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

for



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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<sup>-4</sup> 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 rotosonic 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 (SESDPROC-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 Rinsate Blanks - Where sampling equipment is not new or dedicated, an equipment rinsate 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
- 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 Georgiaregistered 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

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Juliette, GA

Well ID	Hydraulic Location	Screened Matrix	NAD 83 Northing <sup>[1]</sup>	NAD 83 Easting <sup>[1]</sup>	Top of Casing Elevation (feet NAVD88) <sup>[2]</sup>	Ground Surface Elevation at Concrete Pad (feet NAVD88)	Ground Surface Elevation (feet NAVD88) <sup>[2]</sup>	Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Bottom of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Screen Length (feet)	Date of Installation	Average Hydraulic Conductivity (cm/sec)	Kh/Kv	Groundwat er Elevation August 16, 2021
AP-1 MONIT	ORING WELL N	ETWORK													
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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Well ID	Hydraulic Location	Screened Matrix	NAD 83 Northing <sup>[1]</sup>	NAD 83 Easting <sup>[1]</sup>	Top of Casing Elevation (feet NAVD88) <sup>[2]</sup>	Ground Surface Elevation at Concrete Pad (feet NAVD88)	Ground Surface Elevation (feet NAVD88) <sup>[2]</sup>	Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Bottom of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Screen Length (feet)	Date of Installation	Average Hydraulic Conductivity (cm/sec)	Kh/Kv	Groundwat er Elevation August 16, 2021
AP-1 ASSES	SMENT MONITO	RING WELL NETWOR	RK												
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
PIEZOMETE	RS														
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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Well ID	Hydraulic Location	Screened Matrix	NAD 83 Northing <sup>[1]</sup>	NAD 83 Easting <sup>[1]</sup>	Top of Casing Elevation (feet NAVD88) <sup>[2]</sup>	Ground Surface Elevation at Concrete Pad (feet NAVD88)	Ground Surface Elevation (feet NAVD88) <sup>[2]</sup>	Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Bottom of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Screen Length (feet)	Date of Installation	Average Hydraulic Conductivity (cm/sec)	Kh/Kv	Groundwat er Elevation August 16, 2021
PIEZOMETE	ERS - 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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PIEZOMETE	ERS - 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

Georgia Power - Plant Scherer AP-1

Juliette, GA

Well ID	Hydraulic Location	Screened Matrix	NAD 83 Northing <sup>[1]</sup>	NAD 83 Easting <sup>[1]</sup>	Top of Casing Elevation (feet NAVD88) <sup>[2]</sup>	Ground Surface Elevation at Concrete Pad (feet NAVD88)	Ground Surface Elevation (feet NAVD88) <sup>[2]</sup>	Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Bottom of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Screen Length (feet)	Date of Installation	Average Hydraulic Conductivity (cm/sec)	Kh/Kv	Groundwat er Elevation August 16, 2021
GYPSUM C	ELL 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

Georgia Power - Plant Scherer AP-1

Juliette, GA

Well ID	Hydraulic Location	Screened Matrix	NAD 83 Northing <sup>[1]</sup>	NAD 83 Easting <sup>[1]</sup>	Top of Casing Elevation (feet NAVD88) <sup>[2]</sup>	Ground Surface Elevation at Concrete Pad (feet NAVD88)	Ground Surface Elevation (feet NAVD88) <sup>[2]</sup>	Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Bottom of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Screen Length (feet)	Date of Installation	Average Hydraulic Conductivity (cm/sec)	Kh/Kv	Groundwat er Elevation August 16, 2021
PAC ASH C	ELL														
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



Georgia Power - Plant Scherer AP-1

Juliette, GA

Well ID	Hydraulic Location	Screened Matrix	NAD 83 Northing <sup>[1]</sup>	NAD 83 Easting <sup>[1]</sup>	Top of Casing Elevation (feet NAVD88) <sup>[2]</sup>	Ground Surface Elevation at Concrete Pad (feet NAVD88)	Ground Surface Elevation (feet NAVD88) <sup>[2]</sup>	Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Bottom of Screen Elevation (feet NAVD88) <sup>[2]</sup>	Screen Length (feet)	Date of Installation	Average Hydraulic Conductivity (cm/sec)	Kh/Kv	Groundwat er Elevation August 16, 2021
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; BTOP = 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	ΔH (feet) <sup>2</sup>	ΔL	Hydraulic Gradient	Average Hydraulic Conductivity, K		Assumed Effective Porosity	Average Linear Groundwater Velocity					,
	(feet msl)	(1001)	(,	(Δ h/Δ l)	(feet p	er day)⁵	(n <sub>e</sub> )	(feet	per	day) <sup>4</sup>	(feet	per y	year) <sup>4</sup>
AP-1 August 2021													
SGWC-14/PZ-29S	465.99	5.67	400	0.014	131	to 2.36	0.2	0.09	to	0 17	34	to	61
	460.32	0.07	+00		1.01		0.2	0.00	10	0.17		10	01
SGW/C 13/P7 351	477.80	8 00	400	0.020	1 21	to 2.36	0.2	0 13	to	0.24	48	to	87
3600-13/1 2-331	469.71	0.09	400	0.020	1.51	10 2.00	0.2	0.13	10	0.24	40	10	07
SCWC-20/PZ 43S	489.81	10 73	73 400	0.027	1 21	to 2.36	0.2	0.18	to	0 32	64	to	116
20112-400	479.08	10.75			1.01	l to 2.36	0.2	0.10	10	0.02		10	110

Notes:

1.  $\Delta$  H = Change in groundwater elevation

2.  $\Delta$  L = 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	DADAMETERS	GROUNDWAT	ER MONITORING
MONITORING	PARAMETERS	BACKGROUND	SEMI-ANNUAL EVENTS
	Temperature	x	Х
FIELD PARAMETERS	рН	x	Х
	Turbidity	x	X
	Dissolved Oxygen	x	X
	Boron	x	X
	Calcium	x	X
Annondix III (Dotaction	Chloride	x	X
Monitoring)	Fluoride	x	X
	pH (field)	x	X
	Sulfate	x	X
	Total Dissolved Solids	x	X
	Antimony	x	X
	Arsenic	x	X
	Barium	x	X
	Beryllium	x	X
	Cadmium	x	X
	Chromium	x	X
Annendix IV/ (Assessment	Cobalt	x	X
Monitoring)	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	Х

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





PIEZOMETER LOCATION

ASSESSMENT WELL LOCATION Δ

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.



166235021



### 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

STREAM

E 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.

10	00 500	0	1000 Feet		
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		YYYY-MM-DD	2021-11-30		
		PREPARED	DJC		
<b>NSD</b>	GOLDE		DLP		
		REVIEW	DLP		
		APPROVED	RPK		
PROJECT No. 166235021	CONTROL 1662350AI002	-GIS.mxd 0	FIG	SURE	



	N
	0 250 500 SCALE IN FEET
ND:	
	LIMITS OF FINAL CLOSURE
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
·	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	SAMPLE LOCATION





IF THIS MEASUREMENT DOES NOT MATCH WHALLS SHOWN, THE SHEET SIZE TAS DEEN WU

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

S	ουτ		LOG OF TEST	BOR	ING	BORING SGWA-1/F PAGE EC	<b>PZ-08S</b> 1 OF 2 <u>S38467</u>
SO EA	OUTHE RTH S	RN COMPANY SERVICES, INC. CIENCE AND ENVIRONMENTAL ENGIN	NEERING LOCATI	CT <u>Piezo</u> ON Plan	meter t Sche	Installation	
	E STAR	COMPLETED         2/11/2015         COMPLETED         2/11/2           OR         Civil Field Services         EQI	015 SURF. ELEV JIPMENT CME550	544.1 <b>METHOD</b>	(	COORDINATES: <u>N 1119233.10 E 2399899.</u> ow Stem Auger: HQ Rock Core	81
DRIL	LED B	Y T. Milam LOGGED BY B. Smel	ser CHECKED	BY L.N	/illet	ANGLE BEARING	
BOR	ING DE	PTH 50.9 ft. GROUND WATER DEP	TH: DURING 35 ft.	COM	<b>P.</b> 37.	.3 ft. <b>DELAYED</b> 37.2 ft. after 24 hrs.	
	ES						
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCR	RIPTION	ELEVATION	oderate HCL poderate REACTION	COMMENTS	
2		Silty Clay (CL)			<u>S ž š</u>		
5		- dark red (2.5YR 3/6) residuum dry, ver	ry stiff, trace mica			SPT N=22bpf(@3.5ft.)	
10		- mottled dark reddish brown (2.5YR 3/4 dry, stiff, micaceous, trace residual quar	4) and red (10R 4/8) res tz and sand	iduum		SPT N=13bpf(@8.5ft.)	
15		Sandy Silt (ML) - mottled reddish yellow (5YR 6/8) and medium stiff, trace muscovite, biotite, re	red (10R 4/8) saprolite r sidual quartz	noist,	-	SPT N=8bpf(@13.5ft.)	
20		- mottled red (2.5YR 4/8) and light red / 6/6) saprolite moist, stiff, trace medium s quartz, hornblende	/ moderate reddish oran sand, muscovite, biotite,	ge (10R residual		SPT N=10bpf(@18.5ft.)	
25		- yellow (10YR 7/8) saprolite moist, med	dium stiff			SPT N=7bpf(@23.5ft.)	

S	ошт			BORING SGWA-1/PZ-08S PAGE 2 OF 2 FCS38467
		COMPANY	XING	
SO EA	UTHE RTH S	RN COMPANY SERVICES, INC. PROJECT <u>Piez</u> CIENCE AND ENVIRONMENTAL ENGINEERING LOCATION Pla	<u>cometer</u> int Sche	Installation rer
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weak HCL Moderate REACTION	COMMENTS
-		Sandy Silt (ML) (Con't)		
		Sanchy Electic Silt (MLI)		
30		- 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 <u>→</u> 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	1			

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	SO	UT	HER COM			WELI	REC L CO	ORD OF	ON	W	ELL: SGWA-1/PZ-08S PAGE 1 OF 2 ECS38467
	SOUT	THERI		ANY SERV	ICES, INC.			PROJECT Piezome	eter Installation		
	EAR	TH SC		AND ENVIR	ONMENTAL ENG	GINEERING		LOCATION Plant Se	cherer		
	DATES	STAR	TED _2/	11/2015		2/11/2015	GROUN	ID ELEVATION _544	.1 ft <b>C</b>	COORDINA	<b>FES</b> <u>N 1119233.1 E 2399899.81</u>
	CONTR	RACTO	DR Civi	il Field Serv	ices	METHOD	Hollow	Stem Auger; HQ Rock	Core EC	QUIPMENT	CME550
	DRILLE	ED BY	T. Mila	am	LOGGED BY	B. Smelser		CHECKED BY _L. Mi	illet	BORING	<b>DEPTH</b> _50.9 ft.
•	GROUN NOTES	D WA	TER DE	PTH: DUR	NG <u>35</u> ft.	_ COMP. <u>37.3 f</u>	ft.	<b>DELAYED</b> <u>37.2 ft.</u>	<u>. after 24 hrs</u> .		
	BOREH		(ft)			WELL D	ATA				COMMENTS
	DAI	^	DEPTH	Pi 4- To	otective aluminun foot square concr op of casing Elev.	n cover with bolla ete pad = 546.83	ırds				
	ELEV.	Strata	21.25A							ELEV. (DEPTH)	
/ELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01\LAPARKER\$\DESKTOP\GPC\SCHERER LOGS.GPJ	531.1				⊷Surface Seal: c	xoncrete	Grout - 6	s bags Typel I/II Portla	and Cement, 94		
2012 WE			52								



SO	DUTHERNEX       LOG OF TEST BORING       PAGE 1 OF 3 ECS38467         UTHERN COMPANY SERVICES, INC. RTH SCIENCE AND ENVIRONMENTAL ENGINEERING       PROJECT _ Piezometer Installation LOCATION _ Plant Scherer         ESTARTED 2/12/2015       COMPLETED 2/17/2015       SURF. ELEV. 544.0       COORDINATES: N 1119237.67 E 2399908.19											
	STAR	TED _2/12/2015         COMPLETED _2/17/2015         SURF. ELEV544.0	(	COORDINATES: N 1119237.67 E 2399908.19								
	FRACT	OR _Civil Field Services EQUIPMENT _CME550 METHOD	Hollo	ow Stem Auger; HQ Rock Core								
	LED BY	T. Milam LOGGED BY B. Smelser CHECKED BY L. I	Villet	ANGLE BEARING								
	NG DE	PTH _95.8 ft GROUND WATER DEPTH: DURING _38.5 ft COM	<b>P.</b> <u>37</u>	.5 ft. DELAYED 37.3 ft. after 24 hrs.								
	ES											
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	eak oderate trong	COMMENTS								
		Silty Clay (CL)	<u> </u>									
5		- mottled dark red (10R 3/6) and brownish yellow (10YR 6/8) residuum dry, very stiff, trace mica		SPT N=28bpf(@3.5ft.)								
		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.)								
21/77/0 - 100-302		- 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.)								
		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.)								
10	1111											



		<b>A</b>				BORING SGWA-2/PZ-081
SC	DUT	HERN LOG OF	TEST E	BOR	RING	PAGE 3 OF 3 <u>ECS38467</u>
601	PELIEI		PROJECT	Piezo	ometer Installatior	1
EAR	THER TH SC	CIENCE AND ENVICES, INC. CIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION	Plan	nt Scherer	
(ff)	GRAPHIC LOG	MATERIAL DESCRIPTION		ELEVATION	Neak Moderate Strong	COMMENTS
75		PARTIALLY WEATHERED ROCK - hard to very hard, highly weathered, partially weathe	red rock fragr	nents		
80		<b>GNEISS</b> - white (N9) and light gray (N7) fine to coarse grain, v highly to completely weathered, inclined, intensly fract angle fractures (30 - 45d) along schistocity, abundant orangish-red oxidation along fractures	very soft to sc tured, modera pyrite through	ft, te- nout,		
85		- black (N1) and dark gray (N3) fine to coarse grain, highly to completely weathered, inclined, 17 moderate (30 - 45d) along foliation, interbedded with thin layers with quartz, feldspar, pyrite, biotite, hornblende, period oxidation, no apparent zones of healing	very soft to so ⊢angle fractur of Biotite Gne dic zones of	oft, es iss,		
95		- white (N9) and light gray (N7) fine to coarse grain, v highly to completely weathered, inclined, 23 moderate (30 - 45d) along foliation, very intensely fractured 93.5 interbedded Amphibolite, heavy oxidation, with quartz, hornblende, pyrite, no apparent healing, feldspar and crystallization in fractures	very soft to sc angle fractur 5' - 95.0' bgs, , biotite, musc quartz	ft, es covite,		
	2	Bottom of borehole at 95.8 feet				
00						
05						
10						

				F WELL	RECORD OF CONSTRUCTION	WE	WELL: SGWA-2/PZ-08I PAGE 1 OF 3 <u>ECS38467</u>			
SOUTHER	N COMPAN	Y SERVICES,	INC.		PROJECT Piezometer Inst	stallation				
EARTH SC	CIENCE AND	) ENVIRONME	ENTAL ENG	INEERING	LOCATION Plant Schere	r				
DATE STAR	TED _2/12/2	2015 <b>CO</b>	OMPLETED		Round Elevation 544 ft		<b>S</b> N 1119237.67 E 2399908.19			
CONTRACT	OR _Civil Fie	eld Services			ollow Stem Auger; HQ Rock Core		ME550			
DRILLED BY	T. Milam	L(	OGGED BY	B. Smelser	CHECKED BY L. Millet	BORING D	EPTH _ 95.8 ft.			
GROUND WA	ATER DEPTH	H: DURING _3	38.5 ft.	COMP. <u>37.5 ft.</u>	DELAYED 37.3 ft. after	<u>24 hrs</u> .				
BOREHOLE	(ft)			WELL DA	TA		COMMENTS			
	DEPTH	Protectiv 4-foot so Top of c	/e aluminum quare concre asing Elev. =	cover with bollard te pad 546.94	S					
ELEV. Strata		•TB				(DEPTH)				
		⊲ Sur	face Seal: co	oncrete		542.0				
						(2.0)				
DGS.GF										
RERLO										
VISCHE VISCHE										
536.0 / / / /										
DESKTO	<u> </u>									
LAPAR										
	12									
14:57 -										
1/29/20										
D1 - 10										
SASE.G										
DATAE										
COM)	52									
ON) 02										
22 516.0										
SNOST										
VEIL O										
2012										





PROJECT: Plant Scherer PROJECT NUMBER: 1542702 DRILLED DEPTH: 50.00 ft LOCATION: Juliette, GA RECORD OF BOREHOLE DRILL RIG: C 100 Track Mounted Rig DATE STARTED: 11/17/15 DATE COMPLETED: 11/18/15 DATE COMPLETED: 11/18/15 DATE COMPLETED: 11/18/15 DATE COMPLETED: 11/18/15 DATE COMPLETED: 11/18/15

SHEET 1 of 2 DEPTH W.L.: 32' ELEVATION W.L.: DATE W.L.: 11/18/15 TIME W.L.: 08:50

	SOIL PROFILE						S	AMPLE	S		
DEPTH	(tt)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	0		0.00 - 16.00 SILTY SAND; orange to red silty sand, fat clay, moist, soft to firm (overburden)				S				WELL CASING Interval: -3'-40' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded
		- - -	5.00: Shelby Tube Collected: 5'-6'								WELL SCREEN Interval: 40'-50' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK
1	  0	535 		SM							Interval: 37'7"-50' Type: #1 sand/ Prepack Filter FILTER PACK SEAL Interval: 35'6"-37'7" Type: 3/8" Bentonite Pellets
		- 530 -									ANNULUS SEAL Interval: 0'-36'6" Type: Portland Type I/Type II/Gel Mix WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized
1:	5	- - 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	-				Aluminum <b>DRILLING METHODS</b> Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
2		  520	20.00: Shelby Tube Collected: 20'-22'							Portland Type I/ Type – II/ Gel mix	
2:		-									
PIEDMONT.GDT 9	- - - 0 -	— 515 - -		мн							-
UPDATED.GPJ F		- 510 									
IGS (2)_SURVEY	- c - - -	- 505	35.00: Shelby Tube Collected: 35'-37'							3/8" Bentonite – Pellets –	-
SCHERER BORING LO	'- '- 0. '- '-	  500	40.00 - 45.00 foliated texture observed, saprolite			502.9 40.00	_				
4 CORD	5-	-	Log continued on next name			497.9				0.010" slot	-
LOG SCALE: 1 in = 5.5 ft DRILLING COMPANY: Cascade Drilling DRILLER: Vernon Scott						SPECT KED BY : 9/29/1	OR: (: Ra 7	Shan achel	non ( P. Ki	George, P.G. rkman, P.G.	GOLDER

PR PR DR LO	OJECT: OJECT ILLED E CATION	Plant Scherer NUMBER: 1542702 DEPTH: 50.00 ft L: Juliette, GA	DREH nted Rig 5	HOL	E SO NOR EAS GS E TOC	GW THING: ELEVA ELEV	A-3 G: 1,12 2,399 ATION: /ATIOI	/AF 20,224 ,296.6 542. N: 54	A-2         SHE           .15         DEP           4         ELE           9         DATI           5.83 ft         TIME	ET 2 of 2 TH W.L.: 32' /ATION W.L.: E W.L.: 11/18/15 E W.L.: 08:50
		SOIL PROFILE				S	AMPLE	s		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	  495	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	WELL CASING Interval: -3'-40' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded WELL SCREEN Interval: 40:50'
50 — -	-	Boring completed at 50.00 ft			492.6 50.30					Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC
-	490 								-	FILTER PACK Interval: 37'7"-50' Type: #1 sand/ Prepack Filter FILTER PACK SEAL Interval: 35'6"-37'7"
55									-	Type: 3/8" Bentonite Pellets <b>ANNULUS SEAL</b> Interval: 0'-36'6" Type: Portland Type I/Type II/Gel Mix
- - 60 -									-	WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum
-	  480								-	DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
- 65 -									-	
-	 475 								-	
70 -									-	
75 -	470 									
	  465								-	
80 -									-	
	460 								-	
85 -										
90 -									-	
	G SCA	LE: 1 in = 5.5 ft COMPANY: Cascade Drilling Vernon Scott	, ( [	GA INS CHECP DATE:	SPECT (ED BY 9/29/1	OR: ': Ra 7	Shan achel	non ( P. Ki	George, P.G. rkman, P.G.	GOLDER

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

## RECORD OF BOREHOLE DRILL RIG: C 100 Track Mounted Rig DATE STARTED: 11/17/15 DATE COMPLETED: 11/17/15 DATE COMPLETED: 11/17/15 DATE COMPLETED: 11/17/15 DATE COMPLETED: 11/17/15

SHEET 1 of 2 DEPTH W.L.:25.71' ELEVATION W.L.: DATE W.L.:11/13/15 TIME W.L.:13:10

		SOIL PROFILE				S	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC	DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	-	0.00 - 5.00 CLAY (CH); clay, reddish brown, some organic material, trace quartz, trace mica, dry to moist, firm, overburden	СН						WELL CASING Interval: -3'-50.5' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded WELL SCREEN
- 5 - -		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	МН		<u>539.8</u> 5.00				Interval: 50.5'-60.5' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 49'-61.5' Type: #1 sand/ Prepack Filter
- 10 — -		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'			<u>534.8</u> 10.00				Quantity: FILTER PACK SEAL Interval: 46.7'-49' Type: 3/8" Bentonite Pellets Quantity: ANNULUS SEAL Interval: 0'-46.7'
- 15 -		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				I ype: Portland Type I/Type II/Gel Mix Quantity: WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum DRILLING METHODS
- 20		20.00 - 25.00 mottled orange/brown/yellow silty saprolite, larger biotite deposits, trace quartz and weathered rock, soft, moist to wet			<u>524.8</u> 20.00			Portland Type I/ Type – II/ Gel mix	Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
- 25 - 07/9/11 -		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				
	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				
(Z)_SURVET UPUAIE	510 510 	35.00 - 40.00 mottled orange/yellow/white silty saprolite, biotite, mica, trace quartz, trace clay, moist, firm			509.8 35.00				-
		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				
		Log continued on next page				<u>ар.</u>	James M		
	LLING	COMPANY: Cascade Drilling Vernon Scott		CHE	CKED BY E: 9/29/1	/: Ra 7	achel P. K	irkman, P.G.	GOLDER

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

## RECORD OF BOREHOLE DRILL RIG: C 100 Track Mounted Rig DATE STARTED: 11/17/15 DATE COMPLETED: 11/17/15 DATE COMPLETED: 11/17/15 DATE COMPLETED: 11/17/15 DATE COMPLETED: 11/17/15

SHEET 2 of 2 DEPTH W.L.:25.71' ELEVATION W.L.: DATE W.L.:11/13/15 TIME W.L.:13:10

	SOIL PROFILE					S	AMPLES	;		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	SRAPHIC LOG	ELEV.	WPLE NO.	ТҮРЕ	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45 -		40.00 67.00			(ft)	SA			B221 B2221	
50 -	    495	40.00 - 67.00 SILTY SAND; brown/grey/white/orange silty saprolite, trace quartz, micaceous, fine grains, moist, firm Shelby Tube Collected: 40'-42' ( <i>Continued</i> ) 45.00 - 50.00 grey/white/orange/brown silty saprolite, medium grain, trace quartz, micaceous, trace iron pyrite 50.00 - 55.00			494.8				3/8" Bentonite – Pellets #1 sand –	WELL CASING Interval: -3'-50.5' Materiai: Schedule 40 PVC Diameter: 6" Joint Type: Threaded WELL SCREEN Interval: 50.5'-60.5' Materiai: Schedule 40 PVC Diameter: 2' Slot Size: 0.010"
55 -	    490	grey/White/brown/orange silty saprolite, medium grain, mica, iron pyrite, trace quartz, trace biotite, moist, firm			489.8				0.010" slot	End Cap: Schedule 40 PVC FILTER PACK Interval: 49'-61.5' Type: #1 sand/ Prepack Filter Quantity: FILTER PACK SEAL Interval: 46.7'-49'
	  485	grey/white/brown/orange silty saprolite, medium grain sand, mica, iron pyrite, trace quartz, trace biotite, some clay lenses, moist, very firm	SM		484.8					Type: 3/8" Bentonite Pellets Quantity: ANNULUS SEAL Interval: 0'-46.7' Type: Portland Type I/Type II/Gel Mix Quantity:
60 -		60.00 - 63.00 SANDY SILT; fine to medium sand, grey, saturated, saprolite	SM		60.00				#1 sand	WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum DRILLING METHODS
65 -	 480 	63.00 - 67.00 grey, saprolite biotite gneiss, trace thin clay lenses, grey, very firm			63.00				3/8" – Bentonite – Pellets –	Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
		Boring completed at 60.50 ft			477.8 67.00					
- 07	_— 475  								-	
TUD	  470								-	
ATED.GPJ PIE										
GS (2)_SURVEY UPD, - 08 - 08	- 465  									
- 58 RORING LO	460 460 									
- 06 06	455								-	
LO DR DR DR	G SCA ILLING ILLER:	LE: 1 in = 5.5 ft COMPANY: Cascade Drilling Vernon Scott	( ( [	GA INS CHECI DATE:	SPECT KED BY 9/29/1	OR: ( 7	James achel F	: Mu P. Ki	illooly rkman, P.G.	GOLDER

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

## RECORD OF BOREHOLE DRILL RIG: C 100 Track Mounted Rig DATE STARTED: 11/18/15 DATE COMPLETED: 11/18/15 DATE COMPLETED: 11/18/15 DATE COMPLETED: 11/18/15

SHEET 1 of 1 DEPTH W.L.: 15.23' ELEVATION W.L.: DATE W.L.: 11/18/15 TIME W.L.: 16:05

		SOIL PROFILE				S	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	AMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
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			(ft)	S				WELL CASING Interval: -3'-20.1' Material: Schedule 40 PVC Diameter: 6
- - 5 -	- - 500 	5.00 - 8.00 mottled orange/brown/white clay, trace quartz and biotite, dry to moist, firm, saprolite	СН		500.7 5.00	-				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'
- - 10	-	8.00 - 10.00 CLAYEY SAND; dry mottled orange/white fine grained saprolite, firm and non cohesive	sc		497.7 8.00 495.7				Portland Type I/ Type – II/ Gel mix	Type: #1 sand/ Prepack Filter <b>FILTER PACK SEAL</b> Interval: 15.7'-18' Type: 3/8" Bentonite Pellets
-	— 495 — —	mottled red/orange/white saprolite, trace quartz and biotite, some large quartz pieces 12.00 - 14.00 mottled orange/brown/red saprolite, some clay, micaceous, moist			<u>493.7</u> 12.00					ANNULUS SEAL Interval: 0'-15.7' Type: Portland Type I/Type II/Gel Mix
- 15 —	- 490	14.00 - 15.00 brown/orange/grey clayey sand, silt, iron pyrite, mica, trace biotite, moist 15.00 - 16.50 grey/brown/white saprolite, fine to medium grain sand, trace quartz,			491.7 14.00 490.7 15.00 489.2 488.7				- 3/8"	WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum DRILLING METHODS Soil Drill: 4-inch Sonic
- - 20	- - 	trace iron pyrite and mica, moist 16.50 - 17.00 band of orange/brown/grey clayey sand, weathered biotite, wet 17.00 - 22.00 SILT; grey/white/orange saprolite, trace mica, iron pyrite, medium grained sand, moist	ML		17.00				Bentonite - Pellets	Rock Drill: 4-inch Sonic
-		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 22.00					
25 — 07 + 70 	— 480 —	25.00 - 27.00 white/grey.brown medium grained, mottled saprolite with interbedded quartz layers, trace rose quartz and iron pyrite, micaceous, wet 27.00 - 28.00 brown/orange/grey/white saprolite, micaceous, medium grained sand wet			478.7 27.00 477.7 28.00				#1 sand	
30 - 30	-  475	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 Boring completed at 30.00 ft			475.7					
ר היפ ארשיובר ארשיובר - 35 –	-								-	
165 (2)_50RV	- 470 								-	
- 40 - 40	- 465 								-	
- האר האר	 								-	
	SCA LLING LLER:	LE: 1 in = 5.5 ft COMPANY: Cascade Drilling : Vernon Scott		GA INS CHECI DATE:	SPECT( KED BY 9/29/1	0R: (: Ra 7	Jame ichel	s Mu P. Ki	illooly rkman, P.G.	GOLDER

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

## RECORD OF BOREHOLE DRILL RIG: C 100 Track Mounted Rig DATE STARTED: 11/12/15 DATE COMPLETED: 11/12/15 DATE COMPLETED: 11/12/15 DATE COMPLETED: 11/12/15 DATE COMPLETED: 11/12/15

		SOIL PROFILE				S	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	- - 505	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	МН							WELL CASING Interval: -3'-15' Material: Schedule 40 PVC Diameter: 6'' Joint Type: Threaded WELL SCREEN Interval: 15'-25'
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		502.7 5.00				Portland Type I/ Type – II/ Gel mix	Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 12 9:-25'
	500 	10.00 - 15.00 mottled orange/brown/reddish/yellow saprolite, trace quartz and weathered rock, micaceous, black streaking, wet, firm			<u>497.7</u> 10.00				3/8"	Type: #1 sand/ Prepack Filter FILTER PACK SEAL Interval: 10.1'-12.9' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0' 10 11
- - - 15	- 495 	15.00, 20.00			492.7					Type: Portland Type I/Type II/Gel Mix WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum
-	_ 490 	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				#1 sand	DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
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				0.010" slot	-
- - 25	- 485 - -	Boring completed at 25.00 ft			482.7					-
									-	-
	- - 475								-	-
35 —	-								-	
40	- 470 - -								-	
	- 465 								-	
LOC DRI DRI	SCAI	LE: 1 in = 5.5 ft COMPANY: Cascade Drilling Vernon Scott		GA INS CHECI DATE:	SPECT KED BY 9/29/1	0R: /: Ra 7	Jame achel	es Mu P. Ki	l Illooly rkman, P.G.	GOLDER

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

## RECORD OF BOREHOLE DRILL RIG: C 100 Track Mounted Rig DATE STARTED: 11/10/15 DATE COMPLETED: 11/11/15 DATE COMPLETED: 11/

