327246 °	1120668.04	2407891.77	448.33	1120669.03	2407889.56	451.08	448.3	
GWA-46	33.08075220 °	-83.80214114 °	1120781.16	2408236.36	458.37	1120783.23	2408235.69	461.13	458.3	
GWA-47	33.08096707 °	-83.80099979 °	No nail	No nail	463.03*	1120862.63	2408585.01	465.77	462.9	*Pad elev (no nail)
GWA-48	33.08121322 °	-83.79984149 °	1120951.13	2408939.16	459.00	1120953.42	2408939.48	461.73	458.8	
GWA-49	33.08142057 °	-83.79870153 °	1121028.02	2409287.04	430.16	1121030.08	2409288.38	432.88	429.9	
GWC-50	33.07836585 °	-83.79979905 °	1119919.79	2408955.82	404.44	1119917.51	2408956.10	407.16	404.3	
GWC-51	33.07814547 °	-83.80149483 °	1119837.81	2408436.16	407.37	1119835.51	2408436.95	410.15	407.3	
GWC-52	33.07852375 °	-83.80225381 °	1119973.72	2408206.05	414.43	1119972.34	2408203.99	417.13	414.4	
GWC-53	33.07948082 °	-83.80310179 °	1120319.90	2407945.42	433.10	1120319.65	2407943.05	435.83	432.9	
GWA-54	33.07241582 °	-83.80102370 °	1117750.36	2408588.80	448.78	1117751.40	2408588.52	451.49	448.6	
LPZ-1	33.07044703 °	-83.83392205 °	1117001.26	2398512.52	550.47	1117001.58	2398513.19	553.29	550.0	Not included in list
LPZ-2	33.07861662 °	-83.83555064 °	1119973.02	2398005.15	511.42	1119972.34	2398004.93	514.52	511.1	
LPZ-3	33.07287074 °	-83.83344344 °	1117884.36	2398656.49	512.55	1117883.86	2398657.00	515.45	512.2	
LPZ-4	33.06760372 °	-83.83859982 °	1115963.25	2397083.50	458.31	1115962.59	2397083.47	461.24	458.1	
LPZ-5	33.06583940 °	-83.83007014 °	1115329.50	2399698.90	521.81	1115328.95	2399698.53	524.51	521.5	



I certify that top of casing and PK nail elevations reflect a relative vertical accuracy of 0.01 feet referencing NAVD88 and were collected using a Topcon DL-502 digital level with closures meeting First Order, Class I level classification. Horizontal positions of casings and PK nails reflect accuracies of 0.50 feet or better and were collected using a JAVAD Triumph-LS dual-frequency RTK global positioning system receiver with eGPS VRS corrections referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet.
 Issued 7/29/20.

Reissued 8/13/20 to list Network Well ID and rename 2 wells

OBSERVED WELL ID	GAUGE LATITUDE	GAUGE LONGITUDE	GAUGE NORTHING	GAUGE EASTING	TOP OF GAUGE POST ELEVATION	COMMENTS
SG-1	33.08806386°	-83.79514726°	1123450.95	2410368.48	364.87	
SG-2	33.08998844°	-83.80211031°	1124143.69	2408233.46	373.05	
SG-3	33.09298876°	-83.80448056°	1125232.79	2407503.77	383.01	