SHEET 1 of 1 DEPTH W.L.: 22' ELEVATION W.L.: DATE W.L.: 11/11/15 TIME W.L.: 11:40

		SOIL PROFILE				S	AMPLE	S			
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
0	- - - - 500	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							WELL CASING Interval: -3'-25' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded WELL SCREEN	
5 —		5.00 - 10.00 OVERBURDEN/SAND (SW); densely compacted coarse grained sand, some silt, trace clay, micaceous, loose, W <pl< td=""><td>sw</td><td></td><td>498.5 5.00</td><td>-</td><td></td><td></td><td></td><td>Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 23'-35' Type: #1 sand/ Prepack Filter</td></pl<>	sw		498.5 5.00	-				Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 23'-35' Type: #1 sand/ Prepack Filter	
 10	- 493 - -	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 mice and iron			493.5				Portland Type I/ Type – II/ Gel mix	FILTER PACK SEAL Interval: 21'-23' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-21'	
	- 490 -	pyrite, dry to moist	GP		488.5					Type: Portland Type I/Type II/Gel Mix WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum	
-	- -  485	10.00 - 20.	GM		15.00					DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic	
20 —		20.00 - 25.00 NO RECOVERY; apparent washout		<u>• PIC</u>	483.5 20.00	-			3/8" Bentonite – Pellets		
- 25 — -	480  	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			478.5 25.00	-					
- 	- 475 	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	BR		473.5 30.00	-			#1 sand 0.010" slot		
- - 35	- 470 	Boring completed at 35.00 ft			468.5	-				-	
40	- 465 								-		
- - 45	- 460 										
45     GA INSPECTOR: James Mullooly       LOG SCALE: 1 in = 5.5 ft     GA INSPECTOR: James Mullooly       DRILLING COMPANY: Cascade Drilling     CHECKED BY: Rachel P. Kirkman, P.G.       DRILLER: Vernon Scott     DATE: 9/29/17											

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

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

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

SHEET 1 of 1 DEPTH W.L.: 25' ELEVATION W.L.: DATE W.L.: 11/10/15 TIME W.L.: 13:45

z		SOIL PROFILE	1	1	1	S	AMPLE	S		
(ft) ELEVATIO	(£f)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	10	0.00 - 5.00 SANDY SILT; brown silt with clay changing to sandy silt, fine-grained, trace clay, dry, overburden	ML							WELL CASING Interval: -3'-30' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded WELL SCREEN Interval: 30'-40' Methodia 40 DVC
5	05	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		506.5	_				Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 27.5'-40' Type: #1 sand/ Prepack Filt
0	00	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			501.5	-			Portland Type // Type –	HLTER PACK SEAL Interval: 25.6'-27.5' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-25.6' Type: Portland Type I/Type II/Gel Mix
5 - - - - - 49 - - -	95	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		496.5				II/ Gel mix	WELL COMPLETION Pad: 4'x4''a" Protective Casing: Anodize Aluminum DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
- - - - - - - - - - - - - - - - - - -	90	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	мн		491.5	-				
- 5 - - - - - - 48 - -	85	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		486.5				3/8" – Bentonite – Pellets –	
0	80	30.00 - 35.00 gravel and coarse grained sand, large quartz pieces, mica, iron pyrite, densely compacted brown/grey/orange, moist-wet			481.5					
- 5 - - - - - 47 - -	75	35.00 - 40.00 BEDROCK (BR); biotite gneiss, gravelly coarse sand, large quartz pieces, brown/orange/grey, moist-wet	BR		476.5				0.010" slot	
) 47 47 	70	Boring completed at 40.00 ft			471.5	-				
; - DG SC RILLIN	CAL NG	LE: 1 in = 5.5 ft COMPANY: Cascade Drilling	(	GA IN: CHEC	SPECT	OR: (: Ra	Jame	es Mu P. Ki	llooly rkman, P.G.	S

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

#### RECORD OF BOREHOLE SGWC-9/APC-4 SHEET 1 of 1 PROJECT: Plant Scherer PROJECT NUMBER: 1542702 DRILLED DEPTH: 35.00 ft NORTHING: 1,122,634.64 EASTING: 2,403,455.19 DEPTH W.L.: 18' DRILL RIG: C 100 Track Mounted Rig ELEVATION W.L.: DATE W.L.: 11/6/15 TIME W.L.: 10:00 DATE STARTED: 11/5/15 GS ELEVATION: 507.6 DATE COMPLETED: 11/6/15 LOCATION: Juliette, GA TOC ELEVATION: 510.62 ft SOIL PROFILE SAMPLES ELEVATION (ft) DEPTH (ft) MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES WELL CONSTRUCTION è ELEV. GRAPHIC LOG USCS TYPE SAMPLE REC DESCRIPTION DETAILS DEPTH (ft) 0 0.00 - 5.00 WELL CASING OVERBURDEN; reddish brown fill, micaceous, some organic \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Interval: -3'-25' Material: Schedule 40 PVC material, dry-moist, firm (fill) Diameter: 6" Joint Type: Threaded FILL 505 WELL SCREEN Interval: 25'-35' Material: Schedule 40 PVC 502.6 5 Diameter: 2 5 00 - 10 00 5.00 Slot Size: 0.010" End Cap: Schedule 40 PVC CLAY/SAPROLITE; mottled reddish/brown/orange clay, black streaking, micaceous, dry-moist, firm FILTER PACK СН Interval: 23'-35' Type: #1 sand/ Prepack Filter 500 FILTER PACK SEAL Portland Interval: 21'-23 497.6 Type I/ Type II/ Gel mix 10 Type: 3/8" Bentonite Pellets 10.00 - 15.00 10.00 CLAYEY SILT (MH)/SAPROLITE; mottled orange/red/brown/yellow ANNULUS SEAL silt, black streaking, micaceous, fine grained, trace clay, dry-moist, Interval: 0'-21 soft Type: Portland Type I/Type II/Gel Mix 495 MH WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized 492.6 15 Aluminum 15.00 - 20.00 15.00 mottled brown/orange/grey/white silt, trace clay, micaceous, fine-medium grained, black streaking, moist, soft Shelby Tube Collected: 15'-17' DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic 490 487.6 20 20 00 - 25 00 20.00 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 3/8" Bentonite ML Pellets 485 482.6 25 25.00 - 30.00 25.00 mottled grey/white/brown saprolite, trace quartz and weathered rock, black banding, iron pyrite, moist, firm 9/4/20 480 477.6 0.010" slot 30 30.00 - 35.00 30.00 screen 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 #1 sand -475 472.6 35 Boring completed at 35.00 ft 470 40 465 45 GA INSPECTOR: James Mullooly LOG SCALE: 1 in = 5.5 ft CHECKED BY: Rachel P. Kirkman, P.G. DRILLING COMPANY: Cascade Drilling DRILLER: Jeremy Triepke DATE: 9/29/17 GOLDER

PIEDMONT.GDT SURVEY UPDATED.GPJ SCHERER BORING LOGS (2) RECORD BOREHOLE

#### RECORD OF BOREHOLE SGWC-10/APC-5 SHEET 1 of 1 PROJECT: Plant Scherer PROJECT NUMBER: 1542702 DRILLED DEPTH: 30.00 ft DRILL RIG: C 100 Track Mounted Rig DATE STARTED: 11/4/15 NORTHING: 1,121,895.85 EASTING: 2,404,046.92 DEPTH WI · 17 ELEVATION W.L.: DATE W.L.: 11/5/15 TIME W.L.: 13:15 GS ELEVATION: 506.6 DATE COMPLETED: 11/5/15 LOCATION: Juliette, GA TOC ELEVATION: 509.41 ft SOIL PROFILE SAMPLES ELEVATION (ft) DEPTH (ft) MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES WELL CONSTRUCTION è ELEV. GRAPHIC LOG USCS TYPE SAMPLE REC DESCRIPTION DETAILS DEPTH (ft) 0 0.00 - 5.00 WELL CASING CLAY/OVERBURDEN; reddish/brown silty fine grained fill, some \* Interval: -3'-20' Material: Schedule 40 PVC rock fragments and organic material, trace clay, micaceous, dry-moist, firm, W<PL 505 Diameter: 6" Joint Type: Threaded СН WELL SCREEN Interval: 20'-30' Material: Schedule 40 PVC 501.6 5 Diameter: 2' 5 00 - 10 00 5.00 Slot Size: 0.010" End Cap: Schedule 40 PVC mottled brown/reddish/orange micaceous fill, changing to saprolite soils with black streaking, trace quartz, moist, firm 500 Portland Type I/ Type FILTER PACK Interval: 18'-30' Type: #1 sand/ Prepack Filter II/ Gel mix FILTER PACK SEAL Interval: 15.5'-18' 496.6 10 Type: 3/8" Bentonite Pellets 10.00 - 15.00 10.00 SILTY CLAY (CL)/SAPROLITE; mottled ANNULUS SEAL orange/brown/yellow/reddish saprolite, micaceous, trace quartz and 495 Interval: 0'-15.5 angular rock fragments, firm to soft, moist Type: Portland Type I/Type II/Gel Mix CL WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized 491 6 15 Aluminum 15.00 - 20.00 15.00 mottled orange/brown/yellow/reddish saprolite, some clay, micaceous, black streaking, trace quartz and weathered rock DRILLING METHODS 3/8" Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic 490 fragments, soft, wet, ~17 **Bentonite** Pellets 486.6 20 20 00 - 25 00 20.00 SILTY SAND (SM)/SAPROLITE; mottled orange/brown/reddish/yellow saprolite, trace clay, trace quartz and weathered rock fragments, micaceous, soft, wet 485 SM 481.6 0.010" slot 25 25.00 - 30.00 25.00 screen mottled brown/grey/orange/white saprolite, fin grained, trace clay, #1 sand trace quartz and weathered rock fragments, soft, wet 9/4/20 480 PIEDMONT.GDT 476.6 30 Boring completed at 30.00 ft 475 35 470 40 465 45 GA INSPECTOR: James Mullooly LOG SCALE: 1 in = 5.5 ft BOREHOLE

SURVEY UPDATED.GPJ SCHERER BORING LOGS (2) RECORD

DRILLING COMPANY: Cascade Drilling

DRILLER: Jeremy Triepke

GOLDER

CHECKED BY: Rachel P. Kirkman, P.G.

DATE: 9/29/17

# PROJECT: Plant Scherer PROJECT: Plant Scherer DRILL RIG: C 100 Track Mounted Rig NORTHING: 1,121,542.11 SHEET 1 of 1 DRULED DEPTH: 40.00 ft DATE STARTED: 10/28/15 DATE COMPLETED: 10/29/15 SOLEVATION: 508.6 DATE W.L.: 10/29/15 SOIL PROFILE SOIL PROFILE SAMPLES SAMPLES SAMPLES

	7	SOIL PROFILE SAMPLES									
PTH ft	(ATIO		ß	₽.	ELEV.	Ň			MONITORING WELL/ PIEZOMETER	WELL CONSTRUCTION	
E C	ELEV	DESCRIPTION	USC:	LOG	DEPTH	MPLE	TYPE	REC	DIAGRAM and NOTES	DETAILS	
0 —	_			U	(ft)	SAI			Bossi Bossi		
-	-	0.00 - 5.00 CLAY (CH)/OVERBURDEN; reddish brown silty overburden, micaceous, drv. firm (fill/topsoil)								WELL CASING Interval: -3'-30'	
-			СН							Diameter: 6" Joint Type: Threaded	
-	- 505									WELL SCREEN	
	-				503.6					Interval: 30'-40' Material: Schedule 40 PVC	
5-	-	5.00 - 10.00 SILTY CLAY; reddish brown silty clay, micaceous; changes to			5.00					Slot Size: 0.010" End Cap: Schedule 40 PVC	
_	-	mottled reddish/light brown/brown, black streaking, trace quartz, dry, firm to soft								FILTER PACK	
-	-		CL							Interval: 28'-40' Type: #1 sand	
-	- 500				109.6					FILTER PACK SEAL Interval: 26'-28'	
10 —	-	10.00 - 15.00 CLAYEY SILT: clay with some silt. saprolitic at 10'-11', black			10.00					Type: 3/8" Bentonite Pellets	
_	-	streaks, micaceous, mottled light brown/brown/reddish/orange, soft, dry to moist								ANNULUS SEAL Interval: 0'-26' Tyrae: Bortland Tyrae I/Tyrae	
_	-		MH						Portland Type I/ Type –	II/Gel Mix	
-	- 495								II/ Gel mix –	WELL COMPLETION Pad: 4'x4'x4"	
15 —		15.00 - 20.00			493.6 15.00					Aluminum	
_	-	black streaking, trace clay and quartz, micaceous, possible weathered rock, soft, dry-moist								DRILLING METHODS Soil Drill: 4-inch Sonic	
_	-		CL							Rock Drill: 4-inch Sonic	
-	- 490									-	
20 —		20.00 - 22.00			488.6 20.00					-	
-	_	SILTY CLAY/CLAYEY SILT/SAPROLITE (CL-ML); clayey slit lense, trace clay, very soft, wet	CL-ML		486.6						
	-	22.00 - 25.00 mottled orange/reddish/light brown/yellow saprolite, black streaks,			22.00						
_	- 485	residual quartz, moist								-	
25 —	-	25.00 - 30.00			483.6 25.00	-				-	
-	_	CLAYEY SILT (ML)/SAPROLITE; mottled orange/red/brown/white/grey saprolite, weathered rock fragments, trace clay, black streaking, soft-medium, moist							3/8"	-	
	-	ado day, bider di daring, oer modern, moor	ML						Pellets		
_	- 480										
30 —	-	30.00 - 35.00			478.6 30.00					-	
-	_	mottled brown/orange/yellow/red with some grey and white saprolite, quartz fragments, some weathered rock pieces, trace							[] : : : : : : : : : : : : : : : : : : :		
-	_	ciay, sont-medium, moist									
	- 475										
35 —	-	35.00 - 40.50			473.6				0.010" slot		
-	-	mottled brown/orange/grey/light brown saprolite, quartz fragments and weathered rock pieces, trace clay, black streaks, wet			00.00				#1 sand -	-	
-										1	
-	- 470									1	
40	-				469.4					4	
-	-	Boring completed at 40.00 ft			408.1 40.50				-		
-									-	-	
-	- 465								-	-	
45	-								-	1	
LOC	G SCAI	LE: 1 in = 5.5 ft	1	GA INS	SPECT	OR:	Jame	es Mu	llooly		
DRI	DRILLING COMPANY: Cascade Drilling CHECKED BY: Rachel P. Kirkman, P.G.										
DRI	LLER:	Jeremy Triepke		DATE:	9/29/1	1				GOLDER	

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

#### RECORD OF BOREHOLE SGWC-12/APC-7 SHEET 1 of 2 PROJECT: Plant Scherer PROJECT NUMBER: 1542702 DRILLED DEPTH: 47.60 ft NORTHING: 1,121,576.75 EASTING: 2,405,009.92 DRILL RIG: C 100 Track Mounted Rig DEPTH WI · 29 ELEVATION W.L.: DATE W.L.: 10/30/15 TIME W.L.: 10:10 DATE STARTED: 10/29/15 GS ELEVATION: 497.7 DATE COMPLETED: 10/30/15 LOCATION: Juliette, GA TOC ELEVATION: 500.53 ft SOIL PROFILE SAMPLES ELEVATION (ft) DEPTH (ft) MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES WELL CONSTRUCTION è ELEV. GRAPHIC LOG USCS TYPE SAMPLE REC DESCRIPTION DETAILS Щ DEPTH (ft) 0 0.00 - 2.00 WELL CASING OVERBURDEN/FILL (CH); reddish brown silt and fine grained sand СН \* Interval: -3'-37' Material: Schedule 40 PVC 495.7 Diameter: 6" Joint Type: Threaded 2.00 - 5.00 2.00 495 reddish brown silt with trace clay, micaceous, dry, firm WELL SCREEN Interval: 37'-47 Material: Schedule 40 PVC 492.7 5 Diameter: 2 5 00 - 10 00 5.00 Slot Size: 0.010" End Cap: Schedule 40 PVC SILTY SAND/SAPROLITE (SM); mottled reddish brown and grey saprolite, micaceous, trace quartz fragments, some clay, dry FILTER PACK Interval: 35'-47' Type: #1 sand/ Prepack Filter SM 490 FILTER PACK SEAL Interval: 32.5'-35' 487.7 10 Type: 3/8" Bentonite Pellets 10.00 - 15.00 10.00 CLAYEY SILT; mottled brown/orange/yellow clayey silt, trace quartz and weathered rock fragments, micaceous, firm trending to stiff, ANNULUS SEAL Interval: 0'-32.5' dry-moist Type: Portland Type I/Type II/Gel Mix MH 485 WELL COMPLETION Pad: 4'x4'x4' Protective Casing: Anodized 482 7 15 Aluminum 15.00 - 18.00 15.00 Portland nottled brown/orange/yellow clayey silt, trace quartz and weathered rock fragments, micaceous, firm-stiff, moist Type I/ Type II/ Gel mix DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic 480 479.7 18.00 - 25.00 SANDY SILT; trace biotite, trace quartz, micaceous, mottled 18.00 brown/orange/reddish/yellow, firm-stiff, fine grained, loose, black streaks, firm-stiff 20 ML 475 472.7 25 25.00 - 30.00 25.00 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 9/4/20 470 467.7 30 30.00 - 35.00 30.00 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 465 3/8" Bentonite Pellets 462.7 35 35.00 - 40.00 35.00 mottled brown/grey/black saprolite, fine grained, micaceous, trace clay, trace quartz and weathered rock fragments, W<PL, soft but densely compacted, wet 460 457.7 40 40.00 - 45.00 40.00 mottled grey/white/black/brown saprolite, fine grained, trace quartz #1 sand and weathered rock fragments, micaceous, black streaks, densely 0.010" slot \_ compacted, wet screen 455

PIEDMONT.GDT SURVEY UPDATED.GPJ SCHERER BORING LOGS (2) RECORD BOREHOLE

45

LOG SCALE: 1 in = 5.5 ft

DRILLER: Jeremy Triepke

DRILLING COMPANY: Cascade Drilling

Log continued on next page

CHECKED BY: Rachel P. Kirkman, P.G. DATE: 9/29/17

452.7

GA INSPECTOR: James Mullooly



#### SHEET 2 of 2 RECORD OF BOREHOLE SGWC-12/APC-7 DEPTH W.L.: 29' ELEVATION W.L.: DATE W.L.: 10/30/15 TIME W.L.: 10:10 PROJECT: Plant Scherer PROJECT NUMBER: 1542702 DRILLED DEPTH: 47.60 ft DRILL RIG: C 100 Track Mounted Rig DATE STARTED: 10/29/15 NORTHING: 1,121,576.75 EASTING: 2,405,009.92 GS ELEVATION: 497.7 DATE COMPLETED: 10/30/15 LOCATION: Juliette, GA TOC ELEVATION: 500.53 ft SOIL PROFILE SAMPLES ELEVATION (ft) DEPTH (ft) MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES WELL CONSTRUCTION Š GRAPHIC LOG ELEV. USCS TYPE SAMPLE REC DESCRIPTION DETAILS DEPTH (ft) 45 45 00 - 47 00 45.00 WELL CASING black/gey/white/brown fine grained saprolite, tightly compacted, trace biotite and mica, soft, moist-wet Interval: -3'-3' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded E 450.7 47.00 450 Boring completed at 47.60 ft WELL SCREEN Interval: 37'-47' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC 50 FILTER PACK Interval: 35'-47' Type: #1 sand/ Prepack Filter 445 FILTER PACK SEAL Interval: 32.5'-35' 55 Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-32.5' Type: Portland Type I/Type II/Gel Mix 440 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized 60 Aluminum DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic 435 65 430 70 9/4/20 425 SCHERER BORING LOGS (2)\_SURVEY UPDATED.GPJ\_PIEDMONT.GDT 75 420 80 415 85 410 RECORD 90 GA INSPECTOR: James Mullooly LOG SCALE: 1 in = 5.5 ft BOREHOLE CHECKED BY: Rachel P. Kirkman, P.G. DRILLING COMPANY: Cascade Drilling DATE: 9/29/17 DRILLER: Jeremy Triepke GOLDER

## RECORD OF BOREHOLE DRILL RIG: C 100 Track Mounted Rig DATE STARTED: 11/3/15 DATE COMPLETED: 11/4/15 BATE COMPLETED: 11/4/15 BATE COMPLETED: 11/4/15 BATE COMPLETED: 11/4/15

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

SHEET 1 of 1 DEPTH W.L.: 22' ELEVATION W.L.: DATE W.L.: 11/4/15 TIME W.L.: 13:00

	_	SOIL PROFILE				S	AMPLE	s			
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
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	мн							WELL CASING Interval: -3'-25' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded	
- - 5- -	 475  	5.00 - 10.00 overburden, reddish brown fill, some clay, trace mica, firm, moist, W <pl< td=""><td></td><td></td><td>474.9 5.00</td><td></td><td></td><td></td><td></td><td>WELL SCREEN Interval: 25'-35' Material: Schedule 40 PVC Diameter: 2' Stot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 23'-35' Type: #1 sand/ Prepack Filter</td></pl<>			474.9 5.00					WELL SCREEN Interval: 25'-35' Material: Schedule 40 PVC Diameter: 2' Stot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 23'-35' Type: #1 sand/ Prepack Filter	
- 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< td=""><td>MI</td><td></td><td>469.9 10.00</td><td></td><td></td><td></td><td>Portland Type I/ Type – – – – Il/ Gel mix – –</td><td>FILTER PACK SEAL Interval: 21-23' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-21' Type: Portland Type I/Type U/C du Mix</td></pl<>	MI		469.9 10.00				Portland Type I/ Type – – – – Il/ Gel mix – –	FILTER PACK SEAL Interval: 21-23' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-21' Type: Portland Type I/Type U/C du Mix	
- - 15 -	  465 	15.00 - 20.00 mottled brown/orange/reddish saprolite, micaceous, trace quartz, black streaking, fine grained, moist, firm			464.9 15.00					WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum  DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic	
- 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				3/8" Bentonite – Pellets		
- 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						
GPJ PIEDMONT.GDT	 450 	30.00 - 35.00 mottled brown/grey/white saprolite, trace quartz weathered rock fragments, micaceous, black streaking, firm-stiff			449.9 30.00				#1 sand	-	
SURVEY UPDATED.	 445 	Boring completed at 35.00 ft			444.9					-	
SCHERER BORING LOGS (2)	 440  										
- UNO 2001 - 45 -	- 								-		
BOREHOLE RE DRI DRI DRI	45       -435       -         LOG SCALE: 1 in = 5.5 ft       GA INSPECTOR: James Mullooly         DRILLING COMPANY: Cascade Drilling       CHECKED BY: Rachel P. Kirkman, P.G.         DRILLER: Jeremy Triepke       DATE: 9/29/17										

S	DUT		OF TEST BOR	RING	BORING SGWC-14/PZ-1 PAGE 1 0 ECS384	16S 0F 2 467
	THE	RN COMPANY SERVICES INC	PROJECT Piezo	meter	Installation	
EAI	RTH S	CIENCE AND ENVIRONMENTAL ENGINEERING	G LOCATION Plan	it Sche	rer	
	STAR				COODDINATES: N 1120066 13 E 2406220 80	
	RACT	OR _Civil Field Services EQUIPMENT	<u>_CME550</u> METHOD	Hollo	w Stem Auger	
	ED B	Y _T. MilamLOGGED BY _S. Baxter		Aillet	ANGLE BEARING	
	NG DE	PTH <u>35.3 ft.</u> GROUND WATER DEPTH: DUR	ING <u>18.5 ft.</u> COM	<b>P.</b> <u>9.9</u>	11 ft. DELAYED 9.91 ft. after 24 hrs.	
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	oderate HCL rong	COMMENTS	
		Silty Clay (CL)		<u>šž</u> č		
		- mottled red (2.5YR 5/8) and light red / modera 6/6) residuum moist, stiff	te reddish orange (10R		SPT N=11bpf(@3.5ft.)	
		- mottled red (2.5YR 5/8) and light red / modera 6/6) residuum moist, medium stiff ▼	te reddish orange (10R		SPT N=5bpf(@8.5ft.)	
15		Silty Sand (SM) - mottled reddish yellow (5YR 7/8) and red (10R medium stiff, with weathered rock fragments, blac	4/8) saprolite moist, ck 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%)	%;
- 00. 10 61 14210 - 10						
20			0YR 7/6) saprolite wet, e weathered rock		SPT N=6bpf(@18.5ft.)	
		- mottled reddish yellow (5YR 6/8) and yellow (1 medium stiff, with black streaking, trace weathere	0YR 7/6) saprolite wet, ed rock fragments		SPT N=7bpf(@23.5ft.)	

S	OUT		.OG OF	TEST B	OR	ING	BORING SGWC-14/PZ-16S PAGE 2 OF 2 ECS38467
SO	UTHE	COMPANY RN COMPANY SERVICES, INC.	JEEDINIC		Piezo	meter	Installation
DGS/SCHERER LOGS/GPJ DEPTH (ft)	GRAPHIC LOG	MATERIAL DESC	RIPTION	LOCATION	ELEVATION	Weak Moderate HCL Strong	COMMENTS
RTIDRILLING PROJECT SISCHERER ASH POND PIEZIDRAFT LC		<ul> <li>Silty Sand (SM) (Con't)</li> <li>mottled reddish yellow (5YR 6/8), pale (10YR 8/1) saprolite wet, stiff, gravelly,</li> <li>mottled grayish olive (10Y 4/2) and pa hard, trace weathered rock fragments, r</li> </ul>	green (10G 6 trace weather le green (10G	6/2) saprolite	ents wet,		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) SPT N=38bpf(@33.5ft.)
	이 곳이 것다. 이 가 있다. 이 것 도 가 다 다 다	Bottom of borehole	at 35.3 feet.	, biolite			
40         40           40         40           50         40           50         50           50         50							

S	OUT	HERN COMP	ANY		R WELL	ECORD OF	WELI	L: SGWC-14/PZ-16S PAGE 1 OF 2 ECS38467
S	OUTHER	N COMPAI	NY SERVI	CES, INC.		PROJECT Piezometer Insta	llation	
E	ARTH SO	CIENCE AN	D ENVIR	ONMENTAL ENG	GINEERING	LOCATION Plant Scherer		
	E STAR	<b>TED</b> 2/24	/2015		2/24/2015 GE	ROUND ELEVATION 473.3 ft		S N 1120066 13 E 2406320 80
	TRACT	OR Civil F	ield Servi			Now Stem Auger		ME550
DRI		T Milam		LOGGED BY	S Baxter	CHECKED BY   Millet		EPTH 35.3 ft
GRO	UND WA	TER DEPT	TH: DURIN	NG <u>18.5 ft.</u>	<b>COMP.</b> 9.91 ft.	DELAYED 9.91 ft. after 24	hrs.	
BOF	ATA	Ш Ш			WELL DAT	Γ <b>Α</b>		COMMENTS
		JEPT	Pro	otective aluminur oot square concr	n cover with bollards rete pad			
ELE	√. Strata		Io	p of casing Elev.	= 476.72		ELEV. (DEPTH)	
		·B.	5					
				-Surface Seal: o	concrete		471.3	
2							(2.0)	
GS.G								
ERLO								
HER								
PC/SC								
OP/G								
ESKT								
ER\$\D								
PARKE								
01/LAF		2						
SCFP(				_Annular Fill: Ce lbs/each	ement-Bentonite Gro	out - 5 bags Typel I/II Portland Ceme	ent, 94	
MALTF								
- 1:57 -								
460 [70	3 1/1/							
10/29								
GDT-		22						
3ASE.								
DATAE								
SEE								
- ()	1.1.1							
000							454.0	
() ()		50					(19.3)	
ON RC				Annular Seal: b lbs/each	pentonite pellets - 1 E	Bucket Pel Plug 3/8" coated pellets,	50	
INCTIC							451.3	
NSTR							(22.0)	
8				-Filter: Unimin F	FilterSil - 7 Bags #1A	, 50 lbs/each		
2 WEI					0			
201	1.1.1	7:22					448.5	

SOUTHERN COMP		ECORD OF CONSTRUCTION	WELL: SGWC-14/PZ-16 PAGE 2 OF ECS384	<b>S</b> 2 67
SOUTHERN COMPAN EARTH SCIENCE AND	Y SERVICES, INC. DENVIRONMENTAL ENGINEERING	PROJECT <u>Piezometer Installation</u>		
	WELL DAT		COMMENTS	
ELEV. Strata	Top of casing Elev. = 476.72		ELEV. (DEPTH)	
	Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack		(24.8) (24.8) (38.5) (34.8)	

S	DUT	LOG OF TEST BOR	RING	BORING SGWC-15/PZ-17S PAGE 1 OF 2 <u>ECS38467</u>
SO	UTHE RTH S	RN COMPANY SERVICES, INC. PROJECT <u>Piez</u> CIENCE AND ENVIRONMENTAL ENGINEERING LOCATION <u>Pla</u>	ometer nt Sche	Installation
		TED _2/25/2015 COMPLETED _2/26/2015 SURF. ELEV479.7		COORDINATES: N 1120191.20 E 2407093.92
		UR EQUIPMENT METHOR	J <u>HOII</u>	
		<u>     1. Wildin</u> CHECKED B1 <u>     3. Baxter</u> CHECKED B1 <u>     1. Baxter     CHECKED B1      1. Baxter     CHECKED B1      CHECKED B1  </u>	<b>IP</b> 33	ANGLE BEAKING
	ES ES			
DEPTH DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Veak Ioderate REACTION	COMMENTS
	ίππ	Silt (ML)	<u> </u>	
5		- mottled red (2.5YR 4/8) and dark reddish brown (2.5YR 2.5/4) residuum moist, very stiff, trace clay		SPT N=18bpf(@3.5ft.)
	-	- mottled red (2.5YR 4/8) and yellow (10YR 7/8) saprolite moist, stiff, trace coarse sand		SPT N=10bpf(@8.5ft.)
		- mottled red (2.5YR 4/8) and yellow (10YR 7/8) saprolite moist, medium stiff, with black streaking, trace residual quartz and mica		SPT N=5bpf(@13.5ft.)
- ESEE UAI ABASE. GUI - 9/24/100		- 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		SPT N=6bpf(@18.5ft.)
				SPT N=3bpf(@23.5ft.)

	<b>A</b>			BORING SGWC-15/PZ-175 PAGE 2 OF
SOU	COMPANY LOG OF	TEST BOR	RING	<u>ECS3846</u>
SOUTHI	ERN COMPANY SERVICES, INC.	PROJECT Piez	ometer	Installation
EARTH	SCIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Pla	nt Sche	rer
GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak Moderate Strong	COMMENTS
	Silt (ML) (Con't)			
	- mottled light red (2.5YR 6/8) and light red / moder (10R 6/6) saprolite wet, stiff, with black streaking, tra fragments	ate reddish orange ce weathered rock		SPT N=9bpf(@28.5ft.)
35	<ul> <li>Sandy Elastic Silt (MH)</li> <li> </li> <li>                 mottled reddish brown (2.5YR 4/3) and light red / n orange (10R 6/6) saprolite wet, medium stiff, with bla weathered rock fragments          </li> </ul>	noderate reddish ack streaking, trace	_	SPT N=5bpf(@33.5ft.)(LL=55; PI=23; FC = 54.7% Gravel = 0%) (MC = 51.6%; UW(d) = 70.3pcf;
<u>40</u>	Silt (ML) - mottled reddish brown (2.5YR 4/3) and light red / n orange (10R 6/6) saprolite wet, medium stiff, trace w fragments, residial quartz, biotite, muscovite	noderate reddish eathered rock		SPT N=8bpf(@38.5ft.)
45	- mottled reddish brown (2.5YR 4/3) and light red / n orange (10R 6/6) saprolite wet, stiff, with black streal weathered rock fragments, biotite, muscovite, residu	noderate reddish king, trace al quartz		SPT N=12bpf(@43.5ft.)
	Bottom of borehole at 45.2 feet.			
50				
55				

	SOUT	THERN COMP	ANY		RE WELL C	CORD OF ONSTRUCTION	WELL	: SGWC-15/PZ-17S PAGE 1 OF 2 <u>ECS38467</u>
	SOUTHE	RN COMPA	NY SERVI	CES. INC.		PROJECT Piezometer Installation	n	
	EARTH S	CIENCE AN		ONMENTAL ENG	BINEERING	LOCATION Plant Scherer		
	DATE STAI	RTED _2/25	5/2015		2/26/2015 GRO	UND ELEVATION _ 479.7 ft	_ COORDINATES	N 1120191.2 E 2407093.92
	CONTRACT	FOR Civil F	ield Servi	ces		v Stem Auger		ME550
	ORILLED B	Y T. Milam	1	LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING DE	<b>PTH</b> 45.2 ft.
0	ROUND W	ATER DEP	TH: DURIN	<b>IG</b> 23.5 ft.	_ COMP33.81 ft.	DELAYED31.66 ft. after 24 hr	°S.	
	BOREHOLE	(ft)			WELL DATA			COMMENTS
	DATA	DEPTH	Pro 4-f To	otective aluminun oot square concr o of casing Elev.	n cover with bollards ete pad = 482.75		ELEV.	
┢	ELEV. Strata	a	-T				(DEPTH)	
0M) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01LAPARKER\$\DESKTOP\GPC\SCHERER LOGS.GPJ				_Surface Seal: c	ement-Bentonite Grout	- 6 bags Typel I/II Portland Cement,	<u>477.7</u> (2.0) 94	
2012 WELL CONSTRUCTION RCRD (NO		25						



	so	DU	IH	LOG OF TEST BOR	RII	NG	BORING SGWC-16/PZ-18 PAGE 1 OF ECS3846	3 <b>S</b> 2 7
	SOI	TTU		PROJECT Piez	zom	eter	Installation	
	EAR	TH	SCI	ENCE AND ENVIRONMENTAL ENGINEERING LOCATION Pla	int S	Sche	erer	
GPJ								
<b>D</b>	ΥΕ	STA	RTE	D         3/3/2015         COMPLETED         3/3/2015         SURF. ELEV.         457.0		_ (	COORDINATES: N 1119221.42 E 2407155.89	
	DNT	RAC	TOF	Civil Field Services EQUIPMENT CME550 METHO	D _!	Hollo	ow Stem Auger	
	RILL	ED E	ЗҮ _ Сот	I. Milam     LOGGED BY     S. Baxter     CHECKED BY       L.     40.2 ft     CROUND WATER DEPTH: DURING 18.5 ft     CON	Mill	20	ANGLE BEARING	
		s s		40.21t. GROUND WATER DEPTH. DURING 10.31t. CON	//F .	_29		
IKAF I								
DEPTH	(ft)	GRAPHIC LOG		MATERIAL DESCRIPTION	leak UC	oderate REACTION	COMMENTS	
SCH SCH		$\overline{V}$		Silty Clay (CL)	3	Σö		
S		X		- Hand auger 5' for utilities clearance				
ONT			9					
NUT		Ń	9					
NO44	5	X	Ŋ					
D'S H'								
			H					
XCIV		XX/	ľ					
		ĬĬ						
5		X	7	- 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.)	
	0		9					
LKAL		XX						
			H					
SVAPC		$\left  \begin{array}{c} x \\ x \\ x \end{array} \right $	Ŋ					
		ÍΤ	Í	Sandy Silt (ML)			CDT N=11h=1(@12.54)	
				black streaking, trace residual quartz			SFTN-TDp(@13.51.)	
×1	5							
- 86:70								
- 19/5								
SE.GL			Į₽	- mottled reddish yellow (5YR 6/8) and light red / moderate reddish		· · ·	SPT N=4bpf(@18.5ft.)	
LABA	20			orange (10R 6/6) saprolite wet, soft, trace weathered rock fragments		· · ·		
- E								
OLOG								
	:5			- 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.)	

S	DUT			LOG OF	TEST B	OR	ING	BORING SGWC-16/PZ-188 PAGE 2 OF ECS3846	<b>5</b> 2 57
SO EA	UTHE RTH S	<b>COMPANY</b> SCIENCE AND EN	ERVICES, INC. VIRONMENTAL EN	GINEERING	PROJECT _	Piezo Plan	meter t Schei	Installation	
DEPTH DEPTH (ft)	GRAPHIC LOG		MATERIAL DE	SCRIPTION		ELEVATION	Weak Moderate Strong	COMMENTS	
30     35     40		<ul> <li>Sandy Silt (ML</li> <li>- mottled reddi</li> <li>orange (10R 6</li> <li>✓</li> <li>- mottled reddi</li> <li>orange (10R 6</li> <li>and residual q</li> <li>- mottled reddi</li> <li>orange (10R 6</li> <li>biotite and res</li> </ul>	sh yellow (5YR 6/8) a (6) saprolite wet, soft, (6) saprolite wet, soft, (6) saprolite wet, soft, Jartz sh yellow (5YR 6/8) a (6) saprolite wet, soft, dual quartz	nd light red / moo trace weathered r nd light red / moo with white streakin nd light red / moo with black and wh	derate reddish ock fragments derate reddish ng, trace biotif derate reddish lite streaking,	trace		SPT N=3bpf(@28.5ft.) SPT N=4bpf(@33.5ft.) SPT N=4bpf(@38.5ft.)	
45 55			Bottom of boren	ole al 40.2 leet.					

	SO	UT	HE CO	RN / MP/		7		WE	RE LL C	CORD OI	= CTION	WE	LL: SGWC-16/PZ-18S PAGE 1 OF 2 <u>ECS38467</u>
	SOUT	THER	N CO	MPAN	Y SEF	RVICES,	, INC.			PROJECT Pi	ezometer Installatio	n	
	EART	TH SC	IENC	E AND	ENV	IRONM	ENTAL ENG	BINEERING		LOCATION _F	Plant Scherer		
	DATE S	STAR	TED	3/3/20	)15	C	OMPLETED	3/3/2015	GROL	JND ELEVATION	457 ft	_ COORDINA	<b>TES</b> <u>N 1119221.42 E 2407155.89</u>
	CONTR	АСТО	DR _(	Civil Fie	eld Se	rvices		METHO	D Hollow	/ Stem Auger		EQUIPMENT	CME550
	DRILLE	D BY	<u> </u>	Milam		L(	OGGED BY	S. Baxter		CHECKED BY	L. Millet	BORING	<b>DEPTH</b> _40.2 ft.
•		D WA	TER	DEPTH	I: DU	RING _	18.5 ft.	<b>COMP.</b> <u>29</u>	.95 ft.	DELAYED	29.33 ft. after 24 hrs	S.	
	NUTES												
	BOREH	OLE	(#t)					WELL	DATA				COMMENTS
	DAT	А	DEPTH			Protecti 4-foot s Top of c	ve aluminum quare concre casing Elev.	n cover with b ete pad = 460.31	ollards				
	ELEV.	Strata				· 						ELEV. (DEPTH)	
				· · ·	·B ·	_ <b>≪</b> −Sur	face Seal: c	oncrete					
					5				•••••			455.0	
S.GPJ												(2.0)	
2 LOG													
HERE			2										
PC/SC													
[OP/G]													
DESK1				$\mathbb{X}$									
KER\$													
LAPAF	F		×										
CFP01/			Ť.										
ALTRO													
1:57 - \													
9/20 1	444.0 (	ΤĤ				Anr Ibs/	hular Fill: Ce /each	ment-Benton	te Grout -	4 bags Typel I/II	Portland Cement, S	94	
r - 10/2				$\langle \rangle$									
E.GD1			Ē										
TABAS													
EEDA													
4) - ES													
IO CO													
CRD (N	ľ		8										
ION R(				$\sim$									
<b>TRUCT</b>			)	$\otimes$									
LSNOC													
012 WELL (			25 :			<b>.</b>						433.0 (24.0)	
SOUT	'HE CO/		V	RECORD OF WELL CONSTRUCTION			L: SGWC-16/PZ-18S PAGE 2 OF 2 <u>ECS38467</u>						
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SOUTHER EARTH SO	RN CO CIENC	MPANY SERV E AND ENVIR	'ICES, INC. CONMENTAL ENGINEERIN	IG	PROJECT         Piezometer Installation           LOCATION         Plant Scherer								
BOREHOLE DATA	DEPTH (ft)	Pi 4- To	rotective aluminum cover wi foot square concrete pad op of casing Elev. = 460.31	ELL DATA		ELEV.	COMMENTS						
	40 3 35 3 30 3		Annular Seal: bentonite p lbs/each Filter: Unimin FilterSil - 6Well: 2" OD PVC (SCH Screen: 10 ft. pre-pack	pellets - 1 Bucl 5.5 Bags #1A, 	ket Pel Plug 3/8" coated pellets, 50 50 lbs/each	430.2 (26.8) (28.8) (28.8) (38.8)							

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - NALTRCFP01/LAPARKER\$/DESKTOP/GPC/SCHERER LOGS.GPJ

S	OUTI		BOF	RING	BORING SGWC-17/PZ-20S PAGE 1 OF 1 ECS38467				
SO EA DATE CON	SOUTHERN COMPANY SERVICES, INC.       PROJECT _Piezometer Installation         EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING       LOCATION _Plant Scherer         DATE STARTED _3/11/2015 COMPLETED _3/11/2015 SURF. ELEV414.9 COORDINATES: N 1118308.77 E 2407267.44         CONTRACTOR _Civil Field Services EQUIPMENT CME550 METHOD Hollow Stem Auger								
DRIL BORI	led by Ng def	T. Milam     LOGGED BY     S. Baxter     CHECKEI       PTH     24.5 ft.     GROUND WATER DEPTH: DURING     0.5 ft.	D BY <u>L.</u> COM	Millet <b>P.</b> <u>6.1</u>	ANGLE         BEARING           ft.         DELAYED         5.9 ft. after 24 hrs.				
NOTE	NOTES								
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Veak Adderate HCL Strong	COMMENTS				
		✓ Fat Clay (CL) - Hand auger 5' for utilities clearance		<u>∧ ∞ ∞</u>					
<u>    10                                </u>		• mottled strong brown (7.5YR 4/6) and red (10R 4/8) residuun hard, with sand, trace roots and weathered rock fragments	n wet,		SPT N=50bpf(@8.5ft.)				
<u>15</u>		<b>Silty Sand (SM)</b> - mottled gray (7.5YR 5/1) saprolite wet, loose, very fine to fine with white speckling and black streaking, trace weathered rock fragments	grained,		SPT N=6bpf(@13.5ft.)				
 		- mottled gray (7.5YR 5/1) saprolite wet, medium dense, very fi grained, with white speckling and black streaking, trace weather fragments	ne to fine red rock		SPT N=13bpf(@18.5ft.)				
25		- mottled very dark gray (7.5YR 3/1) saprolite wet, medium den fine to fine grained, with white speckling and black streaking, tra residual quartz, iron oxide staining, weathered rock fragments Bottom of borehole at 24.5 feet.	ase, very ace		SPT N=18bpf(@23.5ft.)				

SOUTH	ERN /			F WELL	RECORD OF CONSTRUCTION	WELL	: SGWC-17/PZ-20S PAGE 1 OF 1 ECS38467
SOUTHERN	COMPAN	SERV	ICES, INC.		PROJECT Piezometer Installatio	n	
EARTH SCIE	NCE AND	ENVIF	CONMENTAL EN	GINEERING	LOCATION Plant Scherer		
DATE STARTE	<b>D</b> <u>3/11/2</u>	015		<b>D</b> <u>3/11/2015</u> <b>G</b>	ROUND ELEVATION 414.9 ft		N 1118308.77 E 2407267.44
CONTRACTOR	Civil Fie	ld Serv	ices	METHOD Ho	bllow Stem Auger		ME550
DRILLED BY	T. Milam		LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING DE	<b>PTH</b> _24.5 ft.
GROUND WATE	ER DEPTH	I: DUR	ING 0.5 ft.	_ COMP. <u>6.1 ft.</u>	DELAYED 5.9 ft. after 24 hrs.		
				WELL DA	ТА		COMMENTS
		Pi ∎ ₄	rotective aluminur	m cover with bollards	S		
L L		4- To	op of casing Elev.	= 418.00		ELEV.	
ELEV. Strata	· Z	-B ]				(DEPTH)	
			<ul> <li>Surface Seal: (</li> </ul>	concrete		412.0	
_						(2.0)	
			Annular Fill: C	ement-Bentonite Gro	out - 3 bags Typel I/II Portland Cement, 9	94	
			lbs/each				
						405.3	
APAR			_Annular Seal: I	bentonite pellets - 1	Bucket Pel Plug 3/8" coated pellets, 50	(3.0)	
Node:			lbs/each			402.8	
401.9						(12.1)	
			Filter: Unimin I	FilterSil - 6 Bags #1/	A, 50 lbs/each	400.8	
15						(14.1)	
JASE JASE							
		目記	Well: 2" OD P	PVC (SCH 40)			
SOLUTION SEE			Screen: 10 ft.	pre-pack			
						390.8	
390.4 100000		<u>[:₹:</u> ]	—Sump:0.40 ft.				
CON							
2012							

	SC	DUT	HERN LOG OF TES	t Bof	RIN	IG	BORING SGWC-18/PZ- PAGE 1 ECS3	- <b>22S</b> OF 2 8467		
			COMPANY							
	sou	JTHE	RN COMPANY SERVICES, INC. PROJ	ECT Piez	ome	ter	Installation			
	EAF	CTH S	CIENCE AND ENVIRONMENTAL ENGINEERING LOCA	TION Pla	nt So	che	rer			
		RACT	COR Civil Field Services FOUIPMENT CME550	METHO	ън		W Stem Auger			
≝  ≝  DF	RILL	ED B	Y T. Milam LOGGED BY S. Baxter CHECKI	ED BY L.	Mille	et	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									
¥										
EPTH	(ft)	APHIC LOG	MATERIAL DESCRIPTION	VATION	HCL	REACTION	COMMENTS			
		G			ak	terate Ing				
		///	Lean Clay (CL)		We	Stro				
12/2			- Hand auger 5' for utilities clearance							
SOJE										
14.9										
2 ¥										
	5									
б Н С										
⊥ 										
20 20 20										
<u>5</u> 			- mottled brown (7.5YR 5/2) and yellow (10YR 7/6) fill moist,	stiff,			SPT N=9bpf(@8.5ft.)			
	0		micaceous							
	- <del>-</del>									
2 11 2										
<u>ت</u> اري										
\$ 2 2										
			- mottled brown (7.5YR 5/2) and vellow (10YR 7/6) fill moist.	medium			SPT N=5bpf(@13.5ft.)			
	_		stiff, micaceous							
§ <u> </u>	5									
- RG: /						-				
G[ / ]										
- 6/2										
<u>ה</u> ופר		ΠĤ	Silt (ML)				$CDT N = 7 hof( \otimes 10.5\%)$			
ABASI			moist, medium stiff, with black spots, trace weathered rock fra	gments			Sr ι Ν-/υμι(@10.31L)			
2	20									
- 0.0										
JGY L						:				
SIMPLE C	25		<ul> <li>mottled reddish yellow (7.5YR 7/8) and white (10R 8/1) sap moist, medium stiff, with black spots, trace weathered rock fra residual quartz, biotite, muscovite</li> </ul>	rolite gments,			SPT N=5bpf(@23.5ft.)			

	BORING SGWC-18/PZ-22S PAGE 20F 2 ECC20467									
S	JUI	COMPANY	LOG OF	TEST B	OR	ING	i	<u>ECS38467</u>		
SO	UTHE	CRN COMPANY SERVICES, INC.	FNGINFFRING		Piezo Plan	meter	Installation			
				LUCATION	_ FIdII					
DEPTH DEPTH (ft)	GRAPHIC LOG	MATERIAI	DESCRIPTION		ELEVATION	Weak Moderate Strong	COMMENTS			
		Silt (ML) (Con't)								
CHERER ASH PO		<ul> <li>✓ - mottled reddish yellow (7.5YR black/yellow streaking and spots muscovite</li> </ul>	7/8) saprolite wet, me s, trace residual quartz	edium stiff, z, feldspar, bio	tite,		SPT N=5bpf(@28.5ft.)			
NG/PROJECTS/S		¥								
1 SUPPORTIDRILLIN		- mottled reddish yellow(7.5YR black/yellow streaking and spots muscovite	7/8) saprolite wet, me s, trace residual quartz	edium stiff, z, feldspar, bio	tite,		SPT N=7bpf(@33.5ft.)			
		- mottled reddish yellow(7.5YR	7/8) and pink (10R 8	/3) saprolite w	et,		SPT N=9bpf(@38.5ft.)			
		stiff, with black streaking, trace muscovite	residual quartz, feldsp	ar, biotite,						
OKKGROUPSVAL		- mottled reddish yellow (7.5YR stiff, with black streaking, trace	7/8) and white (10R residual quartz, feldsp	8/1) saprolite ar, hornblende	wet,		SPT N=10bpf(@43.5ft.)			
§45	1	Bottom of b	orehole at 44.5 feet.		/					
36:10 6/24/15 07:25										
50	_									
G - ESEE										
n <u> </u>	1									

SOUTHERN A COMPA	NY	RE WELL C	CORD OF ONSTRUCTION	WELL	: SGWC-18/PZ-22S PAGE 1 OF 2 <u>ECS38467</u>
SOUTHERN COMPANY	SERVICES, INC.		PROJECT Piezometer Installatio	n	
EARTH SCIENCE AND	ENVIRONMENTAL ENG	NEERING	LOCATION Plant Scherer		
DATE STARTED _3/16/2	COMPLETED	_3/17/2015 <b>GROU</b>	JND ELEVATION _510.3 ft	_ COORDINATES	N 1116947.75 E 2406931.32
CONTRACTOR Civil Fie	ld Services	METHOD Hollow	v Stem Auger		1E550
DRILLED BY T. Milam	LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING DEF	<b>PTH</b> 44.5 ft.
GROUND WATER DEPTH	I: DURING <u>28.5 ft.</u>	COMP. <u>31.4 ft.</u>	DELAYED ft. after 24 hrs.		
		WELL DATA			COMMENTS
	Protective aluminum 4-foot square concre Top of casing Elev. =	cover with bollards te pad 513.29			
ELEV. Strata				(DEPTH)	
	· V ∧ ↓ √ · · · · · · · · · · · · · · · · · · ·	ncrete			
· · · · · · · · · · · · · · · · · · ·	· V · ·			508.3	
reg				(2.0)	
2 2					
CERS.					
14:57					
- 102					
	Annular Fill: Cer	nent-Bentonite Grout -	5 bags Typel I/II Portland Cement	94	
	lbs/each		o bago ryper i/ir ronana comont, t		
DATA					
9					
й Z					
HST I I I I I I I I I I I I I I I I I I I					
5 ME					
53 S					

S	OUT	HERN COMF	ANY	WELL	RECORD OF CONSTRUCTION	WE	LL: SGWC-18/PZ-22S PAGE 2 OF 2 ECS38467
SO			NY SERV	ICES, INC.	PROJECT Piezometer Installation		
EA	RIHSC			ONMENTAL ENGINEERING	LOCATION Plant Scherer		
BORI		(ft)		WELL DA	ATA		COMMENTS
		PTH	Pr 4-	otective aluminum cover with bollard	ds		
	Ctrata	ä	To	op of casing Elev. = 513.29		ELEV.	
ELEV						(DEFTH)	
0/29/20 14:57 - \\ALTRCFP01\LAPARKER\$\DESKTOP\GPC\SCHERER LOGS.GPJ				<ul> <li>Annular Seal: bentonite pellets - 1 lbs/each</li> <li>Filter: Unimin FilterSil - 6 Bags #1</li> <li>Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack</li> </ul>	l Bucket Pel Plug 3/8" coated pellets, 50		
2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT							

s	0	UT		LOG OF T	EST BOF	RING	BORING SGWC-19	<b>D/PZ-23S</b> AGE 1 OF 2 <u>ECS38467</u>		
	דיוור	Ъ	RN COMPANY S	FRVICES INC	ROJECT Piezo	ometer	Installation			
EA	EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING LOCATION Plant Scherer									
0.6PJ										
	ES		<b>TED</b> <u>3/18/2015</u>	COMPLETED <u>3/18/2015</u> SURF. E	LEV. 475.8	(	COORDINATES: N 1116024.59 E 2406	097.05		
			<b>VR</b> <u>Civil Field Se</u> Y T Milam	LOGGED BY S Baxter CH	ECKED BY	Millet	ANGI F BEARING			
BOR	RING	DE	<b>PTH</b> 34.6 ft.	GROUND WATER DEPTH: DURING 13	B.5 ft. COM	<b>P.</b> 15.	1 ft. DELAYED 12.1 ft. after 24 hrs	s.		
	ES									
DEPTH (ft)	GRAPHIC	LOG		MATERIAL DESCRIPTION	ELEVATION	eak oderate REACTION	COMMENTS			
		//	Lean Clay (CL	.)		<u> </u>				
			- Hand auger	5' for utilities clearance						
5 5										
			- mottled red	(2.5YR 5/8) fill moist, medium stiff, trace m	ica		SPT N=8bpf(@8.5ft.)			
10	_/									
			<u> </u>							
	П	Τĺ	∑ Silt (ML)	ich arou (2 EVD E/1) and light rod / moders	to raddiab		SDT N-Shof(@13 5ft)			
			orange (10R 6	(6) saprolite wet, medium stiff, black spots,	with trace		Si i i i - 556 (@15.5it.)			
15				2						
			- mottled reddi	ish yellow (7.5YR 7/8) saprolite wet. mediu	m stiff, trace		SPT N=6bpf(@18.5ft.)			
20			mica	- , , , , ,	,					
	•••									
<u>.</u>										
			Cilty Cond (Ch	A)						
25		11 11 11 11 11	- mottled white (10R 6/6) sapr residual quartz	n) e (7.5YR 8/1) and light red / moderate rede olite wet, medium dense, very fine to fine g z, muscovite, biotite	dish orange rained, trace		SPT N=10bpf(@23.5ft.)			

SOUTHERNZEIS     LOG OF TEST BORING       SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING     PROJECT     Piezometer Installation       LOCATION     Plant Scherer       HLGU     OHAVS       HLGU     OHAVS       MATERIAL DESCRIPTION     NOILVANS       Silty Sand (SM) (Con't)     Silty Sand (SM) (Con't)	<u>ECS38467</u>
SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING     PROJECT     Piezometer Installation       Image: Provide the science of the sci	1ENTS
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING     LOCATION     Plant Scherer       Image: Science and Environmental Engineering     NOLD     Image: Science and S	1ENTS
VOIDSECTION     NOTENTIAL DESCRIPTION     NOTENTIAL	IENTS
Silty Sand (SM) (Con't)	
- mottled white (7.5YR 8/1) saprolite wet, medium dense, very fine to fine grained, black streaking, trace weathered rock fragments and mica	
- mottled white (7.5YR 8/1) saprolite wet, dense, very fine to fine grained, black streaking, trace muscovite, biotite, residual quartz	
Bottom of borehole at 34.6 feet.	
9-	
₹ <u>55</u>	

SOUTHER		RE WELL C	ECORD OF	WELL	: SGWC-19/PZ-23S PAGE 1 OF 2 ECS38467
SOUTHERN COMF	ANY SERVICES, INC.		PROJECT Piezometer Install	lation	
EARTH SCIENCE	AND ENVIRONMENTAL ENG	INEERING	LOCATION Plant Scherer		
DATE STARTED _3/	18/2015 COMPLETED	<u>3/18/2015</u> GRC	DUND ELEVATION 475.8 ft		N 1116024.59 E 2406097.05
	I Field Services		ow Stem Auger		1E550
DRILLED BY _T. Mila	am LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING DEF	<b>PTH</b> <u>34.6 ft.</u>
GROUND WATER DE	<b>:PTH: DURING</b> <u>13.5 ft.</u>	COMP. <u>15.1 ft.</u>	DELAYED12.1 ft. after 24	<u>hrs</u> .	
			•		COMMENTS
			4		COMMENTO
)EPT	4-foot square concre	te pad			
ELEV. Strata	I op of casing Elev. =	478.94		ELEV. (DEPTH)	
BA	·B.				
	Surface Seal: co	oncrete			
				(2.0)	
	Annular Fill: Cer Ibs/each	nent-Bentonite Grout	t - 6 bags Typel I/II Portland Ceme	ent, 94 457.4	
	Annular Seal: be	entonite pellets- 1 Bu IterSil - 3.5 Bags #1A	icket Pel Plug 3/8" coated pellets, : A, 50 lbs/each	(18.4) 50 455.6 (20.2)	
Z012 WELL					





SURVEY UPDATED.GPJ SCHERER BORING LOGS (2). RECORD BOREHOLE

S	DUT		LOG OF	TEST BOR	RING	BORING SGWC-21/PZ-01S PAGE 1 OF 1 ECS38467
SOI	UTHE	RN COMPANY SEE	ANCES INC	PROJECT Piezo	ometer	Installation
EAF	RTH S	CIENCE AND ENV	IRONMENTAL ENGINEERING	LOCATION Plan	nt Sche	rer
DATE CONT	E STAR	TED _5/6/2015 OR _Civil Field Serv	_ COMPLETED _5/6/2015 SURF ices EQUIPMENT _CN	ELEV. <u>484.7</u> 1E550 METHOD	C	COORDINATES: N 1115409.88 E 2404197.33
DRILL	LED B	T. Milam	LOGGED BY S. Baxter		Millet	ANGLE BEARING
BORI	NG DE	<b>PTH</b> <u>24.9 ft.</u>	GROUND WATER DEPTH: DURING	14.4 ft. COM	<b>P.</b> <u>0 ft</u>	DELAYED _2.7 ft. after 24 hrs.
NOTE						
DEPTH (ft)	GRAPHIC LOG	_	MATERIAL DESCRIPTION	ELEVATION	leak HCL loderate REACTION trong	COMMENTS
		Lean Clay (CL)			<u>&gt;≥ 0</u>	
5		- Hand auger 5' ⊻	for utilities clearance			
_10		- mottled red (1 saprolite moist, :	0R 5/8) and pink / moderate orange p soft, micaceous	ink (5YR 8/4)		SPT N=4bpf(@8.5ft.)
15		- light gray (10R ${\overline{\mathcal{Y}}}$	7/1) saprolite moist, stiff, micaceous,	trace silt		SPT N=14bpf(@13.5ft.)
_20		<b>Silt (ML)</b> - light gray (10R clay	7/1) saprolite very moist, medium stiff	, micaceous, trace		SPT N=8bpf(@18.5ft.)
_25		Silty Sand (SM) - mottled light gr (10R 8/2) saprol weathered rock	ay (10R 7/1) and pinkish white / grayi ite moist, medium dense, fine to coars Bottom of borehole at 24.9 feet.	sh orange pink se grained, trace		SPT N=19bpf(@23.5ft.)
· · · · · · · · · · · · · · · · · · ·						

SOUTHERN COMP	ANY WELL	RECORD OF CONSTRUCTION	WELL	: SGWC-21/PZ-01S PAGE 1 OF 1 <u>ECS38467</u>
SOUTHERN COMPAN	NY SERVICES, INC.	PROJECT Piezometer Installati	on	
EARTH SCIENCE AN	D ENVIRONMENTAL ENGINEERING	LOCATION Plant Scherer		
DATE STARTED 5/6/2	2015 COMPLETED <u>5/6/2015</u> G	ROUND ELEVATION 484.7 ft		N 1115409.88 E 2404197.33
	ield Services METHOD H	ollow Stem Auger		ME550
DRILLED BY T. Milam	LOGGED BY S. Baxter	CHECKED BY L. Millet	BORING DE	<b>PTH</b> _24.9 ft.
GROUND WATER DEPT	<b>'H: DURING</b> <u>14.4 ft.</u> <b>COMP.</b> <u>0 ft.</u>	DELAYED 2.7 ft. after 24 hrs.	-	
	WELL DA	TA		COMMENTS
	Protective aluminum cover with bollard	S		
出	Top of casing Elev. = 487.67		ELEV.	
ELEV. Strata			(DEPTH)	
	Surface Seal: concrete		482 7	
	·R.·.		(2.0)	
22				
	_ Annular Seal: bentonite pellets - 1	Bucket Pel Plug 3/8" coated pellets, 50		
	lbs/each			
2				
			472.6	
	Filter: Unimin FilterSil - 5 5 Bags ≠	#1A. 50 lbs/each	(12.1)	
		, <del></del>	470.2	
			(14.5)	
466.7				
	Well: 2" OD PVC (SCH 40)			
	Screen: 10 ft. pre-pack			
461.7				
459.8	Sump:0.40 ft		460.2	

S	DUT		BORI	NG LOG		BORING SGWC-22/PZ Page 1	-02S 1 of 2	
901	ITHEP			PROJECT Piezon	neter lı	nstallation		
EAI	RTHSC	CIENCE AND ENVIRONMENTAL ENGINEERING	G I	LOCATION Plant	Scher	er		
	STAP	TED 1/21/2015 COMPLETED 1/22/20	15 GROUN		515 4	ft COORDINATES: N 1115540.08 E 2403	3001.81	
CONT	RACT	OR Civil Field Services METI	HOD Hollow S	item Auger	010.4	EQUIPMENT CME550		
DRILL	DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet BORING DEPTH 50.1 ft.							
GROU	GROUND WATER DEPTH: DURING _25.5 ft.         COMP25.5 ft.         DELAYED _24.51 ft. after 24 hrs.							
NOTE	s	1			7	1		
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRI	PTION		eak HCL oderate REACTION trong	COMMENTS		
		Lean Clay (CL)			<u>≥ ≥ छ</u>			
		- mottled dusky red (5R 3/4), light red / mode and pinkish white / grayish orange pink (10R	erate reddish or 8 8/2) fill moist,	ange (10R 6/6) very stiff		SPT N=21bpf(@3.5ft.)		
		Silt (ML) - mottled dusky red (5R 3/4), pinkish white ( moderate orange pink (10R 7/4) residuum r micaceous	7.5YR 8/2) and noist, very stiff,	pale red / white banding,		SPT N=20bpf(@8.5ft.)		
108:40 - I/ALI IKUCFPUTILAPAKKI		- mottled dusky red (5R 3/4), very pale brow and very pale brown / very pale orange (10Y black spots	n / very pale ora R 8/2) saprolite	ange (10YR 8/2) e moist, stiff, with		SPT N=9bpf(@13.5ft.)		
00 00 00 00 00 00 00 00 00 00 00 00 00		- mottled brown (10YR 4/3), light brown (7.5 saprolite moist, medium stiff	5YR 6/4) and w	hite (2.5YR 8/1)		SPT N=8bpf(@18.5ft.)		
- 501045 Teorode - F		Silty Sand (SM) - mottled brown (10YR 4/3), very pale brown ✓ and pale red / moderate orange pink (10R 7/ to fine grained, with black spots	n / very pale ora 4) saprolite we	inge (10YR 8/2) t, loose, very fine		SPT N=6bpf(@23.5ft.)		