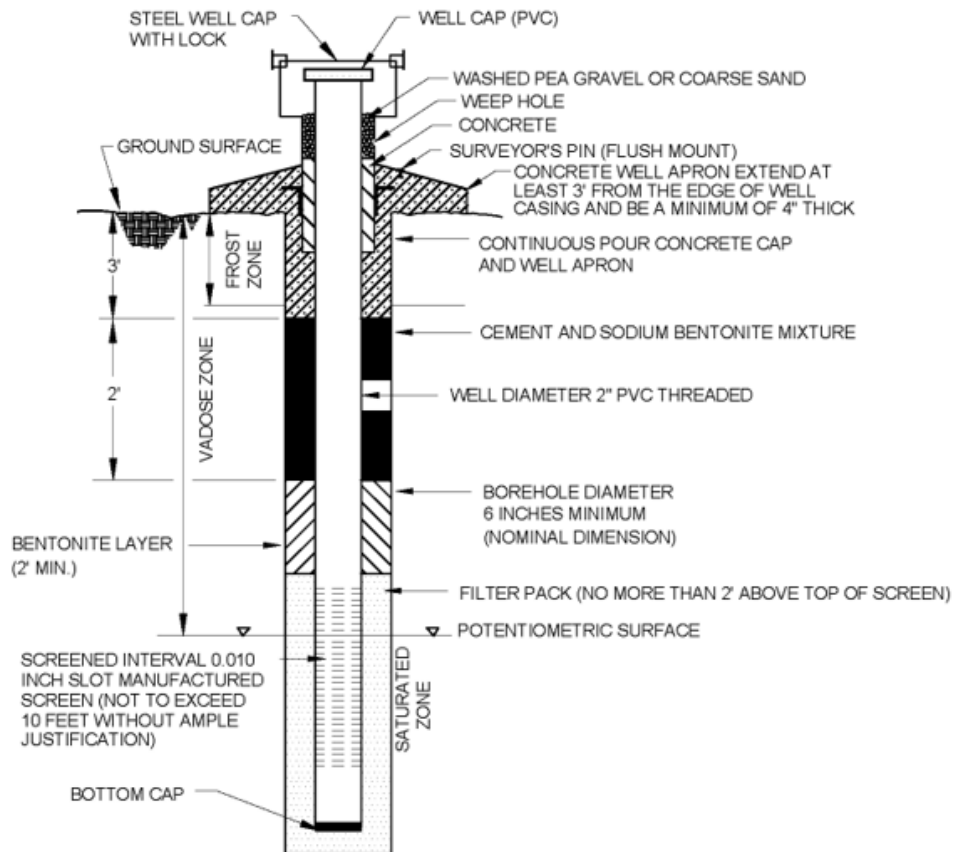


I certify that the top of stream gauge post elevations reflect a relative vertical accuracy of 0.01 feet referencing NAVD88. Horizontal positions of stream gauges reflect accuracies of 0.50 feet or better. Coordinates reference Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet. Issued 7/31/20.