S	DUT	HERN BOR	RING LOG	BORING SGWC-22/PZ-02S Page 2 of 2				
	(		PROJECT Piezometer Installation					
EAI	RTHSC	N COMPANY SERVICES, INC. CIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plant	Scher	er			
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		Neak Moderate Strong	COMMENTS			
		▼ Silty Sand (SM)(Con't)						
30		- mottled brown (10YR 4/3), very pale brown / very pale and pale red / moderate orange pink (10R 7/4) saprolite very fine to fine grained, with black spots	orange (10YR 8/2) wet, medium dense,		SPT N=12bpf(@28.5ft.)			
		- mottled very pale brown / very pale orange (10YR 8/2), very pale orange (10YR 8/2) and light brownish gray / pal (10YR 6/2) saprolite wet, medium dense, very fine to fine spots	very pale brown / le yellowish brown e grained, with black	· · · · · · · · · · · · · · · · · · ·	SPT N=20bpf(@33.5ft.)			
		- mottled light greenish gray (10BG 7/1), white (7.5YR 8/ 8/1) saprolite wet, dense, very fine to fine grained, micad weathered rock fragments	1) and white (10R œous, trace	· · · · · · · · · · · · · · · · · · ·	SPT N=42bpf(@38.5ft.)			
		- mottled brown (10YR 4/3), very pale brown / very pale and white (10R 8/1) saprolite wet, medium dense, very f micaceous, with black spots	orange (10YR 8/2) ine to fine grained,		SPT N=27bpf(@43.5ft.)			
- DALABASE (401 - 8/2/12/		- mottled brown (10YR 4/3), very pale brown / very pale and white (10R 8/1) saprolite wet, dense, very fine to fine micaceous, with black spots	orange (10YR 8/2) e grained,		SPT N=43bpf(@48.5ft.)			
S2		Bottom of dorenole at 50.1 feet.						

	RE WELL CO	CORD OF	WEL	L: SGWC-22/PZ-02S PAGE 1 OF 2 <u>ECS38467</u>
SOUTHERN COMPANY SERVICES, INC.		PROJECT Piezometer Installation	1	
EARTH SCIENCE AND ENVIRONMENTAL ENGIN	IEERING	LOCATION Plant Scherer		
DATE STARTED <u>1/21/2015</u> COMPLETED _	1/22/2015 <b>GROU</b>	ND ELEVATION 515.4 ft	COORDINATI	ES N 1115540.08 E 2403001.81
CONTRACTOR Civil Field Services	METHOD Hollow	Stem Auger		CME550
DRILLED BY T. Milam LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING D	<b>DEPTH</b> <u>50.1 ft.</u>
GROUND WATER DEPTH: DURING _25.5 ft.	COMP. 25.5 ft.	_ DELAYED _24.51 ft. after 24 hrs		
NOTES				
	WELL DATA			COMMENTS
Protective aluminum of 4-foot square concrete Top of casing Elev. =	over with bollards pad 518.02			
ELEV. Strata			ELEV. (DEPTH)	
Surface Seal: cor	crete			
			(2.0)	
Annular Fill: Cem	ent-Bentonite Grout -	4 bags Typel I/II Portland Cement, 9	4	
δ <u> 492.4        </u> ⟩≫				



S	SOUTHERN LOG OF TEST BORING SGWC-23/PZ-04I PAGE 1 OF 2 ECS3846									
			CT Piez	ometer	Installation					
EA	UTHE RTH S	RN COMPANY SERVICES, INC.	<b>ION</b> Plai	nt Sche	prer					
C L										
	DATE STARTED 1/29/2015 COMPLETED 2/3/2015 SURF. ELEV. 520.0 COORDINATES: N 1116693.80 E 2402131.07									
CON.	CONTRACTOR _Civil Field Services EQUIPMENT _CME550 METHOD _Hollow Stem Auger; HQ Rock Core									
	LED B	Y T. Milam LOGGED BY S. Baxter CHECKE	D BY <u>L</u> .	Millet	ANGLE BEARING					
	BORING DEPTH _49.7 ft GROUND WATER DEPTH: DURING _34.9 ft COMP33.1 ft DELAYED _33.9 ft. after 24 hrs									
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	feak oderate trong	COMMENTS					
		Sandy Silt (ML)		<u> </u>						
		- mottled red / moderate reddish brown (10R 4/6) and light red moderate reddish orange (10R 6/6) residuum moist, very stiff, micaceous	1		SPT N=24bpf(@3.5ft.)					
		Silty Sand (SM) - mottled white (10YR 8/1) saprolite dry, medium dense, very f grained, with trace coarse subangular grains	ine to fine		SPT N=20bpf(@8.5ft.)					
15		- mottled white (10YR 8/1) and red / moderate reddish brown saprolite dry, medium dense, very fine to fine grained, with trac subangular grains	(10R 4/6) e coarse		SPT N=14bpf(@13.5ft.)					
00 - ESEE UALABASE. 4011 - 2024		Sandy Silt (ML) - mottled greenish gray (10BG 5/1) saprolite moist, very stiff, w banding, with trace weathered rock fragments	hite		SPT N=17bpf(@18.5ft.)					
		<ul> <li>mottled greenish gray (10BG 5/1) and light red / moderate re orange (10R 6/6) saprolite moist, very stiff, with white streaking weathered rock fragments</li> </ul>	ddish ı, trace		SPT N=20bpf(@23.5ft.)					

MATERIAL DESCRIPTION Sandy Silt (ML) (Con't) Silty Sand (SM) - mottled greenish gray (10BG 5/1) and light red / modera orange (10R 6/6) saprolite moist, medium dense, very fine		Weak Moderate Strong	COMMENTS
MATERIAL DESCRIPTION Sandy Silt (ML) (Con't) Silty Sand (SM) - mottled greenish gray (10BG 5/1) and light red / modera orange (10R 6/6) saprolite moist, medium dense, very fine	ELEVATION	Weak Moderate REACTION Strong	COMMENTS
Sandy Silt (ML) (Con't) Silty Sand (SM) - mottled greenish gray (10BG 5/1) and light red / modera orange (10R 6/6) saprolite moist, medium dense, very fine		> 2 0	
Silty Sand (SM) - mottled greenish gray (10BG 5/1) and light red / modera orange (10R 6/6) saprolite moist, medium dense, very fine			
grained, with white streaking and black spots, trace weath fragments and mica	te reddish e to fine ered rock		SPT N=17bpf(@28.5ft.)(PL=NP; FC = 32.5%; Gravel = 0%) (MC = 23%; UW(d) = 96pcf; PERM. = 1.65E-4cm/sec
<ul> <li>✓ - mottled greenish gray (10BG 5/1) and light red / modera orange (10R 6/6) saprolite moist, dense, very fine to fine g streaking, with weathered rock fragments, trace mica</li> <li>PARTIALLY WEATHERED ROCK         <ul> <li>variegated with greenish gray (10BG 5/1) fine to coarse soft, highly weathered</li> </ul> </li> </ul>	te reddish jrained, black grain, very		SPT N=36bpf(@33.5ft.)
<ul> <li>GRANITIC GNEISS         <ul> <li>variegated with very pale brown / grayish orange (10YR grain, hard to very hard, slightly to moderately weathered, banded, 2 low angle-fractures (10 - 25d), 3 moderate-angl - 45d), 2 high-angle fractures (65 - 90d), with iron oxide st feldspar, mica</li> <li>variegated with dark gray (N3) coarse to medium grain, soft, moderately to highly weathered, inclined, banded, moderately (10 - 30d), 11 moderate-(20, 45d)</li> </ul> </li> </ul>	7/4) coarse massive, e fractures (30 aining, quartz, very soft to oderately angle fractures		
<ul> <li>- variegated with dark gray (N3) coarse to medium grain, soft, moderately to highly weathered, inclined, banded, mo fractured, 16 moderate-angle fractures (30 - 45d), 2 high-a (60 - 90d), with iron oxide staining, quartz, amphibole</li> </ul>	very soft to derately angle fractures		
	<ul> <li>✓ - mottled greenish gray (10BG 5/1) and light red / moderat orange (10R 6/6) saprolite moist, dense, very fine to fine g streaking, with weathered rock fragments, trace mica</li> <li>PARTIALLY WEATHERED ROCK         <ul> <li>variegated with greenish gray (10BG 5/1) fine to coarse soft, highly weathered</li> </ul> </li> <li>GRANITIC GNEISS         <ul> <li>variegated with very pale brown / grayish orange (10YR grain, hard to very hard, slightly to moderately weathered, banded, 2 low angle-fractures (10 - 25d), 3 moderate-angl - 45d), 2 high-angle fractures (65 - 90d), with iron oxide st feldspar, mica</li> <li>variegated with dark gray (N3) coarse to medium grain, soft, moderately to highly weathered, inclined, banded, mod fractured, 10 low-angle fractures (10 - 30d), 11 moderate-a (30 - 45d), with iron oxide staining, quartz, amphibole</li> </ul> </li> <li>variegated with dark gray (N3) coarse to medium grain, soft, moderately to highly weathered, inclined, banded, mod fractured, 10 low-angle fractures (30 - 45d), 2 high-a (60 - 90d), with iron oxide staining, quartz, amphibole</li> </ul>	<ul> <li>mottled greenish gray (10BG 5/1) and light red / moderate reddish orange (10R 6/6) saprolite moist, dense, very fine to fine grained, black streaking, with weathered rock fragments, trace mica</li> <li>PARTIALLY WEATHERED ROCK         <ul> <li>variegated with greenish gray (10BG 5/1) fine to coarse grain, very soft, highly weathered</li> <li>GRANITIC GNEISS             <ul> <li>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</li> <li>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</li> <li>variegated with dark gray (N3) coarse to medium grain, very soft to soft, moderately to highly weathered, inclined, banded, moderately fractures (30 - 45d), with iron oxide staining, quartz, amphibole</li> </ul> </li> </ul> </li></ul>	<ul> <li>motiled greenish gray (10BG 5/1) and light red / moderate reddish orange (10R 6/6) saprolite moist, dense, very fine to fine grained, black streaking, with weathered rock fragments, trace mica</li> <li>PARTIALLY WEATHERED ROCK         <ul> <li>variegated with greenish gray (10BG 5/1) fine to coarse grain, very soft, highly weathered</li> </ul> </li> <li>CRANITIC GNEISS         <ul> <li>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</li> <li>variegated with dark gray (N3) coarse to medium grain, very soft to soft, moderately to highly weathered, inclined, banded, moderately fractures (30 - 45d), with iron oxide staining, quartz, amphibole</li> </ul> </li> <li>variegated with dark gray (N3) coarse to medium grain, very soft to soft, moderately to highly weathered, inclined, banded, moderately fractures (30 - 45d), with iron oxide staining, quartz, amphibole</li> </ul>

sou	THERN COMF	ANY		R WELL (	ECORD OF	WEL	L: SGWC-23/PZ-04I PAGE 1 OF 2 <u>ECS38467</u>
SOUTH	ERN COMPA	NY SERVIC	ES, INC.		PROJECT Piezometer Insta	llation	
EARTH	SCIENCE AI	ND ENVIRO	NMENTAL ENG	INEERING	LOCATION Plant Scherer		
DATE STA	ARTED 1/2	9/2015	COMPLETED	<u>2/3/2015</u> GF	ROUND ELEVATION 520 ft		<b>S</b> <u>N 1116693.8 E 2402131.07</u>
CONTRAC	CTOR Civil	Field Service	es	METHOD Ho	llow Stem Auger; HQ Rock Core		CME550
DRILLED	BY T. Milan	1	LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING D	<b>EPTH</b> _49.7 ft.
GROUND V	WATER DEP	TH: During	<b>G</b> <u>34.9 ft.</u>	COMP. <u>33.1 ft.</u>	DELAYED 33.9 ft. after 24	<u>hrs</u> .	
NOTES							
BOREHOL	-E (£)			WELL DAT	ГА		COMMENTS
DATA	DEPTH (	Prot 4-fo Top	ective aluminum ot square concre of casing Elev. =	i cover with bollards ete pad = 523.10			
ELEV. Stra	ata ata					(DEPTH)	
			Surface Seal: co	oncrete			
	······································	· <b>V</b> · · · · ·				518.0	
SS.GPJ						(2.0)	
K LOG							
CHERE							
3PC/S(							
(TOP(C							
້ອງ 512.0							
	e A						
4:57 -							
29/20 1							
T - 10%	22						
SE GD							
VTABA							
<sup>ĭĭ</sup> <u>502.0</u> . ⊊			Annular Fill: Cei Ibs/each	ment-Bentonite Gro	ut - 5 bags Typel I/II Portland Cem	ent, 94	
CRD (I							
NOIT							
CONS							
MELL							
2012							



S	SOUTHERN A LOG OF TEST BORING BORING SGWA-24/PZ-07S PAGE 1 OF 2 ECS38467								
SO	UTHE	RN COMPANY SERVICES, INC. PROJECT Piez	ometer	Installation					
EAI	EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING       LOCATION Plant Scherer								
	STAF	TED 2/10/2015 COMPLETED 2/10/2015 SURE FLEV 489.3	(	COORDINATES: N 1118121 96 E 2400743 52					
CONT	CONTRACTOR _Civil Field Services								
DRILI	DRILLED BY _T. MilamLOGGED 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.								
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	eak HCL oderate REACTION	COMMENTS					
2	İΠΠ	Silt (ML)	<u>≥≥</u> ö						
5		- mottled strong brown (7.5YR 5/6) and light gray (10YR 7/1) residuum dry, very stiff		SPT N=24bpf(@3.5ft.)					
10		- mottled yellowish red (5YR 5/8) and light gray (10YR 7/2) saprolite moist, very stiff, with relict quartz, biotite		SPT N=17bpf(@8.5ft.)					
15		The second se		SPT N=32bpf(@13.5ft.)					
_20		- mottled dark yellowish brown (10YR 4/4) saprolite moist, very stiff, trace coarse silt and sand grains, biotite layering visible		SPT N=21bpf(@18.5ft.)					
25		<b>Silty Sand (SM)</b> - brown (7.5YR 5/4) saprolite moist, medium dense, very fine to fine grained, with biotite and relict quartz, trace weathered rock fragments		SPT N=24bpf(@23.5ft.)(LL=32; PI=8; FC = 24.6%; Gravel = 1%)					

							BORING SGWA-24/PZ-07S PAGE 2 OF 2
5	50U	TH	IERN LOG OF	TEST B	OR	ING	ECS38467
S E	OUTH ARTH	HERI I SCI	N COMPANY SERVICES, INC. IENCE AND ENVIRONMENTAL ENGINEERING	PROJECT	Piezo Plan	meter t Sche	Installation
	(III) GRAPHIC	LOG	MATERIAL DESCRIPTION		ELEVATION	Veak Aoderate Strong	COMMENTS
			Silty Sand (SM) (Con't)			> 2 0	
	191 191 191 191 191						(MC = 13.1%; UW(d) = 119.8pcf; PERM. = 2.49E-5cm/sec)
00 00 00 00 00 00 00 00 00 00 00 00 00			- mottled yellowish brown (10YR 5/8) and very dark b yellowish brown (10YR 2/2) saprolite moist, medium de fine grained, trace biotite layering and zones of platy g	rown / dusky ense, very fin reenish chlori	e to te		SPT N=18bpf(@28.5ft.)
			<ul> <li>mottled reddish brown (2.5YR 5/3) and olive brown (wet, dense, very fine to fine grained, trace quartz, coar biotite</li> </ul>	2.5Y 4/4) sap se silt, sand,	rolite		SPT N=36bpf(@33.5ft.)
	·····································		- mottled brown (10YR 5/3) and very pale brown (10Y wet, very dense, very fine to fine grained, trace biotite, feldspar Bottom of borehole at 40.0 feet	'R 8/4) saprol residual quar	ite rtz,		SPT N=50bpf(@38.5ft.)
APCGE							
SHOON							
24/15 07							
GDT - 6/.							
ABASE.							
SEE DAI							
- DG - E							
OLOGY							
VPLE GE							
55							

	SOUI	THERN COMP	ANY		R WELL (	ECORD OF CONSTRUCTION	WE	LL: SGWA-24/PZ-07S PAGE 1 OF 2 <u>ECS38467</u>
	SOUTHEI	RN COMPA	NY SERVI	CES, INC.		PROJECT Piezometer In	stallation	
	EARTH S	CIENCE AN	id envir(	ONMENTAL ENG	INEERING	LOCATION Plant Schere	er	
D	ATE STAI	RTED _2/10	)/2015	_ COMPLETED	_2/10/2015 GR	OUND ELEVATION 489.3 ft		<b>TES</b> <u>N 1118121.96 E 2400743.52</u>
C	ONTRACT	OR _ Civil F	Field Servio	ces	METHOD Holl	low Stem Auger	EQUIPMENT	CME550
DF	RILLED B	Y T. Milam	1	LOGGED BY	B. Smelser	CHECKED BY L. Millet	BORING	<b>DEPTH</b> _40 ft.
GF		ATER DEP	th: Duri	<b>IG</b> <u>33.5 ft.</u>	COMP. <u>12.1 ft.</u>	DELAYED 12.25 ft. after	<u>er 24 hr</u> s.	
	DIES							
в	DREHOLE				WELL DAT	A		COMMENTS
	DATA	HI .	Pro	otective aluminum	cover with bollards			
		DE	4-r To	p of casing Elev. =	= 492.38		ELEV.	
EL	.EV. Strata		-5- A				(DEPTH)	
				-Surface Seal: co	oncrete			
		• 5 ^					487.3 (2.0)	
SS.GP.							()	
IR LOO								
HERE		2						
PC/SC								
TOP/G								
DESK								
KER\$								
LAPAF		0						
SFP01								
ALTRO								
:57 - \\				_Annular Fill: Ce	ment-Bentonite Grou	ut - 4 bags Typel I/II Portland C	ement, 94	
/20 14				lbs/each				
- 10/29								
:.GDT		12						
ABASE								
E DAT.								
- ESE								
COM)								
D (NO		8						
N RCF								
OLTIO								
NSTRI							400.0	
8 <u>46</u> =					••••••		466.2 (23.1)	
12 WE		22	1	_Annular Seal: be lbs/each	entonite pellets - 1 B	ucket Pel Plug 3/8" coated pelle	ets, 50	
20		i N 🕅						

<sup>(</sup>Continued Next Page)

SOUT	H	ERN DMP		WELL	RECOR	D OF IRUCTION	vv N	ELL: SGWA-24/PZ-07S PAGE 2 OF 2 ECS38467
SOUTHER				VICES, INC.	PROJE	CT Piezometer I	Installation	
					LUCA	I ION Plant Schei	rer	
BOREHOLE DATA	(tt)			WELL D	ΑΤΑ			COMMENTS
	DEPTI		Pi 4- To	rotective aluminum cover with bollar foot square concrete pad	ds			
ELEV. Strata		(CONTI	NUED)				ELE\ (DEPTH	/. )  >1
이 이 아 이 아이 이 아이				- Eilter: Unimin EilterCil - 7 Dage #			(25.1	2
이 아이 이 아이 이 아이				- Filler. Offitting FillerSil - 7 bags #	TA, 50 IDS/eac	I	461	3
이 가 가 다 가 가 다 다 다							(27.7	)
이 가 가 이 가 가 지 하 가 지 하 가								
				Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack				
이 가지 신 아이	35							
다. 1914 같이 다.							451.	5
[[] [[] [[] [] [] [] [] [] [] [] [] [] [				—Sump:0.40 ft.				2 2 )
449.3	40							

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

SO EAI	SOUTHERNER       LOG OF TEST BORING       BORING SGWA-25/PZ-09S PAGE 1 OF 2         SOUTHERN COMPANY SERVICES, INC.       PROJECT _ Piezometer Installation         EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING       PROJECT _ Piezometer Installation								
DATE CONT DRILI BORI NOTE	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								
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION (eak	Inderate REACTION	COMMENTS				
5		Sandy Silt (ML) - mottled red (2.5YR 4/6) and bluish gray (10B 6/1) residuum moist, stiff, micaceous, trace clay and muscovite	<u></u>	0 6	SPT N=10bpf(@3.5ft.)				
10		- red (2.5YR 5/8) residuum dry, medium stiff, micaceous, trace clay			SPT N=6bpf(@8.5ft.)				
15		- mottled yellowish red / light brown (5YR 5/6) and light reddish brown light brown (5YR 6/4) residuum dry, medium stiff, trace mica	1/		SPT N=6bpf(@13.5ft.)				
20		- mottled yellow (10YR 7/8) and yellow (10YR 7/8) saprolite moist, st micaceous, with muscovite, biotite, hornblende	iff,		SPT N=9bpf(@18.5ft.)				
		- mottled strong brown (7.5YR 4/6) and yellow (10YR 7/8) saprolite moist, stiff, micaceous, with muscovite, residual quartz, felspar			SPT N=9bpf(@23.5ft.)				

s	SOUTHERNAL LOG OF TEST BORING BORING SGWA-25/PZ-09S PAGE 2 OF 2 ECS38467						
sou	UTHE	RN COMPANY SERVICES, INC. PROJECT <u>Pieze</u>	ome	eter	Installation		
EAF	RTH S	CIENCE AND ENVIRONMENTAL ENGINEERING LOCATION Plan	nt S	Sche	rer		
DGS/SCHERER LOGS/GF DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weak HCI	Moderate REACTION	COMMENTS		
		y Sandy Silt (ML) (Con't) ▼					
ROJECTSISCHERER ASH POND PIEZ/DRJ		- mottled brown (7.5YR 5/4) and very pale brown / very pale orange (10YR 8/2) saprolite moist, very stiff, micaceous			SPT N=18bpf(@28.5ft.)		
		<ul> <li>mottled dark yellowish brown (10YR 3/6) and yellow (10YR 7/8) saprolite wet, stiff, micaceous, trace muscovite, biotite, chlorite, hornblende, feldspar, residual quartz</li> </ul>			SPT N=15bpf(@33.5ft.) (MC = 53.6%; UW(d) = 66.1pcf; PERM. = 8.55E-5cm/sec)		
04 04 04 04 04 04 04 04 04 04 04 04 04 0		- mottled light gray (2.5Y 7/1), reddish brown / moderate brown (5YR 4/4) and dark olive brown (2.5Y 3/3) saprolite wet, very stiff, micaceous, trace clay, chlorite, muscovite, biotite, residual quartz, hornblende, feldspar			SPT N=22bpf(@38.5ft.)		
9 DAPS 45		<ul> <li>mottled grayish olive (10Y 4/2), strong brown (7.5YR 5/8) and weak red</li> <li>/ pale reddish brown (10R 5/4) saprolite wet, very stiff, micaceous, trace clay, muscovite, biotite, chlorite, residual quartz, feldspar</li> <li>Bottom of borehole at 45.0 feet.</li> </ul>			SPT N=29bpf(@43.5ft.)		
SIMPLE GEOLOGY LOG - ESEE DATABASE GUI - 0/28 -							

	SOUT	HERN COMF	ANY		RE WELL CO	CORD OF	WEL	L: SGWA-25/PZ-09S PAGE 1 OF 2 <u>ECS38467</u>
	SOUTHER		NY SERV	CES. INC.		PROJECT Piezometer Installation	n	
	EARTH SO	CIENCE AI	ND ENVIR	ONMENTAL ENG	GINEERING	LOCATION Plant Scherer		
	DATE STAF	TED _ 2/1	7/2015	_ COMPLETED	<u>2/18/2015</u> GROU	IND ELEVATION 523.2 ft		ES <u>N 1120555.28 E 2400857.08</u>
	CONTRACT	OR <u>Civil</u>	Field Servi	ces	METHOD Hollow	Stem Auger		CME550
	DRILLED BY	T. Milan	1	LOGGED BY	B. Smelser	CHECKED BY L. Millet	BORING D	<b>DEPTH</b> 45 ft.
ſ	GROUND W	ATER DEP	TH: DURII	NG <u>33.5 ft.</u>	<b>COMP.</b> <u>25.9 ft.</u>	_ DELAYED _25.5 ft. after 24 hrs.		
Ľ		1					1	
	BOREHOLE	£						COMMENTS
	DATA	E I	Pr	otective aluminum	cover with bollards			
		DEP-	4-f	oot square concre	ete pad			
	ELEV. Strata			p or casing Elev.	- 520.49		ELEV. (DEPTH)	
Ī		· .	3.					
		·····		⊢Surface Seal: c	oncrete		504.0	
_				•••••			(2.0)	
SS.GP								
SLOG								
IEREF								
C/SCH								
⊃/GP(								
SKT0F		·						
\$\DES								
KER								
APAF								
:P01/L								
TRCF								
- NAL								
14:57								
9/20								
- 10/2								
.GDT		<u></u>						
BASE				_Annular Fill: Ce	ment-Bentonite Grout -	4 bags Typel I/II Portland Cement,	94	
DATA				lbs/each				
SEE								
м) - Е								
000								
N) D								
N RCF								
CTIOI								
STRU								
CON								
VELL								
2012 \		32 I						



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

## **APPENDIX A**

AP-1 Piezometer

Well Logs

SOUTHERN BORING LOG											
so	UTHER	N COMPANY SERVICES, INC.	PROJECT Piezor	neter Ir	nstallation						
EA	RTH SC	EIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plant	t Scher	er						
DATE	E STAR	TED _1/22/2015 COMPLETED _1/27/2015 GF	ROUND ELEVATION _5	14.8 ft	COORDINATES N 1115544.85 E 2402990.76						
CONT	FRACT	OR _Civil Field Services METHOD _Ho	llow Stem Auger; HQ Ro	w Stem Auger; HQ Rock Core EQUIPMENT CME550							
DRILLED BY       T. Milam       LOGGED BY       S. Baxter       CHECKED BY       L. Millet       BORING DEPTH       84.3 ft.         OPOLIND WATER DEPTH       00 54 ft       00 54 ft											
NOTE	NOTES										
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	/eak HCL loderate REACTION trong	COMMENTS						
		Silty Clay (CL)		<u>&gt; ≥ 0</u>							
		- mottled dusky red / dark reddish brown (10R 3/4), ve 7/3) and yellowish brown / moderate yellowish brown ( very stiff	ery pale brown (10YR (10YR 5/4) fill moist,		SPT N=20bpf(@3.5ft.)						
		- mottled dusky red / dark reddish brown (10R 3/4), ve 7/3) and yellow / pale yellowish orange (10YR 8/6) fill sand	ery pale brown (10YR moist, very stiff, trace		SPT N=29bpf(@8.5ft.)						
P011LAPARKER\$\DESKTOP		- mottled dusky red / dark reddish brown (10R 3/4) an (10YR 7/3) fill moist, stiff	d very pale brown		SPT N=10bpf(@13.5ft.)						
GDT - 8/27/20 08:40 - WAL IKUT		Sandy Silt (ML) - mottled yellow / pale yellowish orange (10YR 8/6), ye orange (10YR 8/6) and yellow / pale yellowish orange moist, stiff, micaceous, with black spots	ellow / pale yellowish (10YR 8/6) saprolite		SPT N=9bpf(@18.5ft.)						
5Y LOG - ESEE DATABASE		<ul> <li>✓ Silty Sand (SM)         <ul> <li>mottled yellow / pale yellowish orange (10YR 8/6), ye orange (10YR 8/6) and yellow (10YR 7/8) saprolite w very fine to fine grained, with black spots, trace rock fr</li> </ul> </li> </ul>	ellow / pale yellowish /et, medium dense, /agments		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)						
SIMPLE GEOLOG		<ul> <li>mottled yellow / pale yellowish orange (10YR 8/6), ye orange (10YR 8/6) and yellow (10YR 7/8) saprolite w very fine to fine grained, with black and gray streaks, t weathered rock fragments</li> </ul>	ellow / pale yellowish vet, medium dense, race mica and		SPT N=12bpf(@28.5ft.)						

S	OUT	BOR	ING LOO	3		BORING PZ-02I Page 2 of 3
SO EA	UTHER RTH SC	COMPANY SERVICES, INC. IENCE AND ENVIRONMENTAL ENGINEERING	PROJECT       Piezometer Installation         LOCATION       Plant Scherer			
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		ELEVATION	Weak Moderate Strong REACTION	COMMENTS
		Silty Sand (SM)( <i>Con't</i> ) - mottled brown (10YR 4/3), reddish gray (10R 6/1) and v saprolite wet, medium dense, very fine to fine grained, with mica and weathered rock fragments	vhite (2.5Y 8/1 h black spots, tr	) ace		SPT N=13bpf(@33.5ft.)
40		- mottled light gray (10R 7/1), white (10R 8/1) and white ( saprolite wet, medium dense, very fine to fine grained, wit mica and weathered rock fragments	(10YR 8/1) h black spots, tr	ace		SPT N=20bpf(@38.5ft.)(PL=NP; FC = 40.2%; Gravel = 0%) (MC = 23.2%; UW(d) = 100.2pcf; PERM. = 6.71E-5cm/sec)
Гd9 45		- mottled white (10YR 8/1), pinkish white / grayish orange and yellow / pale yellowish orange (10YR 8/6) saprolite w fine to fine grained, with black spots, trace weathered rock	e pink (10R 8/2) et, very dense, k fragments	very		SPT N=70bpf(@43.5ft.)
		- variegated gray (2.5Y 5/1) and white (10R 8/1) saprolite very fine to fine grained, with rounded white medium grain fragments, trace weathered rock fragments	e wet, very dens ied quartz	se,		SPT N=86bpf(@48.5ft.)
20 08:40 - NALTRCFP01\LAP		- mottled gray (10YR 5/1) and white (10R 8/1) saprolite very fine to fine grained, white streaking with black spots, rock fragments	wet, very dense, partially weathe	red		SPT N=77bpf(@53.5ft.)
SEE DATABASE.GDT - 8/27/ 9		- mottled gray (10YR 5/1) and white (10R 8/1) saprolite very fine to fine grained, white banding with black spots, p rock fragments	wet, very dense, artially weathere	ed		SPT N=50bpf(@58.5ft.)
65 65		- Attempted to start coring, no recovery				

					BORING PZ-02I			
S	DUT	HERN BO	RING LOG					
SO	UTHER	N COMPANY SERVICES, INC.	PROJECT Piezor	PROJECT Piezometer Installation				
EAI	RTH SC	IENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plant	Schere	91			
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak Moderate Strong	COMMENTS			
	4.0. 0.0. 0.0.	Partially Weathered Rock (PWR)(Con't) - mottled gray (10YR 5/1) and white (10R 8/1) saproli very fine to coarse grained banded white with black sp	te wet, very dense, ots		SPT N=50bpf(@68.5ft.)			
		<b>BIOTITE GNEISS</b> - dark gray (N3) and grayish black (N2) fine to mediur medium hard, moderately to highly weathered, inclined angle fractures (30 - 45d), oxidized fractures at 69.3' an	n grain, soft to , banded, 3 moderate- nd 70.6'					
		- dark gray (N3) and grayish black (N2) medium to co hard, slightly to moderately weathered, inclined, bander (10 - 25d), 14 moderate-angle fractures (30 - 45d), 1 h - 90d)	arse grain, medium d, 1 low-angle fracture igh-angle fracture (70					
80 		- dark gray (N3) and grayish black (N2) medium to co hard, slightly to moderately weathered, inclined, banded fractures (10 - 25d), 8 moderate-angle fractures (30 - 4	arse grain, medium d, 4 low-angle 45d)					
		Bottom of borehole at 84.3 feet.						
	-							
95	_							
ASE.G								
100 	-							
יין ארריי אר 105								
7	1							

1	SOU	THE CO	RN 4 MPA		ſ	WEL	RE L C	CORD OF DNSTRUCTIO	N	WELL: PZ-02I PAGE 1 OF 3 <u>ECS38467</u>
	SOUTHE	RN CC	MPANY	' SER	VICES, INC.			PROJECT Piezomete	er Installation	
	EARTH S	CIENC	CE AND	ENV	IRONMENTAL ENG	GINEERING		LOCATION Plant Sch	herer	
DA		RTED	1/22/2	015		<b>)</b> <u>1/27/2015</u>	GROU	ND ELEVATION 514.8	B ft COORDI	NATES N 1115544.85 E 2402990.76
cc	ONTRAC	OR _	Civil Fiel	ld Sei	rvices	METHOD	Hollow	Stem Auger; HQ Rock (	Core EQUIPMEI	NTCME550
DR	ILLED B	Y <u>T.</u>	Milam		LOGGED BY	S. Baxter		CHECKED BY L. Mille	et BORI	NG DEPTH _84.3 ft.
GR		ATER	DEPTH	: DUI	<b>RING</b> 23.51 ft.	_ COMP25.6	1 ft.	_ <b>DELAYED</b> _25.41 ft.	<u>after 24 hr</u> s.	
	IES									
во		(£f)				WELL I	ΟΑΤΑ			COMMENTS
		DEPTH			Protective aluminun 4-foot square concr Top of casing Elev.	n cover with boll ete pad = 517.56	ards			
ELI	EV. Strata			2007090	1				ELE (DEPT	V. H)
			3 ^ • •	· 5 · ·	I≪−Surface Seal: c	concrete			512	.8
				Ŵ					(2.	) )
SS.GP		4K								
RLOO		20								
HERE		j)	×	$\gg$						
PC/SC		j								
TOP/G		]{		$\mathbb{K}$						
DESK										
KER\$										
APAF										
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ALTRC				$\bigotimes$						
26 - 1/		12								
20 14:		JR								
10/29	6.8	Ч Ч								
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BASE		5								
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2 WELL	1.) 1.1		$\gg$							
2012			$\times$	$\bigotimes$	3					



<sup>(</sup>Continued Next Page)
	F WELL	RECORD OF CONSTRUCTION	WELL: PZ- PAGE 3 ( <u>ECS38</u>	<b>021</b> DF 3 3467
SOUTHERN COMPANY SERVICES,	INC.	PROJECT <u>Piezometer Installation</u>	n	
		LOCATION Plant Scherer		
	WELL DA	TA	COMMENTS	
Protective CL 4-foot so	/e aluminum cover with bollard quare concrete pad	s		
ELEV. Strata (CONTINUED)	asing Elev. = 517.56		ELEV. (DEPTH)	
445.8 9.5.9 9.4.9.			445.8	
			(00.0)	
Filte	ər: Unimin FilterSil - 5 Bags #1	A, 50 lbs/each		
			440.9 (73.9)	
We	II: 2" OD PVC (SCH 40)			
	een. to n. pre-pack			
430 5			430.9	
	<u>ηρ:0.40 π.</u>			

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:56 - \\ALTRCFP01\LAPARKER\$\DESKTOP\GPC\SCHERER LOGS.GPJ

S	OUT	HERN BO	RING LOG		BORING PZ-03S Page 1 of 2
		COMPANY			
S	OUTHER	N COMPANY SERVICES, INC.		<u>meter Ir</u> t Scher	er
DAT		TED <u>1/28/2015</u> COMPLETED <u>1/29/2015</u> GR	OUND ELEVATION 5	514.4 ft	COORDINATES N 1116085.04 E 2402533.8
cor	NTRACT	OR <u>Civil Field Services</u> METHOD Hol	low Stem Auger		EQUIPMENT CME550
DRI	LLED BY	T. Milam LOGGED BY S. Baxter	CHECKED BY _L.	Millet	BORING DEPTH 50 ft.
GRC		<b>TER DEPTH: DURING</b> <u>48.5 ft.</u> <b>COMP.</b> <u>28.31 ft.</u>	<b>DELAYED</b> <u>30.1</u>	1 ft. aft	<u>er 24 hr</u> s.
NOT	ES				
DEPTH	(III) GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Veak HCL Adderate REACTION trong	COMMENTS
		Sandy Silt (ML)		<u>&gt; ≥ 0</u>	
  5 		- mottled red / moderate reddish brown (10R 4/6) and (2.5Y 6/4) fill moist, stiff, clayey, trace mica	light yellowish brown		SPT N=15bpf(@3.5ft.)
RKER\$\DESKTOP\GPC\SCHEREF		- mottled red / moderate reddish brown (10R 4/6) sapr with black spots, trace mica	olite moist, very stiff,		SPT N=18bpf(@8.5ft.)
20 08:40 - \\ALTRCFP01\LAPAF		- mottled white (10YR 8/1) and light yellowish brown moist, stiff, trace mica, weathered rock, residual quartz	(2.5Y 6/4) saprolite z		SPT N=9bpf(@13.5ft.)
Y LOG - ESEE DATABASE.GDT - 8/27		- mottled dusky red / dark reddish brown (10R 3/4) and saprolite moist, medium stiff, with black streaks, trace fragments	d yellow (10YR 7/8) weathered rock		SPT N=8bpf(@18.5ft.)
SIMPLE GEOLOG)		- mottled brown (10YR 5/3), black (10YR 2/1) and wh saprolite moist, medium stiff, trace quartz and partially fragments	ite (10YR 8/1) weathered rock		SPT N=5bpf(@23.5ft.)

					BORING PZ-03S Page 2 of 2
S	DUI	COMPANY BORI	NG LOG		
SO	UTHE	RN COMPANY SERVICES, INC.	PROJECT Piezor	neter Ir	nstallation
EAI	RTH S	CIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plant	Schere	er
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak Moderate Strong	COMMENTS
		Sandy Silt (ML)(Con't)			
30		<ul> <li>T</li> <li>- mottled very pale brown / very pale orange (10YR 8/2) sa white streaking, trace residual quartz and partially weathere</li> <li>T</li> </ul>	orolite moist, stiff, ed rock fragments		SPT N=11bpf(@28.5ft.)
35		- mottled very pale brown / very pale orange (10YR 8/2) an • 7/8) saprolite moist, stiff, white streaking, with partially wea • fragments	d yellow (10YR thered rock		SPT N=9bpf(@33.5ft.)
40		- mottled very pale brown / very pale orange (10YR 8/2) sa stiff, white and orange streaking with black spots, with part rock fragments	orolite moist, very ally weathered		SPT N=19bpf(@38.5ft.)
		- mottled light brownish gray / pale yellowish brown (10YR yellowish brown (10YR 5/8) saprolite moist, hard, white an streaking, with partially weathered rock fragments	6/2) and d orange		SPT N=34bpf(@43.5ft.)
		 - mottled gray (10YR 5/1) saprolite wet, very hard, white si partially weathered rock fragments	reaking, with		SPT N=50bpf(@48.5ft.)
		Bottom of borehole at 50.0 feet.			
	•-				
55					

POLICE T Placement Installation LOCATION Plant Scheer DATE STARTED 1/28/2015 COMPLETED 1/28/2015 COUND ELEVATION 514.41. COORDINATES IN 111905.04 E 2402333.8 CONTRACTOR _Out Flatd Startos ONTEX	SOUTI	HERN A			RI WELL C	ECORD OF CONSTRUCTION		WELL: PZ-03S PAGE 1 OF 2 <u>ECS38467</u>
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING     LOCATION <u>Field Scheve</u> DATE STARTED 1/29/2015 COMPLETED 1/29/2015 GROUND ELEVATION 514.4.ft COORDINATES N1110085.04 E 2402533.8 CONTRACTOR CARE Factoring LOGGED BY S. Bader OFF Degree Control Holding Start Auger EQUIPMENT COMESCO DRILLED BY T. Maam LOGGED BY S. Bader OFF Degree Control Holding Start Auger EQUIPMENT COMESCO DRILLED BY T. Maam LOGGED BY S. Bader Control Holding Start Auger Control Holding Start Contr	SOUTHERN		Y SERVI	CES, INC.		PROJECT Piezometer Instal	llation	
DATE STARTED 1/282015 COMPLETED 1/292015 GROUND ELEVATION 514.4 ft COORDINATES N111608-04 E24025338 CONTRACTOR Civil Field Services METHOD Holew Sem Auger EQUIPMENT OME550 DRULED BY T. Milem LOGOGD BY S. Bader OCCAPT OF COND 30.11 ft alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. alter 24 trs.  SOCKUP WATER DEPTH: DURING THE COMP. 28.31 ft. DELAYED 30.11 ft. alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. alter 24 trs.  SOCKUP WATER DEPTH: DURING 49.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. alter 24 trs.  SOCKUP WATER DEPTH: DURING 59.5 ft. COMP. 28.31 ft. DELAYED 30.11 ft. alter 24.5 ft. COMP. 30.5	EARTH SC	IENCE AND	) ENVIRO	ONMENTAL ENG	BINEERING	LOCATION Plant Scherer		
CONTRACTOR     Cold     METHOD     Holdow Stem Auger     EQUIPMENT     CALESSO       DRELED BY	DATE START	red <u>1/28/2</u>	2015		1/29/2015 GR	OUND ELEVATION _514.4 ft		N 1116085.04 E 2402533.8
DRILLED BY T. Milem       LOGGED BY S. Baster       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 tes.       COMMENTS         BORENCE DATA       WELL DATA       COMMENTS         BORENCE DATA       Protective aluminan concrete rel to state	CONTRACTO	<b>DR</b> <u>Civil Fie</u>	eld Servio	ces	METHOD Holle	ow Stem Auger	EQUIPMENT _CME	550
BOROND WATER DEPTH: DURING 48.5 ftOOMP. 28.31 ftDELAYED 30.11 ft. after 24 bys.         NOTES         BOROND E         BOROND E         CLV. Block         EXV. Blo	DRILLED BY	T. Milam		LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING DEPT	<b>H</b> _50 ft.
NOTES  BOREHOLE BUILT BU	GROUND WA	TER DEPTH	1: DURIN	<b>IG</b> <u>48.5 ft.</u>	<b>COMP.</b> <u>28.31 ft.</u>	DELAYED _30.11 ft. after 2	<u>4 hr</u> s.	
DOREHOLE     Image: Comment of the aluminum cover with balands       HEV     None         Protective aluminum cover with balands       HOME of square councele paid       Comment of council paid       Image: Counc	NOTES							
DATA       ELEV. Brend       Protective aluminum cover with balands         FLEV. Brend       Fundation covertex         FLEV. Brend <th>BOREHOLE</th> <th>(<del>I</del>)</th> <th></th> <th></th> <th>WELL DAT</th> <th>A</th> <th></th> <th>COMMENTS</th>	BOREHOLE	( <del>I</del> )			WELL DAT	A		COMMENTS
LEV. Both         Image: Concrete led prof casing Elev. = 517.29 (ECPTH           Image: Concrete led prof casing Elev. = 517.29 (ECPTH         Image: Concrete led prof casing Elev. = 512.4 (2.0)           Image: Concrete led prof casing Elev. = 517.29 (2.0)         Image: Concrete led prof casing Elev. = 512.4 (2.0)           Image: Concrete led prof casing Elev. = 512.4 (2.0)         Image: Concrete led prof casing Elev. = 512.4 (2.0)           Image: Concrete led prof casing Elev. = 517.29 (2.0)         Image: Concrete led prof casing Elev. = 512.4 (2.0)           Image: Concrete led prof casing Elev. = 517.29 (2.0)         Image: Concrete led prof casing Elev. = 512.4 (2.0)           Image: Concrete led prof casing Elev. = 517.29 (2.0)         Image: Concrete led prof casing Elev. = 512.4 (2.0)           Image: Concrete led prof casing Elev. = 517.29 (2.0)         Image: Concrete led prof casing Elev. = 512.4 (2.0)           Image: Concrete led prof casing Elev. = 517.29 (2.0)         Image: Concrete led prof casing Elev. = 517.29 (2.0)           Image: Concrete led prof casing Elev. = 517.29 (2.0)         Image: Concrete led prof casing Elev. = 517.29 (2.0)           Image: Concrete led prof casing Elev. = 517.29 (2.0)         Image: Concrete led prof casing Elev. = 517.29 (2.0)           Image: Concrete led prof casing Elev. = 517.29 (2.0)         Image: Concrete led prof casing Elev. = 517.29 (2.0)           Image: Concrete led prof casing Elev. = 517.29 (2.0)         Image: Concrete led prof casing Elev. = 517.29 (2.0)           Image	DATA		Pro	otective aluminun	n cover with bollards			
LUCV         Base Automation         (DEPTH)           Image: State Automation         View State			4-t To	oot square concr p of casing Elev.	ete pad = 517.29		ELEV	
1       1	ELEV. Strata	• <b>T</b> • • •	-T3 .				(DEPTH)	
512.4 (2.0)				-Surface Seal: c	oncrete			
Amular Fil: Cement-Bentonite Grout - 7 bags Typel //II Portiand Cement, 94			· 5 , • • • • • • • • • • • • • • • • • •				512.4	
Arnular Fill: Cement-Bentonite Grout - 7 bags Typel //II Portland Cement, 94	S.GPJ						(2.0)	
Annular Fil: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94	RLOO							
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94		2						
Annular Fil: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94	PC/SC							
Annular Fil: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94 b// 1	TOP/G							
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94 Ibs/each								
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94	ХК П Х Я Я П Х Я Я П Х Я Я П Х Я Я В Х Я Я В Х Я Я В Х Я Я Я Я Я Я Я Я Я Я Я Я Я Я Я Я Я Я Я							
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94 bs/each	ILAPA	-						
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94 bs/each	CFP01							
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94 Ibs/each	ALTR							
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94	4:57 - \							
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94	9/20 1							
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94 	- 10/2							
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94 Ibs/each	E.GD1							
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94 Ibs/each	ABAS							
Annular Fill: Cement-Bentonite Grout - 7 bags Typel I/II Portland Cement, 94 bs/each	E DAT							
	)- ESE			_Annular Fill: Ce	ement-Bentonite Grou	t - 7 bags Typel I/II Portland Ceme	ent, 94	
	COM COM			ibs/each				
	ND (N	8						
	DN RC							
	NSTR							
	012 WI							



S	DUT	HERN BOF	RING LOG		BORING PZ-05I Page 1 of 2		
80			PROJECT Piezometer Installation				
EAI	RTH SC	IENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plan	t Scher	er		
DATE	STAR	TED 2/3/2015 COMPLETED 2/4/2015 GRO		520 6 ft	COORDINATES N 1117484 15 E 2401816 71		
CONT	RACTO	OR _Civil Field Services METHOD _Hollow	w Stem Auger; HQ R	ock Cor	e EQUIPMENT <u>CME550</u>		
DRILL	ED BY	T. Milam LOGGED BY S. Baxter	_ CHECKED BY _L.	Millet	BORING DEPTH 47.2 ft.		
GROU	ND WA	TER DEPTH: DURING35.1 ft.         COMP41.5 ft.	<b>DELAYED</b> 36.8	8 ft. afte	<u>r 24 hrs</u> .		
NOTE				Z			
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	leak HCL loderate REACTIC trong	COMMENTS		
	Ш	Silt (ML)		<u>&gt; 2 0</u>			
		- mottled red (10R 4/8) and light red / moderate reddish fill moist, stiff, trace mica, clay, and rock fragments	orange (10R 6/6)		SPT N=9bpf(@3.5ft.)		
3\$/DESKTOP/GPC/SCHERER LOC	  	- mottled white (10YR 8/1) and yellowish brown (10YR stiff, trace sand and rock fragments	5/8) saprolite moist,		SPT N=11bpf(@8.5ft.)		
8:40 - \\ALTRCFP01\LAPARKEF		- mottled white (10YR 8/1) and yellowish brown (10YR stiff, trace sand and rock fragments	5/6) saprolite moist,		SPT N=10bpf(@13.5ft.)		
0G - ESEE DATABASE.GDT - 8/27/20 (		- mottled gray (10YR 6/1) and white (10R 8/1) saprolite black streaking, micaceous, trace sand and rock fragmen	r moist, stiff, with hts		SPT N=9bpf(@18.5ft.)		
SIMPLE GEOLOGY LI		- mottled white (10YR 8/1) and very dark grayish brown saprolite moist, very stiff, with black streaking, trace mica fragments	(10YR 3/2) a, sand, and rock		SPT N=25bpf(@23.5ft.)		

SC	DUT	HERN ABORI	NG LOG		BORING PZ-051 Page 2 of 2
		COMPANY		t	
SOL	JTHERI	N COMPANY SERVICES, INC. IENCE AND ENVIRONMENTAL ENGINEERING	PROJECT Plezon	Scher	nstallation
				z	
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak Moderate Strong REACTIO	COMMENTS
	Ш	Silt (ML)(Con't)			
		- mottled very pale brown / very pale orange (10YR 8/2) and (10YR 4/1) saprolite moist, stiff, with black streaking, micad fragments	d dark gray ceous, trace rock		SPT N=12bpf(@28.5ft.)
35		- mottled white (10YR 8/1) saprolite moist, very hard, with micaceous, trace sand, weathered rock fragments, and res	black streaking, idual quartz		SPT N=86bpf(@33.5ft.)
,	40.0.4 0.0.0	PARTIALLY WEATHERED ROCK	4		
		<ul> <li>GREISS</li> <li>- variegated with medium gray (N5) medium to coarse grai hard, not weathered, inclined, blastoporphyritic, banded, 11 (10 - 20d), with amphibole, quartz, biotite</li> </ul>	n, hard to very ow angle fracture		
		<ul> <li>variegated with medium gray (N5) medium to coarse grai hard, not weathered, inclined, blastoporphyritic, banded, 1 I</li> <li>(10 - 30d), 6 moderate-angle fractures (30 - 45d), with amp biotite</li> </ul>	n, hard to very ow-angle fracture hibole, quartz,		Lost circulation
		- variegated with medium gray (N5) medium to coarse grai hard, slightly to moderately weathered, inclined, pitted, sligh low-angle fracture (10 - 30d), with amphibole, quartz, biotite staining	n, medium hard to htly fractured, 1 e, iron oxide		
<u>.</u>		Bottom of borehole at 47.2 feet.			
50	-				
55	1				

SOUTI	HERN A	NY		WEL	RE L C	CORD OF		WELL: PZ-05I PAGE 1 OF 2 ECS38467
SOUTHERN		SERVICI	ES, INC.			PROJECT Piezometer Insta	llation	
EARTH SCI	IENCE AND	ENVIRON	IMENTAL ENG	INEERING		LOCATION Plant Scherer		
DATE START	<b>FED</b> <u>2/3/20</u>	15	COMPLETED	2/4/2015	GROU	IND ELEVATION 520.6 ft		TES <u>N 1117484.15 E 2401816.71</u>
CONTRACTO	<b>DR</b> <u>Civil Fiel</u>	ld Service	6	METHOD	Hollow	Stem Auger; HQ Rock Core		CME550
DRILLED BY	T. Milam		LOGGED BY	S. Baxter		CHECKED BY L. Millet	BORING	<b>DEPTH</b> 47.2 ft.
GROUND WAT	TER DEPTH	: DURING	35.1 ft.	COMP. 41.5	ft.	DELAYED 36.8 ft. after 24	hrs.	
NOTES								
BOREHOLE	(ft)			WELL	DATA			COMMENTS
DATA		Prote	ctive aluminum	cover with boll	ards			
	Ë	4-foo Top o	t square concre of casing Elev. =	ete pad = 523.26				
ELEV. Strata			-				ELEV. (DEPTH)	
	₩ ₩	·B ···	Surface Seals or	oncrete				
	• 5 •	·	Sullace Seal. Co	DICIELE			518.6	
La			• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •			(2.0)	
O.G.S.O.								
ERLO								
CHER	2							
BPC/S								
TOP/G								
DESK								
(ER\$								
APAR								
PO1/L								
TRCF								
- // AL								
14:57								
/29/20								
- T0								
E C C								
TABA								
EE DA		<b>K</b> -'	Annular Fill: Cei	ment-Bentonite	Grout -	5 bags Typel I/II Portland Cem	ent, 94	
- ESE			DS/EdCI1					
COM								
ON)	8							
VOILO								
CON								
2012	52							

(Continued Next Page)



S	DUTH C		BORI	RING LOG BROJECT Discometer Installation			
SOI EAI	UTHERN RTH SCII	COMPANY SERVICES, INC. ENCE AND ENVIRONMENTAL ENGINEERII	NG	LOCATION Plan	t Scher	rer	
DATE	START	ED _2/4/2015         COMPLETED _2/4/20           R _Civil Field Services         ME	15 GROUN	ID ELEVATION _5	529 ft	COORDINATES <u>N 1117912.01 E 2401936.55</u>	
DRILL GROU NOTE	LED BY ND WAT S	T. Milam LOGGED BY S. Bax TER DEPTH: DURING 43.15 ft. COMP	ter	CHECKED BY <u>L</u> . DELAYED <u>42.1</u>	Millet 1 ft. af	BORING DEPTH <u>54.8 ft.</u>	
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCR	RIPTION	ELEVATION	Veak HCL <sup>doderate</sup> REACTION strong	COMMENTS	
		Sandy Silt (ML)					
		- strong brown (7.5YR 5/8) residuum mois	st, stiff			SPT N=11bpf(@3.5ft.)	
SCHERER LOGS. GPJ		- yellow (10YR 7/8) residuum moist, stiff				SPT N=14bpf(@8.5ft.)	
APARKER\$/DESKTOP/GPC		- yellow (10YR 7/8) saprolite moist, very s fragments	tiff, trace weathe	ered rock		SPT N=16bpf(@13.5ft.)	
08:27/20 08:40 - \\ALTRCFP01\L		- dark yellowish brown (10YR 4/4) saprolit fragments	te moist, stiff, tra	ce weathered rock		SPT N=15bpf(@18.5ft.)	
SEE DATABASE.GDT - 2 		Silty Sand (SM) - mottled dark grayish brown / dark yellowis moist, medium dense, very fine to fine grai weathered schist	sh brown (10YR ned, trace residu	4/2) saprolite al quartz, biotite,		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)	
SIMPLE GEOLOGY LOG - EK		- mottled dark grayish brown / dark yellowis moist, very dense, very fine to fine grained weathered schist	sh brown (10YR , trace residual q	4/2) saprolite uartz, biotite,		SPT N=55bpf(@28.5ft.)	



## **BORING LOG**

**BORING PZ-06S** 

Page 2 of 2

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT <u>Piezometer Installation</u>

			Sche	
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weak HCL Moderate REACTION	COMMENTS
35		Silty Sand (SM)( <i>Con't</i> ) <ul> <li>light greenish gray (10BG 7/1) saprolite moist, very dense, very fine to fine grained, trace biotite, residual quartz, weathered schist</li> </ul>		SPT N=50bpf(@33.5ft.)
		- 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.)
 		<ul> <li>dark gray (N3) saprolite moist, very dense, fine to coarse grained, trace biotite, residual quartz, iron oxide staining</li> </ul>		SPT N=50bpf(@43.5ft.)
PIGPC/SCHERER LOGS.C		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.)
11LAPARKER\$\DESKTO		- dark gray (N3) saprolite wet, very dense, very fine to very coarse grained, trace biotite, residual quartz, iron oxide staining throughout sample Bottom of borehole at 54.8 feet.		SPT N=50bpf(@53.5ft.)
27/20 08:40 - NALTRCFP0	- - -			
SEE DATABASE.GDT - 8/	-			
SIMPLE GEOLOGY LOG - E	-			

	SO				WEL	RECORD OF L CONSTRUCTION PROJECT _ Piezometer Insta	allation	WELL: PZ-06S PAGE 1 OF 2 <u>ECS38467</u>
	EART	TH SC	IENCE AN	D ENVIRONMENTAL	ENGINEERING	LOCATION Plant Scherer		
	DATE S	STAR	TED _2/4/2	2015 <b>COMPLE</b>	TED _2/4/2015	GROUND ELEVATION 529 ft	COORDINATES	N 1117912.01 E 2401936.55
	CONTR	ACTO	<b>DR</b> <u>Civil F</u>	ield Services	METHOD	Hollow Stem Auger	EQUIPMENT CME	550
	DRILLE	D BY	T. Milam	LOGGED	BY S. Baxter	CHECKED BY L. Millet	BORING DEPT	<b>FH</b> <u>54.8 ft.</u>
		D WA	TER DEPT	<b>'H: DURING</b> <u>43.15 ft.</u>	<b> COMP.</b> _43.1	5 ft. DELAYED 42.11 ft. after	<u>24 hr</u> s.	
-								
	BOREH		(ft)		WELL [	DATA		COMMENTS
	DAI	~	HTT	Protective alumi	inum cover			
		o	ä	Top of casing E	lev. = 531.54		ELEV.	
ŀ	ELEV.	Strata	· 5 ^ .				(DEPTH)	
					al: concrete		527.0	
P							(2.0)	
OGS.G								
RERL								
SCHE								
P/GP0								
ESKTO			₽					
KER\$\D								
APAR								
FP01/L								
ALTRO	:		15					
1:57 - //								
9/20 1								
T - 10/2								
SE.GD			2					
ATABA				Annular Fill	: Cement-Bentonite	Grout - 7 bags Typel I/II Portland Cerr	nent, 94	
SEED				ibs/each				
- (WC	0.000	<mark>,∎,∎,</mark> ₽,  : :						
(NO C(			55					
RCRD								
CTION								
ISTRU								
T CON		⊧ ::	8					
112 WEI								

## **RECORD OF** WELL CONSTRUCTION



SOUTHERN COMPANY SERVICES, INC. FARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

SOUTHERN COMPANY

PROJECT Piezometer Installation

IOCATION Plant Sch

BOREHOLE DATA	(#)		WELL DATA		COMMENTS						
	PTH		Protective aluminum cover 4-foot square concrete pad								
	ä		Top of casing Elev. = 531.54	ELEV.							
ELEV. Strata			NUED	(DEPTH)							
다 가 가 가 가 다											
	35 :										
	4			488.8 (40.2)							
			Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coat lbs/each	ed pellets, 50							
의 가지 기관기관											
이 이 아 아이아			Filter: Unimin FilterSil - 8 Bags #1A, 50 lbs/each	484.6							
이 가지 지 지 기	45			(44.4)							
481.0											
\$	50		Well: 2" OD PVC (SCH 40)								
\$***** *****											
474 2				474.6							
474.2 0.0.0	I		L. ◄								

	SC	DUT	HERN BOR	ING LOG		BORING PZ-091 Page 1 of 3				
	SOL EAF	JTHER RTH SC	COMPANY IN COMPANY SERVICES, INC. CIENCE 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									
		ED BY	Civil Field Services METHOD Hollow     T. Milam LOGGED BY B. Smelser	CHECKED BY L.	Millet	BORING DEPTH 80.2 ft.				
G	ROU	ND WA	ATER DEPTH: DURING <u>28.5 ft.</u> COMP. <u>24.6 ft.</u>	_ <b>DELAYED</b> _24.4	1 ft. at	fter 24 hrs.				
	IOTE	S			7	-				
	UEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Veak HCL hoderate REACTIOI	COMMENTS				
F			Sandy Silt (ML)		<u>&gt; 2 0</u>					
SS.GPJ : : : : : : : : : : : : : : : : : : :	 		- red (10R 4/8) residuum moist, stiff, micaceous, trace cla	ау		SPT N=10bpf(@3.5ft.)				
<pre>\$\$\DESKTOP\GPC\SCHERER LOC \$\$\DESKTOP\GPC\SCHERER LOC \$\$</pre>	<u> </u>		- yellowish red (5YR 5/8) residuum dry, medium stiff, mic white/light gray rock fragments	aceous, zone of		SPT N=7bpf(@8.5ft.)				
8:40 - \\ALTRCFP01\\LAPARKEF : 1 : : : :	 		- mottled red (2.5YR 5/8) and reddish yellow (5YR 6/8) s medium stiff	aprolite moist,		SPT N=7bpf(@13.5ft.)				
OG - ESEE DATABASE.GDT - 8/27/20 0 : 1 : : :	 20		- mottled reddish yellow (7.5YR 6/8) and red (2.5YR 5/8) stiff, micaceous, with muscovite	saprolite moist,		SPT N=9bpf(@18.5ft.)				
SIMPLE GEOLOGY L	  25		- mottled reddish yellow (7.5YR 7/8) and red (2.5YR 5/8) very stiff, micaceous, trace muscovite and biotite	saprolite moist,		SPT N=18bpf(@23.5ft.)				