APPENDIX B

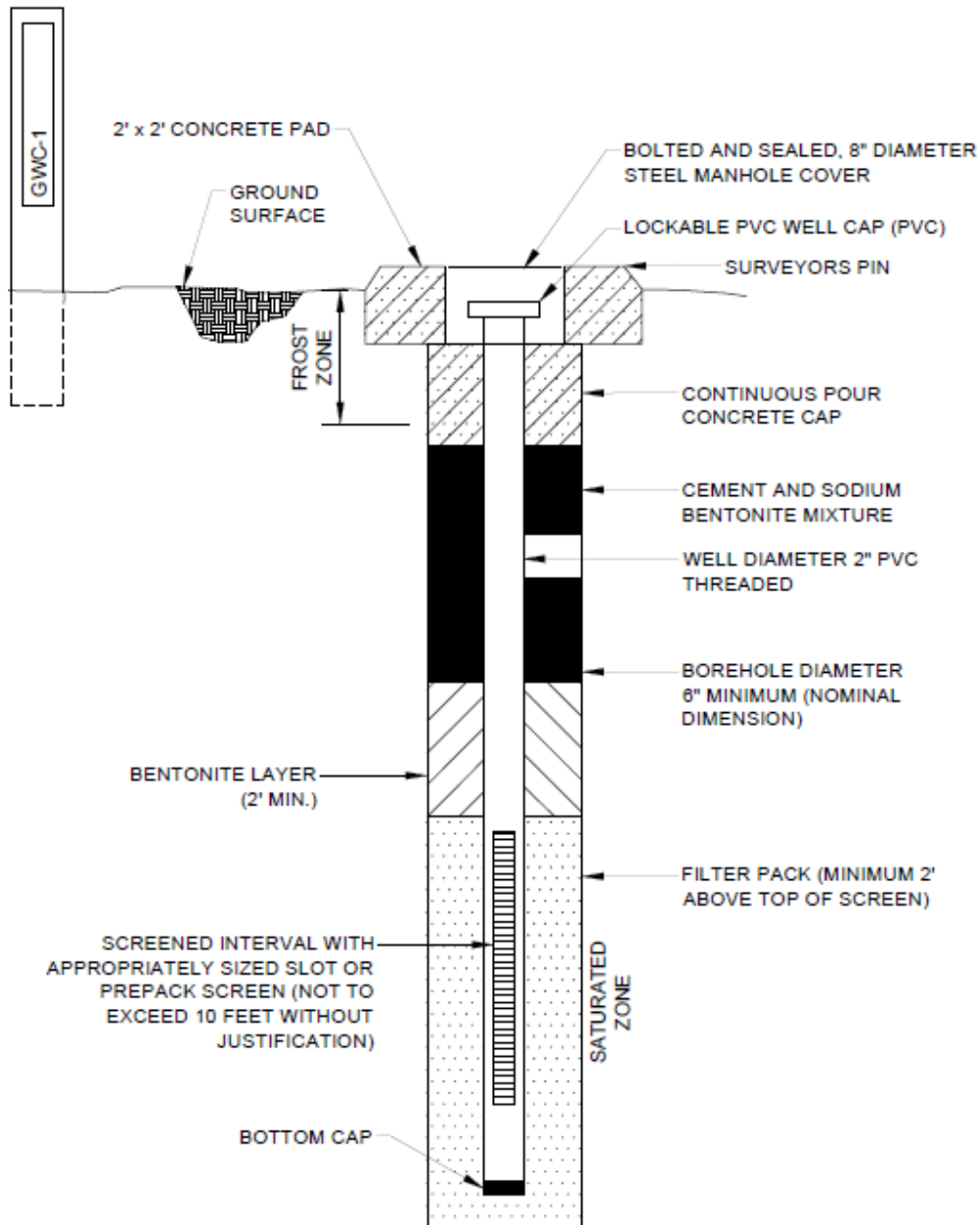
Groundwater Monitoring Well Detail

B. GROUNDWATER MONITORING WELL DETAIL



GROUNDWATER MONITORING WELL (TYP.)

B. GROUNDWATER MONITORING WELL DETAIL – FLUSH MOUNT WELL



GROUNDWATER MONITORING WELL (TYP.)
NOT TO SCALE

APPENDIX C

Groundwater Sampling Procedures

C. GROUNDWATER SAMPLING PROCEDURES

Groundwater sampling will be conducted using USEPA Region 4 Field Quality and Technical Procedures as a guide. 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. To accomplish this objective, low-flow purging from the screened interval is recommended until target parameters listed below are stabilized and then, representative groundwater flow from the geologic formation is collected. 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. Field logbooks and forms shall be kept for each sampling event, and should include, but not be limited to, the following: well signage, well access, sampling and purging equipment condition, and any site conditions that may affect sampling.

Sampling personnel 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. 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. The water level monitoring device will consist of a probe and measuring tape capable of measuring water levels with accuracy to 0.01 feet.
- 3) Install Pump: If a dedicated pump is not present, slowly lower the submersible pump into the well to the midpoint of the well screen or a depth otherwise approved by the hydrogeologist or project scientist. In case of peristaltic pump, the tubing will be likewise lowered slowly to the target depth. The pump intake or tubing for peristaltic pump must be kept at least two (2) 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. Non-dedicated pumps and wiring will be decontaminated before use and between well locations using procedures described in the latest version of the *Region 4 U.S. Environmental Protection Agency Science and Ecosystem Support Division (SESD) Operating Procedure for Field Equipment Cleaning and Decontamination* 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 ft. 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. A brief overview of the purging and sampling methodologies, including the type of sampling equipment used will be provided in routine monitoring reports.
- 6) Monitor Indicator Parameters: Monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, oxidation reduction potential (ORP), and 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 S.U. for pH

- ± 5% for specific conductance (conductivity)
 - ± 10% for DO where DO>0.2 mg/L. If DO<0.2 mg/L no stabilization criteria apply
 - ≤ 5 NTUs for turbidity
 - Temperature – Record only, not used for stabilization criteria
 - ORP – Record only, not used for stabilization criteria.
- 7) Collect samples at a flow rate such that drawdown of the water level within the well is stable. Flow rate must be reduced if excessive drawdown is observed during sampling. 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, a second sample 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. Filtered samples are not considered compliance samples and are only used to evaluate the effects of turbidity.
- 9) 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 non-dedicated equipment. Upon completion of field activity the well will be closed and locked.
- 13) Non-dedicated equipment will be decontaminated between wells in general accordance with **USEPA LSASDPROC-205-R#**.
- 14) 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; however, at no time will samples be analyzed after the method-prescribed hold time.