					BORING PZ-091			
	SC	DUT	HERN BORI	NG LOG		Page 2 or 3		
	SOL	JTHER	IN COMPANY SERVICES. INC.	PROJECT Piezometer Installation				
	EAF	RTH SC	CIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plant Scherer				
DEPTH	(ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak Moderate Strong	COMMENTS		
			Sandy Silt (ML)(Con't)					
  	<u>;0</u>		∑ - mottled yellowish red (5YR 5/8) and red (2.5YR 5/8) sap micaceous, trace residual quartz, feldspar, muscovite	orolite wet, stiff,		SPT N=14bpf(@28.5ft.)		
 	5		Silty Sand (SM) - mottled yellowish red (5YR 4/6) and brownish yellow (10 wet, medium dense, very fine to fine grained, micaceous, to quartz, feldspar, weathered rock fragments	YR 6/8) saprolite ace residual		SPT N=16bpf(@33.5ft.)(LL=53; PI=6; FC = 32.8%; Gravel = 1.6%)		
	0		- mottled brown (7.5YR 4/4) and greenish gray (10BG 5/1 medium dense, very fine to fine grained, micaceous, trace feldspar, muscovite, chlorite, zone of coarse white rock frag	) saprolite wet, residual quartz, gments		SPT N=18bpf(@38.5ft.)		
			- mottled greenish gray (10BG 5/1) and strong brown (7.5 wet, medium dense, very fine to fine grained, trace residua chlorite, biotite, muscovite	YR 5/8) saprolite I quartz, feldspar,		SPT N=19bpf(@43.5ft.)		
			- mottled white (10R 8/1) and greenish gray (10BG 5/1) sa dense, very fine to fine grained, with red staining, trace res feldspar, chlorite, muscovite, biotite, hornblende	aprolite wet, very idual quartz,		SPT N=74bpf(@48.5ft.)		
			- mottled white (10R 8/1) and greenish gray (10BG 5/1) sa dense, very fine to fine grained, with red staining, trace res feldspar, chlorite, muscovite, biotite, hornblende	aprolite wet, very idual quartz,		SPT N=60bpf(@53.5ft.)		

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	SC	DUTI	HERN BOF	RING LO	G		BORING PZ-09I Page 3 of 3
		0	COMPANY		Dia -		
	SOL EAF	JTHERN RTH SCI	N COMPANY SERVICES, INC. IENCE AND ENVIRONMENTAL ENGINEERING	PROJECT _	Plezor Plant	neter Ir Schere	istaliation er
	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		ELEVATION	Veak Moderate Strong REACTION	COMMENTS
ŀ			Silty Sand (SM)(Con't)			<u>&gt;≥</u> 0	
			- very dark greenish gray (10BG 3/1) saprolite wet, very o fine grained. trace partially weathered rock fragments, re feldspar, biotite, muscovite, hornblende, chlorite	dense, very fine sidual quartz,	to		SPT N=50bpf(@58.5ft.)
		40, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0	Partially Weathered Rock (PWR)				
			AMPHBOLITE - black (N1) fine to coarse grain, very soft to soft, highly horizontal, completely fractured at all angles, low-angle fr cracks), no visible healing, with quartz, feldspar, muscovi hornblende, pyrite, interbedded Biotitie Gneiss - black (N1) fine to coarse grain, soft to medium hard, m weathered, inclined, banded, 14 low-angle fractures (10- angle fractures (30 - 45d), not to total healing with some gray mud and/or red oxidation, trace completely healed h rusty red oxidation, trace yellowish-red oxidation, with pyr	weathered, ractures (weath ite, biotite, noderately to hig - 20d), 5 moder fractures filled igh-angle fractu ite, feldspar, bio	ering hly ate- with ires, ptite		
			- black (N1) and white (N9) fine to coarse grain, mediur weathered, inclined, banded, moderate-angle fractures al verticle fracture at 71.6'-72.6' bgs, healed with quartz and angle fractures (10 - 20d), 8 moderate-angle fractures (3 angle fracture (65 - 90d), interbedded with Biotite Gneiss fractures, oxidation, with quartz, feldspar, pyrite, biotite	n hard, modera long foliation, o d feldspar, 4 lov 0 - 45d), 1 high ; trace mud fille	tely pen v- n- ed		
			- black (N1) and white (N9) fine to coarse grain, mediur weathered, inclined, banded, moderate-angle fractures al with quartz and feldspar, 4 low-angle fractures (10 - 30d) fractures (30 - 45d), 2 high-angle fractures (65 - 90d), in Biotite Gneiss, trace mud filled fractures, oxidation, with o pyrite, biotite	n hard, modera long foliation, h ), 3 moderate-a terbedded with quartz, feldspar	tely ealed ngle		
ł	80	1-1	Rottom of boroholo at 90.2 feat				
		*	Boltom of borenole at 80.2 feet.				

	SOUT	HERN	ANY		RE WELL CO	CORD OF		WELL: PZ-09I PAGE 1 OF 3 ECS38467
	SOUTHER		NY SERVI	CES, INC.		PROJECT Piezometer Installa	tion	
	EARTH SO	CIENCE AN	D ENVIRO	ONMENTAL ENG	BINEERING	LOCATION Plant Scherer		
D	ATE STAR	TED _2/18	/2015		2/19/2015 <b>GROL</b>	IND ELEVATION 523.3 ft	COORDINATES _	N 1120562.72 E 2400862.76
C	ONTRACT	OR <u>Civil F</u>	ield Servio	ces	METHOD _ Hollow	/ Stem Auger; HQ Rock Core	_ EQUIPMENT _ CME	550
D	RILLED B	T. Milam		LOGGED BY	B. Smelser	CHECKED BY L. Millet	BORING DEPT	<b>H</b> 80.2 ft.
GF NC	ROUND WA	ATER DEPT	'H: Durin	<b>IG</b> <u>28.5 ft.</u>	_ <b>COMP.</b> _24.6 ft.	DELAYED 24.41 ft. after 24	<u>hr</u> s.	
в	OREHOLE	(ft)			WELL DATA			COMMENTS
	DATA	HTT I	Prc	otective aluminun	n cover with bollards			
EI	_EV. Strata	DE	Top	p of casing Elev.	= 526.57		ELEV. (DEPTH)	
		₩,	·B	-Surface Seal: c	oncrete			
		· V ^ ·	5				521.3	
GPJ							(2.0)	
LOGS								
RER								
SCHE								
(GPC)								
KTOP								
\$\DES								
Ker:								
APAF								
FP01/I								
TRO								
- //AI								
14:5								
//29/20								
0T - 10		22						
SE.GD								
TABA		·						
E DA								
- ESE								
COM)								
ON)								
RCRL								
NOIL								
TRUC								
CONS								
VELL								
2012 \		32						





SOUT	HERN BOR	ING LOG		BORING PZ-10S Page 1 of 2		
SOUTHERM EARTH SC	COMPANY N COMPANY SERVICES, INC. IENCE AND ENVIRONMENTAL ENGINEERING	PROJECT       Piezometer Installation         LOCATION       Plant Scherer				
DATE START CONTRACTO DRILLED BY GROUND WAT	TED       5/5/2015       COMPLETED       5/5/2015       GROU         OR       Civil Field Services       METHOD       Hollow         T. Milam       LOGGED BY       S. Baxter         TER DEPTH: DURING       23.5 ft.       COMP.       19.3 ft.	IND ELEVATION _5 (Stem Auger _ CHECKED BY _L. _ DELAYED _17.1	514.4 ft Millet	COORDINATES         N 1122338.03 E 2401768.92           EQUIPMENT         CME550           BORING DEPTH         34.9 ft.           r 24 hrs.		
DEPTH (ft) GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Veak Adderate trong REACTION	COMMENTS		
GEOLOGY LOG - ESEE DATABASE GDT 8/27/20 08:40 - JALTRCFP01/LAPARKER\$JDESKTOP/GPC/SCHERER LOGS.GPJ	<ul> <li>Sandy Silt (ML)         <ul> <li>Hand auger 5' for utilities clearance</li> </ul> </li> <li>mottled light reddish brown / light brown (5YR 6/4) resid with white speckling, trace medium sand and weathered r</li> <li>mottled light reddish brown / light brown (5YR 6/4) saprositiff, micaceous, trace weathered rock fragments</li> <li>pinkish gray / grayish orange pink (5YR 7/2) saprolite we trace weathered rock fragments</li> </ul>	uum moist, stiff, ock fragments blite very moist,		SPT N=15bpf(@8.5ft.) SPT N=10bpf(@13.5ft.) SPT N=13bpf(@18.5ft.)		

					BORING PZ-10S Page 2 of 2
S	OU	COMPANY BOR	RING LOG		-
S	OUTHE	RN COMPANY SERVICES, INC.	PROJECT Piezon	nstallation	
E/	ARTH S	SCIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plant	Scher	er
DEPTH (#)	GRAPHIC I OG	MATERIAL DESCRIPTION	ELEVATION	eak oderate trong REACTIO	COMMENTS
		Sandy Silt (ML)(Con't)		<u>⊼ ž ⊼</u> ∶∶:	
		<ul> <li>- mottled pinkish gray / grayish orange pink (5YR 7/2) an saprolite wet, stiff, micaceous, trace weathered rock frag</li> </ul>	d gray (10YR 5/1) ments		SPT N=10bpf(@23.5ft.)
СРС/КНЕКЕК ГОС65.GPJ 06		- mottled white / pinkish gray (5YR 8/1) and white (10R a hard, micaceous, trace weathered rock fragments	8/1) saprolite wet,		SPT N=33bpf(@28.5ft.)
		- mottled white / pinkish gray (5YR 8/1) and pinkish gray pink (5YR 7/2) saprolite wet, very hard, trace mica	/ grayish orange		SPT N=63bpf(@33.5ft.)
- 8/2//20 08:40 - <u>N</u> A					
SE.GUI					

	SOUT	HERN COMP	ANY		RE WELL C	CORD OF ONSTRUCTION		WELL: PZ-10S PAGE 1 OF 2 ECS38467
s	OUTHER		IY SERV	CES, INC.		PROJECT Piezometer Installation	ו	
	ARTHS	CIENCE ANI		ONMENTAL ENG	SINEERING	LOCATION Plant Scherer		
DA	TE STAR	<b>TED</b> 5/5/2	015	COMPLETED	5/5/2015 <b>GRO</b>	JND ELEVATION 514.4 ft	COORDINATES	N 1122338.03 E 2401768.92
со	NTRACT	OR Civil Fi	eld Servi	ces	METHOD Hollow	/ Stem Auger	EQUIPMENT C	ME550
DR	ILLED BY	T. Milam		LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING DE	<b>PTH</b> _34.9 ft.
GRO		ATER DEPT	H: DURII	NG 23.5 ft.	<b>COMP.</b> <u>19.3 ft.</u>	DELAYED17.1 ft. after 24 hrs.		
NO	TES							
BO	REHOLE	(t)			WELL DATA			COMMENTS
'	DATA		Pro	otective aluminum	o cover with bollards			
		DEP	4-f To	oot square concreption of casing Elev.	ete pad = 517.53			
ELE	V. Strata						ELEV. (DEPTH)	
		3	5					
			5	-Surface Seal: c	oncrete			
GPJ							512.4	
OGS.(							(2.0)	
RERL								
SCHEI								
GPC		22						
<b>KTOP</b>								
\$\DESI								
<b>RKER</b>								
LAPAI								
FP01								
ALTRO								
57 - W		. e						
20 14:								
10/29/				_Annular Fill: Ce lbs/each	ment-Bentonite Grout	4 bags Typel I/II Portland Cement, 9	14	
SDT-								
BASE.0								
DATAE								
ISEE [		·						
9 - (MC		12						
20 02								
CRD (I								
ION R								
RUCT								
LSNO								
ELL C								
012 W							494.6	
-7	1.1.1.1			(0	No. 4 Do			

SO	UTHERN COMP	RECORD OF WELL CONSTRUCTION	WELL: PZ-10S PAGE 2 OF 2 ECS38467
SOUT	HERN COMPAN	NY SERVICES, INC.     PROJECT     Piezometer Installation       D ENVIRONMENTAL ENGINEERING     L OCATION     Plant Scherer	
BOREHO	DLE (t) A HLd=D	WELL DATA Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 517.53	COMMENTS
2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01\LAPARKER\$\DESKTOP\GPC\SCHERER LOGS.GPJ 1 2 2 2 2 2 2 2 2 2 2 2 2 2		NED (DEPTH) (19.8) Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 (22.1) Filter: Unimin FilterSil - 6 Bags #1A, 50 lbs/each (24.5) Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack (34.5)	

	SC	DUT			BOF	RING LOG	ì		BORING PZ-11S Page 1 of 2
	SOL	JTHER RTH SC	COMPANY N COMPANY SERV IENCE AND ENVIR	ICES, INC. ONMENTAL ENGINE	EERING	PROJECT <u>Pi</u> LOCATION <u>F</u>	ezomete Plant Sch	r Installa erer	ation
	DATE	STAR	TED <u>4/1/2015</u>	COMPLETED _4	1/6/2015 GRO		∎ <u>526 ft</u>		COORDINATES N 1123169.22 E 2402767.44
		FD BY	T Milam	LOGGED BY S	Baxter	CHECKED BY	I Mille	t	BORING DEPTH 45.9 ft
	GROU	ND WA	TER DEPTH: DURI	NG <u>37.3 ft.</u> C	OMP. <u>34.3 ft.</u>	DELAYED	33.2 ft. a	fter 24 h	<u>nrs.</u>
	NOTE	S							
	DEPTH (ft)	GRAPHIC LOG		MATERIAL DI	ESCRIPTION		Veak	trong NEACLION	COMMENTS
F			Sandy Silt (ML)	) for utilities clearance			<u> </u>	<i>i</i> o	
PARKER\$\DESKTOP\GPC\SCHERER LOGS.GPJ			- Mand auger 5' - mottled red (1 moist, stiff, trace	OR 5/6) and light yell black spots	lowish brown (10YF	₹ 6/4) saprolite		SPT	Γ N=9bpf(@8.5ft.)
08:40 - \\ALTRCFP01\L	. 15		- mottled red (1) streaks with blac	0R 5/6) saprolite mois ok spots	st, stiff, micaceous,	trace orange		SPI	Г N=9bpf(@13.5ft.)
JGY LOG - ESEE DATABASE.GDT - 8/27/20	_20		- pinkish white / pale orange (10`	grayish orange pink ( YR 8/2) saprolite mois	(10R 8/2) and very st, stiff, trace mica	pale brown / very		SP1	Г N=13bpf(@18.5ft.)
SIMPLE GEOL	25		- mottled red(1 micaceous, trace	0R 5/6) and brown ( <sup>,</sup> e weathered rock frag	10YR 5/3) saprolite gments	e moist, stiff,		SP1	Г N=13bpf(@23.5ft.)

S	DUT		BO	RING LOG		BORING PZ-11S Page 2 of 2			
so	UTHER	N COMPANY SERVICES	INC.	PROJECT Piezometer Installation					
EA	RTH SC		ENTAL ENGINEERING	LOCATION Plan	it Scher	rer			
DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION	ELEVATION	Weak Moderate Strong	COMMENTS			
		Sandy Silt (ML)(Con	<i>t</i> )						
		- mottled reddish brow saprolite moist, very s	n (5YR 5/4) and dark yellowish iff, micaceous, trace weathered r	brown (10YR 4/6) ock fragments		SPT N=26bpf(@28.5ft.)			
		Ţ							
		<ul> <li>mottled dark gray / b</li> <li>▼ saprolite moist, very h</li> </ul>	rownish gray (5YR 4/1) and brow ard, micaceous	n (7.5YR 4/2)		SPT N=58bpf(@33.5ft.)			
ореан орностискем 40		- mottled dark gray / b saprolite moist, very h	rownish gray (5YR 4/1) and brow ard, micaceous	/n (7.5YR 4/2)		SPT N=56bpf(@38.5ft.)			
8.40 - MALINGFOULAPARKEN		- mottled dark gray / b saprolite wet, very har	rownish gray (5YR 4/1) and brow d, micaceous	/n (7.5YR 4/2)		SPT N=50bpf(@43.5ft.)			
			Bottom of borehole at 45.9 feet.						
55									

S	OUT	HERN	ANY		RE WELL C	CORD OF		WELL: PZ-11S PAGE 1 OF 2 <u>ECS38467</u>
so	OUTHER		NY SERVI	CES, INC.		PROJECT Piezometer Installation	on	
EA	ARTH SC	CIENCE AN	D ENVIRO	ONMENTAL ENG	GINEERING	LOCATION Plant Scherer		
DAT	'E STAR	TED <u>4/1/2</u>	2015	_ COMPLETED	<u>4/6/2015</u> GRO	JND ELEVATION 526 ft	_ COORDINATES	N 1123169.22 E 2402767.44
CON	ITRACT	OR <u>Civil</u> F	ield Servic	ces	METHOD Hollow	v Stem Auger		ME550
DRIL	LED BY	T. Milam		LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING DE	<b>PTH</b> <u>45.9 ft.</u>
GRO		ATER DEPT	'H: DURIN	<b>IG</b> <u>37.3 ft.</u>	<b>COMP.</b> <u>34.3 ft.</u>	DELAYED 33.2 ft. after 24 hrs		
NOT	ES	-						
BOR	EHOLE	(ft)			WELL DATA			COMMENTS
			Pro	otective aluminum	n cover with bollards			
		DE	4-fo	oot square concre o of casing Elev.	ete pad = 529.31			
ELEV	/. Strata	775470858770					ELEV. (DEPTH)	
		· B ^ · ·	3	-Surface Seels a	oncrete			
		• • • • •	5.0	Surface Seal. 0	oncrete		524.0	
L L L					• • • • • • • • • • • • • • • • • • • •	•••••••••••••••••••••••••••••••••••••••	(2.0)	
O.SO								
ERLO								
CHER								
PC/S								
LOPIG								
DESK								
ER\$								
PARK								
01/LA								
RCFP								
<b>NALT</b>								
4:57 -								
9/20 1								
- 10/29								
GDT		12						
BASE								
DATA				_Annular Fill: Ce lbs/each	ement-Bentonite Grout	- 8 bags Typel I/II Portland Cement,	94	
SEE								
0M) - E								
0000								
CRD (r								
ON RC								
INCTIC								
NSTR								
8								
2 WEL								
201:		5						

(Continued Next Page)



	64					BORING PZ-12S Page 1 of 2			
	50	) (	COMPANY BU	RING LOG	I				
	SOL	ITHER	N COMPANY SERVICES INC	PROJECT Piezometer Installation					
	EAF	RTH SC	IENCE AND ENVIRONMENTAL ENGINEERING	LOCATION P	lant	Schere	er		
	DATE	STAR	TED _3/31/2015 COMPLETED _4/1/2015 GR	OUND ELEVATION	_51	4.5 ft	COORDINATES <u>N 1122684.9 E 2403618.46</u>		
			DR <u>Civil Field Services</u> METHOD <u>Hol</u>			A:11 - 4			
			I. Milam     LOGGED BY     S. Baxter       TED DEDTH: DUDING     23.5 ft     COMD     26.2 ft		<u>L.N</u>	Villet	BORING DEPTH _44.4 tt.		
	NOTE	S	<u></u>				<u>1 24 1113</u> .		
┢						Z			
	т	₽		NC		CTO CTO			
	(ft)	APH LOG	MATERIAL DESCRIPTION	'VAT		REA	COMMENTS		
		ц Ц				ak derate ong			
┢			Silt (ML)			Str We			
			- Hand auger 5' for utilities clearance						
	5								
a.									
DGS.G									
KER LO									
SCHEF.	•••••		- mottled red $(10R 4/8)$ and brown (7 5VR 5/2) sand	lite moist stiff			SPT N=12bpf(@8.5ft)		
GPC/			micaceous						
KTOP									
S\$\DES									
ARKEF	•••••								
11LAP.	•••••								
RCFP0			<ul> <li>mottled red (10R 4/8) and brown (7.5YR 5/2) saprol micaceous, with black streaking, trace weathered rock</li> </ul>	ite moist, stiff, fragments			SPT N=9bpf(@13.5ft.)		
HALTI	15		-	-					
. 08:40									
27/20									
DT-8									
ASE.G			- mottled light gray (10R 7/1) and pale brown (10YR 6	/3) saprolite moist,			SPT N=15bpf(@18.5ft.)		
DATAB	20		stiff, micaceous						
SEE									
0G - E									
, JYDC	• • • • • • • •								
GEOL			mottled light grov (400 7/4) and and the basis (40/0 2	(2) controlitot			SDT N-8hnf(@23.5ft)		
SIMPLE			medium stiff, micaceous, trace weathered rock fragme	nts			or re-oppilezo.or.)		

SC	DUI		BC	RING LO	BORING PZ-12S Page 2 of 2					
		COMPANY								
SOL	UTHEF	RN COMPANY SERV	/ICES, INC. RONMENTAL ENGINEERING		PROJECT Piezometer Installation					
DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION		ELEVATION	Veak Adderate Actions	COMMENTS			
		Silt (ML)(Con't)	) <b>I)</b> (10R 8/1) and white (10R 8/1) saprolii to coarse grained, trace muscovite an	le moist, medium Id residual quartz			SPT N=18bpf(@28.5ft.)			
		⊻ - mottled red (1 saprolite wet, m feldspar, residu	I0R 4/8) and red / moderate reddish b ledium dense, very fine to coarse grain al quartz, muscovite	rown (10R 4/6) ed, trace iron oxic	les,		SPT N=22bpf(@33.5ft.)			
		- mottled red (1 saprolite wet, ve feldspar, musco	IOR 4/8) and red / moderate reddish b ery dense, very fine to medium grained ovite	rown (10R 4/6) , trace iron oxides	,		SPT N=81bpf(@38.5ft.)			
		- mottled white saprolite wet, ve	(10R 8/1) and red / moderate reddish ery dense, very fine to medium, trace ir muscovite	brown (10R 4/6) on oxides, feldspa	ar,	7	SPT N=50bpf(@43.5ft.)			
	1	·,	Bottom of borehole at 44.4 feet			_				
00000000000000000000000000000000000000										
	-									

SOU	THERN COMP	ANY		RE WELL CO	CORD OF		WELL: PZ-12S PAGE 1 OF 2 <u>ECS38467</u>
SOUTHE	RN COMPAN	IY SERVI	CES, INC.		PROJECT Piezometer Installation	on	
EARTHS	SCIENCE AN	d enviro	ONMENTAL ENG	BINEERING	LOCATION Plant Scherer		
	<b>DTED</b> 2/24	2015		4/1/2015 <b>CRO</b>		COOPDINATES	N 4422694 0 E 2402649 46
		2015			Other Assess		<u>N 1122084.9 E 2403018.40</u>
		eld Servic		METHOD Hollow			
GROUND W	ATER DEPT	H: DURIN	_ LOGGED BY	_ COMP 26.2 ft.	_ DELAYED _25.1 ft. after 24 hrs	<u></u> BORING DEP	1 <b>n</b> <u>44.4 II.</u>
BOREHOLE	E (11)			WELL DATA			COMMENTS
DATA	DEPTH	Pro 4-fe Top	otective aluminum pot square concre o of casing Elev.	n cover with bollards ete pad = 517.69			
ELEV. Strat						(DEPTH)	
WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\ALTRCFP01\LAPARKER\$\DESKTOP\GPC\SCHERER LOGS.GFJ			-Surface Seal: c	oncrete ment-Bentonite Grout -	4 bags Typel I/II Portland Cement,	94	

(Continued Next Page)



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

	SC	DUT				BC	RING PZ-13S Page 1 of 2		
			COMPANY		Derti				
	SOU EAR	THERI TH SC	N COMPANY SERVIO	CES, INC. DNMENTAL ENGINEERING		PROJECT <u>Piezo</u> L <b>OCATION</b> Plar	meter it Sche	er Installation	
D	ATE	STAR	<b>TED</b> <u>3/31/2015</u>	<b>COMPLETED</b> <u>4/1/2015</u>	GROUN	D ELEVATION	517.5 f	5 ft COORDINATES N 112	1957.03 E 2404227.47
C			Civil Field Servic		D Hollow S		Millet	EQUIPMENT CME550	2.#
GI	ROUN		TER DEPTH: DURIN	_ LOGGED BY <u>S. Baxter</u> IG 33.5 ft. COMP. 28	.6 ft.	DELAYED 26.	5 ft. aft	after 24 hrs.	.5 11.
N	OTES	;							
ЛЕРТН	(ft)	GRAPHIC LOG		MATERIAL DESCRIPTI	ON	ELEVATION	eak HCL oderate REACTION	COMMEN	rs
			Sandy Silt (ML)	or utilities clearance					
APARKER\$\DESKTOP\GPC\SCHERER LOGS.GPJ	5		- Hand auger 5' fi - mottled red (10 fill moist, stiff, tra	r utilities clearance R 4/8) and light red / moderatice clay	e reddish or	ange (10R 6/6)		SPT N=9bpf(@8.5ft.)	
- 8/27/20 08:40 - \\ALTRCFP01\L	15		- mottled red (10 black streaking, t	R 5/6) and yellow (10YR 7/6) race muscovite	saprolite mo	oist, stiff, with		SPT N=10bpf(@13.5ft.)	
LOGY LOG - ESEE DATABASE.GDT	20		- mottled red(10 with black streaki	R 5/6) and yellow (10YR 7/6) ng, trace residual quartz and r	saprolite mo	bist, medium stiff,		SPT N=6bpf(@18.5ft.)	
SIMPLE GEO	25		- mottled reddish (10R 6/6) saproli	yellow (5YR 7/8) and light re te moist, stiff, trace black strea	d / moderate aking and res	e reddish orange sidual quartz		SPT N=10bpf(@23.5ft.)	

					BORING PZ-13S Page 2 of 2			
3	501	COMPANY	ORING LOG					
SO		RN COMPANY SERVICES, INC.	PROJECT Piezon	PROJECT Piezometer Installation				
				Z				
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak Moderate Strong	COMMENTS			
		Sandy Silt (ML)(Con't)						
30		<ul> <li></li></ul>	noderate reddish orange ı, residual quartz,		SPT N=11bpf(@28.5ft.)			
35		∑ - mottled reddish yellow (7.5YR 7/8) and light red / orange (10R 6/6) saprolite wet, medium stiff, with b weathered rock fragments	moderate reddish lack streaking, trace		SPT N=7bpf(@33.5ft.)			
		- mottled reddish yellow (7.5YR 7/8) and yellow (10 - stiff, with trace black spots and residual quartz	0YR 7/6) saprolite wet,		SPT N=11bpf(@38.5ft.)			
- MALIKCEPU1LAPAKKEK\$		- mottled reddish yellow (7.5YR 7/8) and yellow (10 stiff, trace sand and weathered rock fragments	0YR 7/6) saprolite wet,		SPT N=11bpf(@43.5ft.)			
08:40		Bottom of borehole at 45.3 fe	eet.					
AI ABASE. GUI - 8/2//2/ 00								
	]							

SOU	THERN COMP	ANY		RE( WELL C(	CORD OF		WELL: PZ-13S PAGE 1 OF 2 <u>ECS38467</u>
SOUTHE	RN COMPA	NY SERVIC	ES, INC.		PROJECT _ Piezometer Installation	ı	
EARTHS	SCIENCE AN	d enviro	NMENTAL ENG	GINEERING	LOCATION Plant Scherer		
		10045					
DATE STA	RTED <u>3/31</u>	/2015	COMPLETED	<u>4/1/2015</u> GROU	ND ELEVATION 517.5 ft	COORDINATES	N 1121957.03 E 2404227.47
CONTRAC	TOR <u>Civil</u> F	ield Service	es	METHOD Hollow	Stem Auger I	Equipment <u>CN</u>	1E550
DRILLED E	SY <u>T. Milam</u>		LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING DEI	<b>PTH</b> <u>45.3 ft.</u>
	ATER DEPT	TH: DURING	<b>3</b> <u>33.5 ft.</u>	<b>COMP.</b> <u>28.6 ft.</u>	_ DELAYED _ 26.5 ft. after 24 hrs.		
BOREHOLI	E			WELL DATA			COMMENTS
DATA	E C	] Prot	ective aluminum	cover with bollards			
	DEP.	4-fo	of casing Elev	ete pad = 520 51			
ELEV. Strat		TOP		- 320.01		ELEV. (DEPTH)	
	· · · · ·	5.					
			Surface Seal: c	oncrete		545 F	
2			• • • • • • • • • • • • • • • • • • • •			(2.0)	
3S. GF							
R L O							
HER							
C/SC							
DP/GF							
SKTC							
R\$\DE							
ARKE							
11/LAP.	. <u> </u>						
CFP0							
ALTR(							
57 - 11							
20 14:							
0/29/:							
	- 12						
SE.G			Annular Fill: Ce	ment-Bentonite Grout -	4 bags Typel I/II Portland Cement, 9	94	
VTAB/			lbs/each				
) - ESI							
COM							
ON) 0							
I RCR							
NOILS							
ITRUC							
CONS							
VELL							
2012 \	32						

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SOUT	HERN COMI	ANY	WELL	RECORD OF CONSTRUCTION		WELL: PZ-13S PAGE 2 OF 2 ECS38467
SOUTHER EARTH SC	N COMP	ANY SERVICES, ND ENVIRONME	NC. NTAL ENGINEERING	PROJECT Piezometer Installation	1	
BOREHOLE	DEPTH (ft)	Protectiv 4-foot so Top of ca	WELL DA e aluminum cover with bollar uare concrete pad Ising Elev. = 520.51	<b>ATA</b> ds	ELEV.	COMMENTS
472.2 Strate		Ann Ibs/e	ular Seal: bentonite pellets - ach :: Unimin FilterSil - 6.5 Bags :: 2" OD PVC (SCH 40) sen: 10 ft. pre-pack	1 Bucket Pel Plug 3/8" coated pellets, 50 #1A, 50 lbs/each		

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

	SC	DUT	HERN	<b>A</b>			BORING PZ-14I Page 1 of 3			
	SOL EAF	UTHER ATH SC	COMPAN N COMPAN CIENCE AN	<b>ANY</b> NY SERVICES, INC. ID ENVIRONMENTAL ENGINEERING	PROJECT <u>Pieza</u>	PROJECT       Piezometer Installation         LOCATION       Plant Scherer				
DATE STARTED <u>3/24/2015</u> COMPLETED <u>3/25/2015</u> GROUND ELEVATION <u>509.7 ft</u> COORDINATES <u>N 1121866</u>										
	DRILL GROUI	ED BY	T. Milam	LOGGED BY         S. Baxter           TH: DURING         28.5 ft.         COMP.         18	CHECKED BY _L	<u> M</u> i .3 ft.	illet . afte	BORING DEPTH _95.2 ft.		
	DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTIO	AO	/eak חכו	Inderate REACTION	COMMENTS		
RER LOGS.GPJ	5		Sandy - Hand - mottle (10R 6	Silt (ML) auger 5' for utilities clearance ed yellowish red (5YR 5/8) and light red /6) saprolite dry, very stiff	/ moderate reddish orange	×	S ≤ S	SPT N=20bpf(@8.5ft.)		
LTRCFP01\LAPARKER\$\DESKTOP\GPC\SCHE	<u>15</u>  20		- mottle stiff, tra - mottle spots, r	ed yellowish red (5YR 5/8) and red (10R ace mica ed reddish brown (5YR 5/4) saprolite mo muscovite, biotite	R 4/8) saprolite moist, mediun nist, medium stiff, trace black	n		SPT N=7bpf(@13.5ft.) SPT N=5bpf(@18.5ft.)		
G - ESEE DATABASE.GDT - 8/27/20 08:40 - \\AI	25 25 30		Silty S - mottle mediun biotite, - mottle mediun muscov	and (SM) ed reddish brown (5YR 5/4) and red (10 n dense, very fine to fine grained, trace b weathered rock fragments ed yellowish red (5YR 5/8) and yellow (1 n dense, very fine to fine grained, with bla vite, biotite, weathered rock fragments	IR 4/8) saprolite moist, lack streaking, muscovite, 10YR 7/6) saprolite wet, ack streaking, trace			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) SPT N=26bpf(@28.5ft.)		
SIMPLE GEOLOGY LC	35		- mottle dense, weathe	ed yellowish red (5YR 5/8) and yellow (1 very fine to fine grained, near-verticle 3.0 pred quartz vein throughout sample, trace	10YR 7/6) saprolite wet, 0mm thick moderately 9 muscovite and biotite		· · · · · · · · · · · · · · · · · · ·	SPT N=31bpf(@33.5ft.)		


	SC	DUT			BORING LO	DG		BORING PZ-14I Page 3 of 3
			OMPANY					
	SOL FAF		I COMPANY SERVIC	ES, INC. IMENTAL ENGINEERING	PROJECT	Piezoi	neter Ins	
┝					LOCATIO			
	DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTIC	DN	ELEVATION	Weak Moderate Strong	COMMENTS
-	•••••	$\left  \begin{array}{c} \\ \\ \\ \\ \end{array} \right  $	BIOTITE GNEISS(	Con't)				
· · · · · · · · · · · · · · · · · · ·	85		- becomes slightly condition	more competent, with pyrite, r	ecovered sample in p	oor		
.  .  .	90							
F				Bottom of borehole at 95.	2 feet.			
	<u>. 100</u>	-						
GPC/SCHER								
NDESKTOPN	105	-						
01/LAPARKER	· · · · · · · · · · · · · · · · · · ·							
HICF	110	+						
08:40 - \\AL		-						
		ļ						
E.GUI - 8/	<u>.115</u>	-						
DALABAS								
0G - ESEE	120							
-OLUGY L								
	125							

	SOUT	HERN COMP	ANY		WEL	RE( L CC	CORD OF		WELL: PZ-14I PAGE 1 OF 3 ECS38467
	SOUTHER		IY SERVIC	ES, INC.			PROJECT Piezometer Insta	allation	
	EARTH S	CIENCE AN	D ENVIRO	NMENTAL ENG	INEERING		LOCATION Plant Scherer		
	DATE STAR	TED <u>3/24</u>	/2015	COMPLETED	3/25/2015	GROU	ND ELEVATION 509.7 ft		TES <u>N 1121866.36 E 2404822.43</u>
	CONTRACT	OR <u>Civil F</u>	ield Service	es	METHOD	Hollow	Stem Auger; HQ Rock Core		_CME550
	DRILLED BY	T. Milam		LOGGED BY	S. Baxter		CHECKED BY L. Millet	BORING	<b>G DEPTH</b> 95.2 ft.
	GROUND W/ NOTES	ATER DEPT	H: DURING	G _28.5 ft.	<b>COMP.</b> <u>18.5</u>	ft.	_ DELAYED _28.3 ft. after 2	<u>4 hrs</u> .	
	BOREHOLE DATA	(ft)			WELL [	DATA			COMMENTS
			Prot	ective aluminum ot square concre	n cover with bolla ete pad	ards			
	ELEV. Strata		Тор	of casing Elev.	= 512.89			ELEV. (DEPTH)	
		···· 4	·B	Surface Seal: c	oncrete				
			·					507.7 (2.0)	
GРЈ									
OGS.0		2							
RER L									
SCHEF									
GPC/									
<b>KTOP</b>									
\DESH									
KER\$									
APAF.									
:P01/L									
TRCF									
- "AL									
14:57									
/29/20									
T - 10									
SE.GD	486.7								
TABA:									
E DA									
- ESE	년 1943년 1943년 1947년 - 1947년 1947년 - 1947년								
COM	이 아이 이 아이 이 아이								
ON)									
RCRI									
NOIL									
STRUC	가 가 가 가 가 가 가 가 다 가 다 가								
CONS									
VELL	다 다 다 다 다 다	ř							
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SOUTHERN COMP		RECORD OF CONSTRUCTION	WELL: PZ-14I PAGE 3 OF 3 ECS38467
SOUTHERN COMPAN	IY SERVICES, INC.	PROJECT Piezometer Installation	
EARTH SCIENCE ANI	D ENVIRONMENTAL ENGINEERING	LOCATION Plant Scherer	
	WELL DA	ТА	COMMENTS
ELEV. Strata	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 512.89	S ELEV. (DEPTH)	
	Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	426.9 (82.8) 424.9 (84.8) (84.8)	

S	DUI	HERN BORING LOG	BORING PZ-14S Page 1 of 2				
SO	UTHEF	RN COMPANY SERVICES, INC. PROJECT Pie	zomete	er Ins	tallation		
				lerer			
DATE	STAF	ATED     3/25/2015     COMPLETED     3/26/2015     GROUND ELEVATION       OB     Civil Eigld Complete     METHOD     Hellow Store August	508.7	′ ft	COORDINATES N 1121852.8 E 2404820.56		
DRILL	ED B	OR     Civil Field Services     METHOD     Hollow Stem Auger       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services       Image: Civil Field Services     Image: Civil Field Services     Image: Civil Field Services </th <th>L. Mill</th> <th>et</th> <th>BORING DEPTH 44.9 ft.</th>	L. Mill	et	BORING DEPTH 44.9 ft.		
GROU	ND W	ATER DEPTH: DURING 28.5 ft. COMP. 28.8 ft. DELAYED 1	3.8 ft. a	after 2	24 hrs.		
NOTE	s			7			
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Veak Inderate HCL	trong REACTION	COMMENTS		
	İΠ	Silt (ML) - Hand auger 5' for utilities clearance					
5							
R LOGS							
CHERE							
(GPC/S		<ul> <li>mottled reddish yellow (5YR 6/8) and yellow (10YR //6) saprolite moist, very stiff, trace weathered rock fragments</li> </ul>			SPT N=210pr(@8.5π.)		
SKTOP	1111						
ER\$\DE							
APARKI							
FP01/L		- mottled reddish yellow (5YR 7/8) and yellow (10YR 7/8) saprolite moist,			SPT N=8bpf(@13.5ft.)		
JALTRO		medium stiff, slight pink hue, trace weathered rock fragments					
08:40 - /							
8/27/20							
ABASE		⊥ - 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 1	$\left\{ \left  \right  \right\}$						
0G - ES							
000 / LC							
WPLE GEOL		Silty Sand (SM) - mottled pink / moderate orange pink (5YR 8/4) and brownish yellow / dar yellowish orange (10YR 6/6) saprolite moist, loose, very fine to fine grained black and white streaking missessues	<   ,		SPT N=7bpf(@23.5ft.)		
ഗ <u></u> 2		and the trice of oursing, mildooodo		<u> </u>			

S	OU	TH	BO	RING LOG			BORING PZ-14S Page 2 of 2
				PROJECT Piez	zom	eter Ir	Istallation
E	ARTH	SCIE	ENCE AND ENVIRONMENTAL ENGINEERING		ant	Schere	er
DEPTH /#)	GRAPHIC LOG	LOG	MATERIAL DESCRIPTION	ELEVATION		weak Moderate Strong	COMMENTS
	1.1		Silty Sand (SM)(Con't)				
30			<ul> <li>- mottled pink / moderate orange pink (5YR 8/4) and br yellowish orange (10YR 6/6) saprolite wet, medium den grained, black and white streaking, trace weathered roc</li> </ul>	rownish yellow / dark ise, very fine to fined k fragments	: d		SPT N=11bpf(@28.5ft.)
			- mottled reddish yellow (5YR 6/8) and brownish yellow orange (10YR 6/6) saprolite wet, dense, very fine to fine angular weathered rock fragments	w / dark yellowish e grained, trace			SPT N=37bpf(@33.5ft.)
			- mottled reddish yellow (5YR 6/8), brownish yellow / d (10YR 6/6) and gray (10YR 5/1) saprolite wet, dense, grained, has yellow concretions at 40', trace weathered	ark yellowish orange very fine to fine rock fragments			SPT N=38bpf(@38.5ft.)
			- mottled reddish yellow (5YR 6/8), brownish yellow / d (10YR 6/6) and brown (10YR 4/3) saprolite wet, dense grained, with black streaking, trace weathered rock frag muscovite, residual quartz	ark yellowish orange e, very fine to fine ments, biotite,		,	SPT N=33bpf(@43.5ft.)
- 0/2/1/20 00:40-			Bottom of borehole at 44.9 feet.				
50							
55							

S	ουτ	HERN COMP	ANY		R WELL	RECORD OF		WELL: PZ-14S PAGE 1 OF 2 ECS38467
so	UTHER	N COMPA	NY SERVIC	ES, INC.		PROJECT Piezometer Installa	ation	
EA	RTH SO	CIENCE AN	ID ENVIRO	NMENTAL ENG	SINEERING	LOCATION Plant Scherer		
DAT	DATE STARTED _3/25/2015 COMPLETED _3/26/2015					ROUND ELEVATION 508.7 ft		ES N 1121852.8 E 2404820.56
CON	TRACT	OR <u>Civil F</u>	Field Service	es	METHOD Ha	ollow Stem Auger		CME550
DRIL	LED B	T. Milam	1	LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING	<b>DEPTH</b> 44.9 ft.
GROU NOTE	JND W/ ES	ATER DEP	TH: DURIN	G _28.5 ft.	<b>COMP.</b> <u>28.8 ft.</u>	DELAYED 18.8 ft. after 24	<u>hrs</u> .	
BOR	EHOLE	(ft)			WELL DA	ТА		COMMENTS
		HTH	Prot	ective aluminum	n cover with bollards	3		
		ä	Тор	of casing Elev.	= 512.13		ELEV.	
ELEV	. Strata	• 72 ^ •	· V				(DEPTH)	
				Surface Seal: c	oncrete			
_		•5 .	· V				506.7 (2.0)	
S.GP							()	
R LOG								
HERE		2						
oC/SC								
OP/GF								
ESKT								
ER\$\D								
PARK								
201/LA								
TRCFF								
- //AL								
14:57								
)/29/20								
DT - 10		12						
ASE.G					mont Pontonito Cro	out 5 bags Tursel I/II Portland Come	nt 04	
ATAB/				Ibs/each	ment-dentonite Gro	out - 5 bags Typer I/IT Portiand Cerrier	III, 94	
SEED								
M) - E(								
0000								
RD (N								
ON RC								
RUCTI								
ÉSN 485 7	7 <b>   </b>							
012 WI								
2012 WELL C		52						

(Continued Next Page)

SOUT	HERN COMP	ANY	WEL	RECORD OF L CONSTRUCTION		WELL: PZ-14S PAGE 2 OF 2 ECS38467
SOUTHERN EARTH SC	N COMPA	NY SERVIC ID ENVIRO	ES, INC. IMENTAL ENGINEERING	PROJECT Piezometer Install LOCATION Plant Scherer	ation	
BOREHOLE DATA	DEPTH (ft)	Prot 4-fo Top	WELL C ective aluminum cover with bolla of square concrete pad of casing Elev. = 512.13	<b>DATA</b> ards	ELEV.	COMMENTS
463.8 T			Annular Seal: bentonite pellets - each Filter: Unimin FilterSil - 6 Bags : Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	- 1 Bucket Pel Plug 3/8" coated pellets, 4 #1A, 50 lbs/each	(DEF III) 478.7 (30.0) 50 lbs 476.4 (32.3) 474.2 (34.5) 464.2	

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:57 - \\alpha LTRCFP01(LAPARKER\$)DESKTOPIGPC/SCHERER LOGS.GPJ

	SC	DUI			BOR	ING LOG			BORING PZ-15S Page 1 of 2
	0.01					<b>PROJECT</b> Piez	omet	ter In	stallation
	EAF	RTH S	COMPANY SERVI	ONMENTAL ENGINEERING	ì	LOCATION Pla	nt Sc	chere	Pr
		SIA	(IED <u>4/28/2015</u>	COMPLETED	<u>IS</u> GROU		497.	.4 ft	COORDINATES N 1121486.96 E 2405558.59
		ED B	T. Milam	LOGGED BY S. Baxter		CHECKED BY	. Mil	llet	BORING DEPTH 40.1 ft.
G	ROUI		TER DEPTH: DURIN	NG 23.5 ft. COMP.	19.6 ft.	_ DELAYED _ 19	.6 ft.	after	24 hrs.
N	OTE	s							
	UEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIF	PTION	ELEVATION	veak HCL	Noderate REACTION	COMMENTS
			Sandy Silt (ML)	for utilities electropes				<u>≥ 0</u>	
APARKER\$\DESKTOP\GPC\SCHERER LOGS.GPJ	<u>5</u> 		- Hand auger 5 f	OR 5/8) fill moist, stiff, trace	clay				SPT N=12bpf(@8.5ft.)
7/20 08:40 - \\ALTRCFP01\ : : : : : : : : : : : : : : : : : : :	 15		- mottled dark re rock fragments, r	ddish gray (10R 4/1) saproli mica	te moist, soft	t, trace weathered		· · · · · · · · · · · · · · · · · · ·	SPT N=4bpf(@13.5ft.)
IGY LOG - ESEE DATABASE.GDT - 8/2 : : : : : : : : : : : :	<u>20</u>		- mottled reddish	yellow (7.5YR 7/6) saprolit	e wet, mediur	m stiff, trace mica		· · · · · · · · · · · · · · · · · · ·	SPT N=6bpf(@18.5ft.)
SIMPLE GEOLC	  <u>25</u>		$\overline{\mathbb{V}}$ - mottled reddish	yellow (7.5YR 7/8) saprolit	e wet, mediur	m stiff, trace mica			SPT N=6bpf(@23.5ft.)

						C		BORING PZ-15S Page 2 of 2
			OMPANY	DOK		G		
S E	out Art	HERN H SC	I COMPANY SERVICES, INC. IENCE AND ENVIRONMENTAL	ENGINEERING	PROJECT _	Piezor Plant	<u>meter Ir</u> t Schere	istallation
DEPTH /#/		LOG	MATE	RIAL DESCRIPTION		ELEVATION	Neak Moderate Strong	COMMENTS
30			Sandy Silt (ML)( <i>Con't</i> ) - mottled reddish yellow (7.5) with black streaking - mottled reddish yellow (7.5) black streaking	′R 6/8) saprolite wet, mediur ′R 6/8) saprolite wet, stiff, m	n stiff, micace	ious,		SPT N=7bpf(@28.5ft.) SPT N=10bpf(@33.5ft.)
			- mottled gray (7.5YR 6/1) sa Bottom	prolite wet, stiff, trace mica of borehole at 40.1 feet.				SPT N=14bpf(@38.5ft.)
-P01/LAPARK								
45								
0 08:40 -								
<u>1 - 8/27/2</u>								
3ASE.GD								
50								
- 00 - ES								
OLOGY								
SIMPLE GE								

	WEL	RECORD OF L CONSTRUCTION		WELL: PZ-15S PAGE 1 OF 2 <u>ECS38467</u>
SOUTHERN COMPANY SERVIC	CES, INC.	PROJECT Piezometer Installation	on	
EARTH SCIENCE AND ENVIRO	NMENTAL ENGINEERING	LOCATION Plant Scherer		
DATE STARTED _4/28/2015	_ COMPLETED _4/28/2015	GROUND ELEVATION 497.4 ft		N 1121486.96 E 2405558.59
CONTRACTOR Civil Field Servic	es METHOD	Hollow Stem Auger	EQUIPMENT CME	550
DRILLED BY T. Milam	LOGGED BY S. Baxter	CHECKED BY L. Millet	BORING DEPT	H _40.1 ft.
GROUND WATER DEPTH: DURIN	G _23.5 ft COMP19.6	ft DELAYED19.6 ft. after 24 hrs		
	WELL C	DATA		COMMENTS
Pro 4-fc Top	tective aluminum cover with bolla of square concrete pad of casing Elev. = 500.60	ards	ELEV.	
ELEV. Strata			(DEPTH)	
	-Surface Seal: concrete		495.4 (2.0)	
	_Annular Fill: Cement-Bentonite lbs/each	Grout - 6 bags Type I/II Portland Cement, 9	94	

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

SOUTHERN COMP/	RECORD OF WELL CONSTRUCTION	WELL: PZ-15S PAGE 2 OF 2 ECS38467
SOUTHERN COMPAN EARTH SCIENCE AND	Y SERVICES, INC.     PROJECT     Plezometer Installation       D ENVIRONMENTAL ENGINEERING     LOCATION     Plant Scherer	
BOREHOLE DATA	WELL DATA Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 500.60  LEEV. (DEPTH) (224.0)	COMMENTS
	Annular Seal: bentonite pellets - 1 Bucket Pel Plug 3/8" coated pellets, 50 lbs/each 470.1 (27.3) - Filter: Unimin FilterSil - 6 Bags #1A, 50 lbs/each 467.7 (29.7) Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack	
457.3	457.7	

	<b>A</b> 111			DOI			BORING PZ Page	<b>2-17 </b> 1 of 3
2	OUI	CON	PANY	BOH	RING LOG			
s	OUTHER		PANY SERVICES. INC.		PROJECT Piezo	meter l	nstallation	
E/	RTH S	CIENCE	AND ENVIRONMENTAL ENG	INEERING	LOCATION Plan	t Scher	rer	
				0/07/00/5				- 40- 0-
DAI	ESIA		COMPLETED	<u>2/27/2015</u> GRO		<u>179.9 ft</u>		0/10/.3/
		<b>OR</b> <u>Ci</u>		METHOD		OCK CO		
GRO	UND W		EPTH: DURING 235 ft	<b>COMP.</b> 28 51 ft	DELAYED 24	75.ft_af	ter 24 hrs	
NOT	ES					o ni u	<u></u>	
DEPTH (#)	GRAPHIC LOG		MATERIAL	DESCRIPTION	ELEVATION	eak HCL oderate REACTION	COMMENTS	
		Sai	ndy Silt (ML)			<u> </u>		
  		- m . ver	ottled yellowish red(5YR 5/8)。 y stiff, trace clay	and yellow (10YR 7/8	3) residuum moist,		SPT N=18bpf(@3.5ft.)	
		- m stif	ottled yellowish red(5YR 5/8)。 f, trace clay	and yellow (10YR 8/8	3) residuum moist,		SPT N=9bpf(@8.5ft.)	
P01\LAPARKER\$\DESKTOP\		- m trac	ottled red (2.5YR 4/8) and red æ residual quartz	(10R 4/8) saprolite m	noist, medium stiff,		SPT N=7bpf(@13.5ft.)	
- 8/27/20 08:40 - \\ALTRCF		· - m stif	ottled red (2.5YR 4/8) and yell f, with black streaking, trace we	ow (10YR 7/6) saprol athered rock fragmen	ite moist, medium ts		SPT N=8bpf(@18.5ft.)	
LOG - ESEE DATABASE.GDT		. ⊻ m . <b>⊻</b> bla	ottled yellowish red (5YR 5/8) a ck banding, trace residual quart	and red (10R 4/8) sa z	prolite wet, soft, with		SPT N=4bpf(@23.5ft.)	
SIMPLE GEOLOGY		 	ottled strong brown(7.5YR 5/8 YR 8/2)saprolite wet, very soft,	and very pale brown with black spots	n / very pale orange		SPT N=2bpf(@28.5ft.)	

so	DUT	HERN BOR	ING LOG		BORING PZ-17I Page 2 of 3			
SOL	JTHEF	N COMPANY SERVICES, INC.	PROJECT Piezometer Installation					
EAF	RTH S	CIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plan	nt Scher	er			
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Veak HCL Adderate REACTION Strong	COMMENTS			
		Sandy Silt (ML)(Con't)						
		Elastic Silt (MH) - mottled strong brown (7.5YR 5/8) and brownish yellow / orange (10YR 6/6) saprolite wet, medium stiff, with black a trace residual quartz, muscovite, biotite	<sup>/</sup> dark yellowish and white banding,		SPT N=5bpf(@33.5ft.)			
40		Silt (ML) - mottled reddish yellow (7.5YR 6/8) and yellow (10YR 7/ stiff, with black spots, trace weathered rock fragments	8) saprolite wet,		SPT N=9bpf(@38.5ft.)			
CHEKER LOGS: GPJ		- mottled reddish yellow(7.5YR 6/8) and yellow(10YR 7/ stiff, trace weathered rock fragments, residual quartz, bioti amphibole	8) saprolite wet, te, muscovite,		SPT N=12bpf(@43.5ft.)			
		- mottled reddish yellow(7.5YR 6/8) and yellow(10YR 7/ very stiff, trace weathered rock fragments, amphibole, resi muscovite	8) saprolite wet, dual quartz,		SPT N=27bpf(@48.5ft.)			
227/20 08:40ALTRCFP01/L		- mottled reddish yellow (7.5YR 6/8) and yellow (10YR 7/ very stiff, trace weathered rock fragments, residual quartz, amphibole	8) saprolite wet, muscovite,		SPT N=20bpf(@53.5ft.)			
6 - ESEE DATABASE.GDT - 8.		- mottled gray (10YR 6/1) and white (10YR 8/1) saprolite trace residual quartz, feldspar, biotite, muscovite	wet, very stiff,		SPT N=27bpf(@58.5ft.)			
SIMPLE GEOLOGY LOC		- mottled light gray (10YR 7/1) and white (10YR 8/1) sap hard, trace weathered rock fragments, residual quartz, felo	rolite wet, very Ispar, biotite		SPT N=84bpf(@63.5ft.) Switched to casing, advancing into upper weathered rock (Biotite Gneiss/Amphibolite)			

S	OUT	BORI	NG LOG			BORING PZ-17I Page 3 of 3			
so	UTHERN	N COMPANY SERVICES, INC.	PROJECT Piezometer Installation						
EA	RTH SC	IENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Pla	ant \$	Scher	er			
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	100M	Moderate REACTION	COMMENTS			
		Silt (ML)(Con't)							
		<b>Silty Sand (SM)</b> - mottled dark greenish gray (10GY 4/1) saprolite wet, very coarse grained, with residual quartz, biotite, feldspar, amph	r hard, fine to iibole		· · · · · · · · · · · · · · · · · · ·	SPT N=63bpf(@68.5ft.)			
	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<ul> <li>mottled dark greenish gray (10GY 4/1) saprolite wet, very coarse grained, with residual quartz, biotite, feldspar, ampf</li> <li>Partially Weathered Rock (PWR)</li> <li>mottled dark greenish gray (10GY 4/1) saprolite wet, very</li> </ul>	r hard, fine to iibole r hard, fine to			SPT N=50bpf(@73.5ft.) Top of rock at 74.1 ft bgs, advanced casing to 81.1 ft bgs and began coring.			
80		Coarse grained, with residual quartz, biotite, feldspar, amph	ibole						
		- dark gray (N3) fine to medium grain, soft, slightly to mod 12 moderate-angle fractures (30 - 45d), becomes interbed Gneiss	erately weathered ded with Biotite	d,					
		BIOTITE GNEISS							
90		<ul> <li>mottled with dark gray (N3) medium grain, soft to mediur weathered, inclined, banded, 10 moderate-angle fractures oxidized throughout, thin to medium foliation, mechanically schistocity (35 - 65d), 0.1 to 10 mm thick quartz/feldspar-fi</li> </ul>	n hard, slightly (30 - 45d), fractured along illed healed		· · · · · · · · · · · · · · · · · · ·				
		fractures	(00 / F N		· · · · · · · · · · · · · · · · · · ·				
		<ul> <li>- 4 iow-angle fractures (10 - 30d), 2 moderate-angle fractu becomes more competent with depth</li> </ul>	res (30 - 45d),						
		Bottom of borehole at 97.3 feet.							

SOUT	HERN	ANY		RE WELL C	ECORD OF		WELL: PZ-17I PAGE 1 OF 3 ECS38467
SOUTHER		IY SERVIC	CES. INC.		PROJECT Piezometer Installat	ion	
EARTHS	CIENCE AN	D ENVIRO	NMENTAL ENG	BINEERING	LOCATION Plant Scherer		
DATE STAI	RTED 2/26/	2015	COMPLETED		DUND ELEVATION 479.9 ft		N 1120190.27 E 2407107.37
CONTRACT	OR _Civil F	ield Service	es	METHOD Holld	w Stem Auger; HQ Rock Core	_ EQUIPMENT _ CME	550
DRILLED B	Y T. Milam		LOGGED BY	S .Baxter	CHECKED BY L. Millet	BORING DEP	<b>FH</b> 97.3 ft.
GROUND W	ATER DEPT	H: DURIN	<b>G</b> <u>23.5 ft.</u>	_ COMP28.51 ft.	DELAYED 24.75 ft. after 24 h	<u>n</u> rs.	
BOREHOLE	(ft)			WELL DAT	Ą		COMMENTS
	DEPTH	Prot 4-fo Top	tective aluminum oot square concre of casing Elev.	n cover with bollards ete pad = 483.03		EL EV/	
ELEV. Strata						(DEPTH)	
			-Surface Seal: c	oncrete			
		<b>V</b>				477.9	
R .						(2.0)	
GS: O							
	22						
C/SC							
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	SC	DUT	HERN	ING LOG		BORING PZ-19I Page 1 of 2
			COMPANY		notor !	actallation
	SOL EAF	JTHER RTH SC	N COMPANY SERVICES, INC. CIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plant	Scher	er
	DATE	STAR	TED _3/3/2015         COMPLETED _3/4/2015         GROU	ND ELEVATION 4	14.5 ft	COORDINATES <u>N 1118588.47 E 2407251.56</u>
0	CONT	RACT	OR Civil Field Services METHOD Hollow	Stem Auger; HQ Ro	ock Cor	e EQUIPMENT CME550
			Z. T. Milam     LOGGED BY     S. Baxter		Millet	BORING DEPTH _71.9 ft.
N	IOTES	S		_ DELATED _0.51	t. arter	241115.
- HUUU	UEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Veak Adderate ReacTION	COMMENTS
	· · · · · · · ·		<ul> <li>✓ Lean Clay (CL)</li> <li>✓ Hand auger 5' for utilities clearance</li> </ul>		VV M	
PIGPC/SCHERER LOGS.GPJ	_5  10		- mottled red (2.5YR 5/8) and light red / moderate reddis residuum wet, soft, trace organics	h orange (10R 6/6)		SPT N=4bpf(@8.5ft.) (MC = 34.7%; UW(d) = 86pcf; PERM. = 1.14E-5cm/sec)
011/LAPARKER\$\DESKTC : : : ! :	 15 		Sitty Sand (SM) - mottled reddish yellow (7.5YR 7/8) and light red / mode orange (10R 6/6) saprolite wet, loose, very fine to fine gra streaking, trace residual quartz	rate reddish ined, with black		SPT N=7bpf(@13.5ft.)(PL=NP; FC = 39.3%; Gravel = 0%)
3/27/20 08:40 - \\ALTRCFF : : : : : :	<u>20</u>		- mottled gray (7.5YR 5/1) and white (10R 8/1) saprolite dense, very fine to fine grained, trace biotite, muscovite, re amphibole	wet, medium esidual quartz,		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)
ESEE DATABASE.GDT - 8	<u>25</u>		- mottled gray (7.5YR 5/1) and white (10R 8/1) saprolite dense, very fine to fine grained, trace residual quartz, bioti feldspar	wet, medium ite, muscovite,		SPT N=16bpf(@23.5ft.)
SIMPLE GEOLOGY LOG -	30		- mottled strong brown (7.5YR 5/6) saprolite wet, medium fine grained, trace residual quartz, feldpar, biotite, oxides	n dense, very fine to		SPT N=15bpf(@28.5ft.)