Throughout the sampling process new 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 NTUs however, samples may be collected where turbidity is less than 10 NTUs and the stabilization criteria described above are met.

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

- If turbidity remains above 5 NTUs but is less than 10 NTUs, and other parameters are stabilized, the well can be sampled.
- Where turbidity remains above 10 NTUs, an unfiltered sample will be collected followed by a second 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 COC form.

A brief overview of purging and sampling methodologies, including the type of sampling equipment used will be provided in routine monitoring reports.

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 groundwater monitoring reports. Instruments will be recalibrated as necessary (e.g., when calibration checks indicate significant variability), and any 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 as part of each groundwater report's quality control documentation.

Groundwater Monitoring Well Integrity Form

Site Name:

Permit Number:

Well ID:

Date, field conditions

Yes No N/A

1) Location/Identification

- A** Is the well visible and accessible?
- B** Is the well properly identified with correct well ID?
- C** Is the well in a high traffic area and does the well require protection from traffic?
Is the drainage around the well acceptable? (no
- D** standing water, nor is well located in obvious drainage flow path)

2) Protective Casing

- A** Is the protective casing free from apparent damage and able to be secured?
- B** Is the casing free of degradation or deterioration?
- C** Does the casing have a functioning weep hole?
- D** Is the annular space between the casings clear of debris and water, or filled with pea gravel/sand?
- E** Is the well locked and is the lock in good condition?

3) Surface Pad

- A** Is the well pad in good condition (not cracked/broken)?
- B** Is the well pad sloped away from the protective casing?
Is the well pad in complete contact with the ground surface and
- C** stable?
- D** Is the well pad in complete contact with the protective casing?
- E** Is the pad surface clean (not covered with sediment or debris)?

4) Internal Casing

- A** Does the cap prevent entry of foreign material into the well?
Is the casing free of kinks/bends, or any obstructions from
- B** foreign objects (such as bailers)?
- C** Is the well properly vented for equilibration of air pressure?
- D** Is the survey point clearly marked on the inner casing?
- E** Is the depth of the well consistent with the original well log?
Is the casing stable? (Does PVC move easily when touched or can be taken apart by hand due to lack of grout or use of slip
- F** couplings in construction)

5) Sampling: Groundwater Wells Only

- A** Does water recharge adequately when purged?
If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater monitoring
- B** plan for the facility?
- C** Does the well require redevelopment (low flow/turbidity)?

6) Based on professional judgement, is the well construction / location appropriate to **1)** achieve the objectives of the Groundwater Monitoring Program and **2)** comply with the applicable regulatory requirements?

7) Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

APPENDIX D

Surface Water Sampling Procedures

D. SURFACE WATER SAMPLING PROCEDURES

Two surface water samples (shown on Figure 2) will be analyzed semi-annually. Surface water samples will be collected in accordance with the general procedures outlined below if flowing water is observed at each sampling location. Surface water sampling techniques shall be in general accordance with U.S. EPA Region IV Science and Ecosystem Support Division Operating Procedure for Surface Water Sampling (SESDPROC-201-R4) dated December 16, 2016. These procedures were developed using field sampling guidelines described in the *USEPA Region 4 Field Branches Quality System and Technical Procedures* (<https://www.epa.gov/quality/quality-system-and-technical-procedures-sesd-field-branches>). Surface water samples will be analyzed for the parameters contained in Table 4, Surface Water Analytical Parameters.

If a dipper or other transfer vessel other than the sample container is used, it must be composed of a non-porous inert material such as glass, PVC, polyethylene, or stainless steel. The following procedures will be used to collect surface water samples:

- a) Hold the bottle near the base with one hand, and with the other, remove the cap.
- b) Rinse the sample container with the water to be sampled prior to filling the container, unless the sample containers are pre-preserved. Pre-preserved sample containers should not be rinsed prior to sampling.
- c) Hold the container underneath the water surface and allow the container to be filled with water. Remove the container from underneath the surface and place the cap back on the container.
- d) Label the sample container to, at a minimum, include: Sample Number, Name of Collector, Date and Time of Collection, and Place/Point of Collection.
- e) Place the samples in a cooler containing water-ice, if required, for courier or hand delivery to the laboratory within the sample hold times.
- f) Follow COC and temperature protocols.

The minimum sampling frequency for surface water will be semiannual.

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