SOUT			G		BORING PZ-19I Page 2 of 2		
3001	COMPANY		J				
SOUTHEF	N COMPANY SERVICES, INC. CIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plant Scherer					
DEPTH (ft) GRAPHIC LOG	MATERIAL DESCRIPTION		ELEVATION	leak HCL loderate REACTION trong	COMMENTS		
35 35 34 34 34 34 34 34 34 34 34 34 34 34 34	<b>Silty Sand (SM)</b> ( <i>Con't</i> ) - mottled gray (7.5YR 5/1) saprolite wet, very dense, very grained, with white and black and orange streaking, trace of quartz, amphibole, biotite	fine to fine oxides, residua	al	S Z A	SPT N=59bpf(@33.5ft.)		
40 1	- mottled dusky yellow green (5GY 5/2) saprolite wet, very fine grained, with white and black and orange streaking, trastaining, residual quartz, feldspar, biotite, muscovite, ample	dense, very fi ace iron oxide nibole	ne to		SPT N=56bpf(@38.5ft.)		
45 1911 45 1914 1914 1914 1914	- mottled dark gray (N3) saprolite wet, dense, very fine to f white streaking, trace iron oxide staining, residual quartz, f	ine grained, w eldspar, biotite	∕ith ∋		SPT N=40bpf(@43.5ft.)		
50 	- mottled dark gray (N3) saprolite wet, very dense, very fin with white speckling, trace biotite, residual quartz, iron oxid	e to fine graind le staining	ed,		SPT N=87bpf(@48.5ft.)		
55 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Partially Weathered Rock (PWR) - mottled dark gray (N3) saprolite wet, very dense, very fin- grained, weathered Amphibolite	e to coarse			SPT N=50bpf(@53.5ft.)		
60	<ul> <li>mottled with dark gray (N3) medium to fine grain, soft to slightly to moderately weathered, inclined, banded, 4 mode fractures (30 - 45d), medium to thin foliation, slight to moc fracturing along schistocity (36 - 65d), oxidation, quartz, fe amphibole</li> <li>10 moderate-angle fractures (30 - 45d), becomes thin to banding, interbedded with dark gray to black Amphibolite C</li> </ul>	medium hard rrate-angle lerate mechan Idspar, biotite, laminated Gneiss	, iical		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						
	Bottom of borehole at 71.9 feet						

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s	OUT	HE CO <i>l</i>	RN <b>A</b> MPAI			WEL	RE( L CC	CORD OF		WELL: PZ-19I PAGE 1 OF 2 <u>ECS38467</u>
sc	OUTHER	N CO	MPANY	SERV	ICES, INC.			PROJECT Piezometer Installa	tion	
EA	ARTH SC	IENC	E AND E	INVIR	ONMENTAL EN	GINEERING		LOCATION Plant Scherer		
DAT	E STAR	TED	3/3/201	5		<b>D</b> _3/4/2015	_ GROU	ND ELEVATION 414.5 ft		TES <u>N 1118588.47 E 2407251.56</u>
CON	TRACT	OR _(	Civil Field	Serv	ices	METHOD	Hollow	Stem Auger; HQ Rock Core		CME550
DRIL	LED BY	<u> </u>	Vilam		LOGGED BY	S. Baxter		CHECKED BY L. Millet	BORING	<b>DEPTH</b> 71.9 ft.
GRO		TER	DEPTH:	DURI	NG <u>1.5 ft.</u>	_ <b>COMP.</b> _0 ft.		_ DELAYED _ 0.5 ft. after 24 hr	<u>S.</u>	
NOT	ES									
BOR	EHOLE	(ft)				WELL	DATA			COMMENTS
		DEPTH		Pr 4-	rotective aluminur foot square conci	m cover with bol rete pad	ards			
ELEV	. Strata				p of casing Elev.	= 417.70			ELEV. (DEPTH)	
		•3		Β		concrete				
									412.5	
2									(2.0)	
200										
ÉR L										
				$\mathbb{X}$						
		Ē								
۲ 401	5									
		15								
-										
012317				$\mathbb{X}$						
-		0								
- (M										
		5								
					Annular Fill: Ci	ement-Bentonite	Grout -	7.5 bags Typel I/II Portland Cem	ent. 94	
		8		**	lbs/each	Senter Demonito	5.001-		,	
Т Т										
112 WI										
× 🗆		$\square \square$		$\times$						



EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING       LOCATION       Plant Scherer         DATE STARTED       3M/2015       COMPLETED       3M/2015       GROUND ELEVATION       414.5 ft       COORDINATES       N1118587.24 E 2407241.5         DRILED BY       T. Maliam       LOGGED BY       S. Bader       CHECKED BY       L Miller       BORING DEPTH: 28 ft         REVIEW       COMPLETED       S. Bader       CHECKED BY       L Miller       BORING DEPTH: 28 ft         NOTES       MATERIAL DESCRIPTION       Status       DELAYED       0.5 ft       COMMENTS         Status       MATERIAL DESCRIPTION       Status       Status       COMMENTS         Status       MATERIAL DESCRIPTION       Status       SPT N=3bpl(@8.5ft.)       COMMENTS         Status       - Intelled readish valiow (7.5YR 6/8), light red / moderate residish crange (106 6/8) and light red / moderate residish crange (106 6/8) and light red / moderate residish crange (106 6/8) and light red / moderate residish crange (106 6/8) and light red / moderate residish crange (106 6/8) and light red / moderate residish crange (106 6/8) and light red / moderate residish crange (106 6/8) approlite wet, textus       SPT N=3bpl(@13.5ft)	S	DUT	HERN AS COMPANY N COMPANY SERVI	BOF	RING LOG	meter Ir	BORING PZ-19S Page 1 of 1
Image: Second	EAI DATE CONT DRILL GROU NOTE	RTH SC STAR RACTO LED BY ND WA	TED _3/4/2015 OR _Civil Field Servic 7 _T. Milam TER DEPTH: DURIN	DNMENTAL ENGINEERING         _ COMPLETED       3/4/2015       GRO         xes       METHOD       Hollor         _ LOGGED BY       S. Baxter         IG       0.5 ft.       COMP.       1.5 ft.	LOCATION _Plan UND ELEVATION _4 w Stem Auger _ CHECKED BY _L. _ DELAYED _0.5	t Scher 114.5 ft Millet ft. after	er COORDINATES <u>N 1118587.24 E 2407241.54</u> EQUIPMENT <u>CME550</u> BORING DEPTH <u>25 ft.</u> <u>24 hrs.</u>
P = 2 d      P = 4      P =	DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION	ELEVATION	eak HCL <sup>oderate</sup> REACTION	COMMENTS
- 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			<ul> <li>Silty Sand (ML)         <ul> <li>Hand auger 5' f</li> <li>Hand auger 5' f</li> </ul> </li> <li>mottled reddish (10R 6/6) and lig very loose, very f</li> <li>mottled strong I (10R 6/6) and lig loose, very fine to foose, very fine to fragments</li> </ul>	yellow (7.5YR 6/8), light red / moderat ht red / moderate reddish orange (10R ine to fine grained, trace biotite, residual prown (7.5YR 5/6), light red / moderate ht red / moderate reddish orange (10R o fine grained, trace residual quartz, bio yellow (7.5YR 6/8), light red / moderate ht red / moderate reddish orange (10R o fine grained, with black streaking, trac	e reddish orange 6/6) saprolite wet, Il quartz, feldspar e reddish orange 6/6) saprolite wet, tite e reddish orange 6/6) saprolite wet, e weathered rock		SPT N=3bpf(@8.5ft.) SPT N=9bpf(@13.5ft.) SPT N=5bpf(@18.5ft.)
	25		- mottled reddish and light red / mo dense, very fine t fragments	yellow (7.5YR 6/8), very dark greenish derate reddish orange (10R 6/6) sapro o fine grained, trace residual quartz and Bottom of borehole at 25.0 feet	gray (10BG 3/1) lite wet, medium d weathered rock	 	SPT N=12bpf(@23.5ft.)

SOUTHERN COMP	ANY WEL	RECORD OF		WELL: PZ-19S PAGE 1 OF 1 <u>ECS38467</u>
SOUTHERN COMPAN EARTH SCIENCE AN	NY SERVICES, INC. ID ENVIRONMENTAL ENGINEERING	LOCATION Plant Scherer	on	
DATE STARTED _3/4/2 CONTRACTOR _Civil F DRILLED BY _T. Milam GROUND WATER DEPT NOTES	2015         COMPLETED         3/4/2015           Field Services         METHOD           Image: Method Services         Method Services           Image: Method Services	_ GROUND ELEVATION _414.5 ft _Hollow Stem Auger CHECKED BY _L. Millet ft DELAYED _0.5 ft. after 24 hrs.	Coordinates _ Equipment Boring Dep	N 1118587.24 E 2407241.54 E550 TH _25 ft.
	WELL I Protective aluminum cover with boll 4-foot square concrete pad Top of casing Elev. = 417.80	<b>DATA</b> lards	ELEV.	COMMENTS
	Surface Seal: concrete    Annular Fill: Cement-Bentonite     lbs/each    Annular Seal: bentonite pellets     lbs/each    Filter: Unimin FilterSil - 6 Bags     Well: 2" OD PVC (SCH 40)     Screen: 10 ft. pre-pack	e Grout - 1.5 bags Typel I/II Portland Cemer	412.5 (2.0) nt, 94 	
<u>389.5 附款 8 代表</u>	Sump:0.40 ft.		JOS.9	

so	DUTH		BORING	LOG		BORING PZ-201 Page 1 of 2
SOL	JTHERN	COMPANY SERVICES, INC.	PROJ	ECT Piezo	meter Ir	Istallation
EAF	RTH SCIE	NCE AND ENVIRONMENTAL ENGINEERING	LOCA	TION Plan	t Schere	Pr
DATE	STARTE	<b>COMPLETED</b> 3/10/2015	GROUND ELE	EVATION 4	14.3 ft	COORDINATES N 1118318.15 E 2407273.36
CONT	RACTOR	R Civil Field Services METHO	D Hollow Stem A	uger; HQ Ro	ock Cor	e EQUIPMENT CME550
DRILL	ED BY _	T. Milam LOGGED BY S. Baxter	CHEC	KED BY <u>L</u> .	Millet	BORING DEPTH _79.6 ft.
GROU		ER DEPTH: DURING <u>5 ft.</u> COMP. <u>3.2</u>	<u>2 ft.</u> <b>DEL</b>	AYED 3.21	ft. after	<u>24 hrs.</u>
NOTE	s				7	
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTI	ON	ELEVATION	Veak Aoderate Strong REACTIOI	COMMENTS
		Sandy Fat Clay (CH) - Hand auger 5' for utilities clearance				
		,				
		-				
		-				(MC = 30%; UW(d) = 96 9pcf; PERM = 1 07E-6cm/sec)
George 10		- mottled light gray (7.5YR 7/1) residuum wet, s sand, trace organics	stiff, moderate pla	sticity, with		SPT N=11bpf(@8.5ft.)(LL=53; PI=31; FC = 72.3%; Gravel = 0%)
HOSODAD		Silty Sand (SM) - mottled black (7.5YR 2.5/1) and white (10R 8 dense, very fine to fine grained, trace residual q	3/1) saprolite wet, uartz, feldspar, bio	medium otite		SPT N=20bpf(@13.5ft.)
LAPARKER\$/DES		- mottled pinkish white (7.5YR 8/2) and pinkish (10R 8/2) saprolite wet, medium dense, very fin	n white / grayish o e to fine grained, v	range pink with black		SPT N=14bpf(@18.5ft.)
ALTRCFP01		streaking, trace diotite, residual quartz, ampnido	le			(MC = 27.6%; UW(d) = 99.8pcf; PERM. = 2.97E-9cm/sec)
- 08:40 25 		- mottled pinkish gray (7.5YR 7/2) saprolite wet fine grained, with white banding, trace weathere	, medium dense, d rock fragments	very fine to and mica		SPT N=13bpf(@23.5ft.)(PL=NP; FC = 42.7%; Gravel = 0%)
ESEE DATABASE.GDT - 8, 00 00 00 00 00 00 00 00 00 00 00 00 00		- mottled pinkish gray (7.5YR 7/2) saprolite wet fine grained, with white banding, trace residual o muscovite	, medium dense, juartz, feldspar, b	very fine to iotite,		SPT N=28bpf(@28.5ft.)
- 007 K00 - 35		- mottled pinkish gray (7.5YR 7/2) saprolite wet fine grained, with white banding, trace residual o oxides, weathered rock fragments	, medium dense, quartz, biotite, mu	very fine to scovite,		SPT N=12bpf(@33.5ft.)
allo	1.1.1					

ARTH SC	IENCE AND ENVIRONMENTAL ENGINEERING LOCA	<b>FION</b> Plant	Schere	er
(II) GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Neak Voderate Strong REACTION	COMMENTS
	Silty Sand (SM)(Con't) - mottled gray (7.5YR 6/1) saprolite wet, very dense, very fine to f grained, with black and white banding, trace residual quartz, mica, rock fragments	ine weathered		SPT N=52bpf(@38.5ft.)
	- mottled gray (7.5YR 6/1) saprolite wet, dense, very fine to fine g with black and white banding, with trace mica, residual quartz, hor	rained, nblende		SPT N=40bpf(@43.5ft.)
11년년 11년년 11년년 11년년 11년년 11년년 11년년	- mottled very dark gray (7.5YR 3/1) saprolite wet, very dense, ver fine grained, with white speckling, trace oxide staining, mica, resid amphibole	ry fine to ual quartz,		SPT N=50bpf(@48.5ft.)
1993년 1993년 - 1993년 - 1993년 - 1993년 - 1993년 - 1993년 - 1993년 - 1993년 - 1993년 - 1993년 - 1993년	- mottled very dark gray (7.5YR 3/1) saprolite wet, very dense, ver fine grained, with white banding, trace oxide staining, mica, residu amphibole	ry fine to al quartz,		SPT N=50bpf(@53.5ft.)
	<ul> <li>mottled very dark gray (7.5YR 3/1) saprolite wet, very dense, ver fine grained, with white and black banding, trace oxide staining, mi residual quartz, feldspar, amphibole</li> <li>Partially Weathered Rock (PWR)</li> <li>very fine to medium grained, with white and black banding, trace staining, mica, residual quartz, feldspar, amphibole</li> </ul>	ry fine to ica, oxide		SPT N=50bpf(@58.5ft.)
0.04.0				
	AMPRIBULITE GNEISS - mottled with dark gray (N3) medium to fine grain, soft to mediun moderately to highly weathered, inclined, banded, 5 low-angle frac 30d), 4 moderate-angle fractures (30 - 45d), thin to laminate band mechanical fracturing along schistocity (30-50d)	n hard, tures (10 - ing, slight		
	- mottled with dark gray (N3) medium to fine grain, soft to mediun moderately to highly weathered, inclined, banded, 2 low-angle frac 30d), 8 moderate-angle fractures (30 - 45d), 5 high-angle fracture 90d), becomes more laminated and competent with depth	n hard, tures (10 - s (65 -		
	- mottled with dark gray (N3) medium to fine grain, soft to mediun moderately to highly weathered, inclined, banded, 8 low-angle frac 30d), 5 moderate-angle fractures (30 - 45d), 3 high-angle fracture 90d), becomes slightly less competent	n hard, tures (10 - s (65 -		

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	SOL	JTH C	IERN OMP		ŕ	WEL	REC L CO	ORD OF NSTRUCTION		WELL: PZ-20I PAGE 1 OF 2 <u>ECS38467</u>
	SOUTH	IERN	COMPA	NY SEF	RVICES, INC.		I	PROJECT Piezometer Inst	allation	
	EARTH	I SCIE	NCE AN	ID ENV	IRONMENTAL EN	GINEERING	I	LOCATION Plant Scherer		
	DATE ST	ARTE	ED _3/10	)/2015	COMPLETE	<b>D</b> _3/10/2015	GROUN	DELEVATION 414.3 ft	COORDINA	TES <u>N 1118318.15 E 2407273.36</u>
	CONTRA	CTOR	R <u>Civil</u> F	Field Se	rvices	METHOD _	Hollow S	tem Auger; HQ Rock Core		CME550
	DRILLED	BY _	T. Milam	I		S. Baxter	(	CHECKED BY L. Millet	BORING	<b>DEPTH</b> 79.6 ft.
0	GROUND	WAT	ER DEP	TH: DU	RING 5 ft.	_ COMP 3.2 ft	<u>'t.</u>	DELAYED _3.2 ft. after 24	hrs.	
	NOTES _								1	
	BOREHO					WELL D	DATA			COMMENTS
	DATA	DEPTH			Protective aluminu 4-foot square conc Top of casing Elev	m cover with bolla rete pad . = 417.41	ards			
	ELEV. St	rata							ELEV. (DEPTH)	
			↓	5	Surface Seal:	concrete			110 0	
									(2.0)	
GPJ										
OGS.	, C	<u>.</u>	2							
RER										
SCHE										
GPC										
KTOP										
\$\DES										
RXER N H	401.3		·							
LAPA		1.1.1 1.1.1 1.1.1								
1011		신 : 사 1 : 사 1 : 사 1 : 사								
ALIK			·							
- /G										
20 14										
10/29/		). 1.1	·							
- I DE										
3ASE.		 								
AIA										
- (MC										
NO										
CRD (										
ION R		-1:-1- :1::1-								
RUCI			·		Annular Fill: C	ement-Bentonite	Grout - 9	bags Typel I/II Portland Cen	nent, 94	
ONST		1   1 7			IDS/EACT					
ELL C										
2012 M			·		\$					

<sup>(</sup>Continued Next Page)



SC				RING LOG	ezom	neter Ir	BORING PZ-21S Page 1 of 1
EAR	THER TH SO	CIENCE AND ENVIRO	, ES, INC. NMENTAL ENGINEERING		lant	Schere	Pr
DATE CONT DRILL	STAF RACT ED B	RTED _3/11/2015 OR _Civil Field Service / _T. Milam	COMPLETED <u>3/12/2015</u> GRO es <u>METHOD Hollow</u> LOGGED BY <u>S. Baxter</u>	UND ELEVATION W Stem Auger CHECKED BY	L. I	<u>70.6 ft</u> Millet	COORDINATES         N 1117639.19         E 2407006.52           EQUIPMENT         CME550           BORING DEPTH         25 ft.
GROUN NOTES	ND W/ S	ATER DEPTH: DURIN	G <u>1.5 ft.</u> COMP. <u>3.2 ft.</u>	DELAYED _3	3.2 ft	. after	24 hrs
DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION			eak oderate trong REACTION	COMMENTS
5		Sandy Silt (ML) - Hand auger 5' fo ⊻	r utilities clearance			WW MG	
10		- mottled reddish orange (10R 6/6)	yellow (7.5YR 6/8) and light red / moo residuum wet, soft, trace mica	lerate reddish			SPT N=4bpf(@8.5ft.)
		- mottled reddish y medium stiff, with	vellow (7.5YR 6/8) and yellow (10YR black streaking	7/6) saprolite wet,			SPT N=5bpf(@13.5ft.)
20		- mottled light gra spots, trace residu fragments	y (7.5YR 7/1) saprolite wet, very stiff, ial quartz, feldspar, biotite, muscovite,	with white and bla weathered rock	ck		SPT N=17bpf(@18.5ft.)
25		- mottled white (7 6/6) saprolite wet, rock fragments	.5YR 8/1) and light red / moderate rec very stiff, micaceous, with black bandi Bottom of borehole at 25.0 feet.	ddish orange (10R ing, trace weather	ed		SPT N=22bpf(@23.5ft.)

SOUT	HERN COMP	ANY		R WELL	RECORD OF		WELL: PZ-21S PAGE 1 OF 1 <u>ECS38467</u>
SOUTHER		NY SERVIC	ES, INC.		PROJECT Piezometer Installation	n	
EARTH SC	CIENCE AN	d Enviroi	NMENTAL ENG	GINEERING	LOCATION Plant Scherer		
DATE STAR	TED _ 3/11/	/2015	COMPLETED	<u>3/12/2015</u> GF	ROUND ELEVATION 470.6 ft	COORDINATES	N 1117639.19 E 2407006.5
CONTRACTO	OR _Civil F	ield Service	S	METHOD Ho	llow Stem Auger	EQUIPMENT _CM	1E550
DRILLED BY	T. Milam		LOGGED BY	S. Baxter	CHECKED BY L. Millet	BORING DEF	<b>PTH</b> _25 ft.
GROUND WA	ATER DEPT	'H: During	<b>3</b> _1.5 ft.	<b>COMP.</b> <u>3.2 ft.</u>	DELAYED _3.2 ft. after 24 hrs.		
BOREHOLE	(ft)			WELL DA	ΤΑ		COMMENTS
DATA		Prot	ective aluminum	n cover with bollards	3		
	DE	4-тос Тор	of casing Elev.	ete pad = 473.74		FLEV	
ELEV. Strata						(DEPTH)	
			Surface Seal: c	oncrete			
			••••••			468.6	
	2		Annular Fill: Ce	ment-Bentonite Gro	out - 4 bads Typel I/II Portland Cement. 9	94	
			lbs/each				
		- <b>X</b>				461.6	
	19		Annular Seal <sup>.</sup> b	entonite pellets - 1 F	Bucket Pel Plug 3/8" coated pellets 50	()	
			lbs/each		p,,		
						458.6	
			Filter: Unimin F	ilterSil - 6 Bags #1A	A, 50 lbs/each	457.6	
						(10.0)	
	12						
			Well: 2" OD P	/C (SCH 40)			
			Screen: 10 n.	рге-раск			
	50						
			Cump-0.40.4			447.6	
		···	Sump:0.40 II.			(23.0)	
445.6	25						

S	OUT		BO	RING LOG		BORING PZ-25 I Page 1 of 3
so	UTHER	N COMPANY SERVICES. INC.		PROJECT Additi	onal Hydrog	eological Investigation (2016)
EA	RTH SC	CIENCE AND ENVIRONMENTA	L ENGINEERING	LOCATION Plan	t Scherer	
DAT	E STAR	TED 5/22/2016 COMPI	<b>ETED</b> 5/24/2016 <b>GRO</b>	OUND ELEVATION 5	525.8 ft	COORDINATES N 1121837.8 E 2404573.04
CON	TRACTO	OR Cascade	METHOD Rotos	sonic		EQUIPMENT Tracked
DRIL	LED BY	M. Pope LOGGI	DBY W. Shaughnessy	CHECKED BY B	Smelser	BORING DEPTH <u>126 ft.</u>
GROL	JND WA	TER DEPTH: DURING	<b>COMP.</b> <u>32.5 ft.</u>	<b>DELAYED</b> 30.6	6 ft. after 24	<u>hrs</u> .
NOTE	ES					
DEPTH (ft)	GRAPHIC LOG	MA	FERIAL DESCRIPTION	ELEVATION	Veak HCL Aoderate REACTION strong	COMMENTS
		Well-graded Sand with C - mottled red (2.5YR 4/6) c illmenite	l <b>ay (SW-SC)</b> Iry, fine to medium-grained, v	with magnetite and		
  		- yellowish red (5YR 4/6) d	ry, with silt			
10 172 10 172 10 172 10 172 10 172 10 172 10 172 10 172 10 172 10 172 172 172 172 172 172 172 172		<ul> <li>reddish yellow (7.5YR 6/8 feldspar</li> <li>mottled strong brown (7.5 6/3) dry, fine to coarse-gra</li> <li>with magnetite and illmeni</li> </ul>	3) with black and white mottlin 6YR 5/8), light gray (2.5Y 7/2 ined, trace fine quartz gravel te	ng, weathered ?) and pale red(10R		
		- strong brown (7.5YR 5/8) grayish orange (10YR 7/4)	, black (7.5YR 2.5/1) and ve with mica	ry pale brown /		
30		<ul> <li>mottled dark reddish brow moist, with sandy clay (CL)</li> </ul>	n (2.5YR 3/4) and dark red bedding	dish gray (2.5YR 3/1)		
20 08:94			5YR 5/8) and black (7.5YR 2	2.5/1)		
35		- dark red (2.5YR 3/6), red flow-banded fabric	(2.5YR 4/6) and reddish gra	y (2.5YR 5/1) wet,		
AI ABASE.GD		Elastic Silt (MH) - mottled weak red (10R 5/ with sandy clay (CH) beddir	3) and reddish black (10R 2 Ig	2.5/1) wet, medium,		
	· · · · · · · · · · · · · · · · · · ·	- mottled strong brown (7.5 (2.5Y 2.5/1)	iYR 5/8), light brownish gray	(2.5Y 6/2) and black		
SIMPLE GEC 50		- reddish brown (2.5YR 4/4 2.5/1) wet, with sandy clay	<ol> <li>reddish yellow (7.5YR 6/6 (CH) bedding</li> </ol>	) and black(7.5YR		



## **BORING LOG**

LOCATION Plant Scherer

Page 2 of 3

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING PROJECT Additional Hydrogeological Investigation (2016)

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Moderate REACTION	COMMENTS
		Elastic Silt (MH)(Con't)	22	
	••			
	 	- yellowish red / light brown (5YR 5/6)		
	·	Well-graded Sand with Clay (SW-SC)		
60		- 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)		
65				
		- dark gray / olive gray (5Y 4/1) and strong brown (7.5YR 5/6) moist		
~			1 : :	
Ö				
Zd				
₹				
ē				
		- mottled very dark gray (5Y 3/1) and white (N9)		
₹ 75		······································		
<u> </u>		- dark brown (10YR 3/3) with interlayered clay bedding		
(SC)				
GG				
80				
¥		- gray (10YR 5/1) moist		
<u>е</u>				
R\$/				
¥				
PAR				
<b>∀</b>		- very dark gray (2.5Y.3/1) regolith moist, dense		
۳ <u></u>				
J 90				
8:46		- very dark gray (5Y 3/1)		
50				
۵ <u>95</u>	-	- with interlayered clay bedding		
ы Ш				
ABA 				
¥ 100				
ESE		- dark yellowish brown (10YR 4/6) and olive (5Y 5/4)		
ان				
<u> </u>				
õ <u>l 105</u>				
B		- mottled black (2.5V.2.5/1), dark gray (2.5V. $4/1$ ) and white (NO)		
Щ		- mound black (2.01 2.0/1), dark yidy (2.01 4/1) and while (193)		
J				
× 110				

						BORING PZ-25 I
	SC	DUT	BOR	RING LOG		Page 3 of 3
	SOL	ITHER	COMPANY SERVICES INC	PROJECT Addition	onal Hy	drogeological Investigation (2016)
	EAF	RTH SC	ENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plant	Scher	er
ЛЕРТН	(ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak Moderate Strong	COMMENTS
			Well-graded Sand with Clay (SW-SC)(Con't)			
1	115		- grayish brown (2.5Y 5/2) - dark yellowish brown (10YR 3/6)			
1	120		- very dark gray (2.5Y 3/1)			
1	125					
		-	Bottom of borehole at 126.0 feet.			
C-19.0		ł				
7 		+				
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	135					
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	140					
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AKK	145	+				
2 2 2 1 2						
	150					
- 18:45	· · · · · · · ·	+				
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	155	ł				
	160					
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	165	l				
	170					

sou	JTHERN COMP			RI WELL C	ECORD OF		WELL: PZ-25 I PAGE 1 OF 3 <u>ECS38467</u>
SOUTH	SOUTHERN COMPANY SERVICES, INC.				PROJECT Additional Hydro	geological Investigation	(2016)
EARTH	SCIENCE AN	D ENVIRONME	NTAL ENG	INEERING	LOCATION Plant Scherer		
DATE ST	<b>ARTED</b> _5/22	/2016 CC	OMPLETED	_5/24/2016 GR0	DUND ELEVATION 525.8 ft	COORDINATES	N 1121837.8 E 2404573.04
CONTRA	CTOR Casca	de		METHOD Roto	osonic	EQUIPMENT Tra	cked
DRILLED	BY M. Pope	LC	GGED BY	W. Shaughnessy	CHECKED BY B. Smelser	BORING DEF	<b>PTH</b> <u>126 ft.</u>
GROUND	WATER DEPT	"H: During		COMP. <u>32.5 ft.</u>	DELAYED 30.6 ft. after 24	<u>4 hrs</u> .	
BOREHO DATA	LE (#)	]		WELL DAT	A		COMMENTS
ſď	DEPTH	Protectiv bollards Top of c	ve aluminum 4-foot squa asing Elev.	n cover with re concrete pad = 528.39		EI EV	
ELEV. St	rata					(DEPTH)	
SS_UPD		⊲ Surl	face Seal: co	oncrete		522.8	
NAL PZ						(3.0)	
KERAL							
SCHER							
(GPC)							
KTOP							
\$\$/DES							
CEPO							
MALTR							
4:21- -	52						
499.0 ·							
- 10/2							
E.GD1							
ABAS							
E DAT	gu						
489.8							
COM							
SD (NC	4 <u>0</u>						
N RCF							
NSTRI	45						
12 WE							
5	ū VX						

<sup>(</sup>Continued Next Page)



<sup>(</sup>Continued Next Page)
SOUTH	RECORD OF WELL CONSTRUCTION	WELL: PZ-25 I PAGE 3 OF 3 <u>ECS38467</u>
SOUTHERN EARTH SCIE	COMPANY SERVICES, INC.         PROJECT _ Additional Hydrogeological Investiga           NCE AND ENVIRONMENTAL ENGINEERING         LOCATION _ Plant Scherer	ation (2016)
BOREHOLE DATA	WELL DATA Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 528.39 ELEV. (DEPTH)	COMMENTS
	(0000000000000000000000000000000000000	
399.8	401.0 (124.8) (124.8) (125.0)	

S	ουτ		B			BORING PZ-25 S Page 1 of 2		
		COMPANY		BORING LOG				
so	UTHER	N COMPANY SERVI	CES, INC.	PROJECT Additi	onal Hydrog	eological Investigation (2016)		
EA	RTHSC		DNMENTAL ENGINEERING	LOCATION Plan	t Scherer			
DATI	E STAR	TED <u>5/24/2016</u>	_ COMPLETED _5/25/2016 G	Round Elevation _	525.5 ft	COORDINATES <u>N 1121848.11 E 2404567.52</u>		
CON	TRACT	OR _Cascade	METHOD _R	otosonic		EQUIPMENT Tracked		
DRIL	LED BY	M. Pope	LOGGED BY W. Shaughnessy	CHECKED BY B	Smelser	BORING DEPTH 56 ft.		
GROL NOTE	JND WA ES	ATER DEPTH: DURIN	IG COMP	DELAYED	6 ft. after 48	<u>hrs</u> .		
DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION	ELEVATION	leak HCL loderate REACTION	COMMENTS		
		Well-graded San - mottled red (2.5 illmenite	nd with Clay (SW-SC) 5YR 4/6) dry, fine to medium-graine	d, with magnetite and				
     		- yellowish red(5	SYR 4/6) dry, with silt					
10 10 10 10 10 10 10 10 10 10 10 10 10 1		- reddish yellow ( feldspar - mottled strong b 6/3) dry, fine to c - with magnetite a	(7.5YR 6/8) with black and white mo prown (7.5YR 5/8), light gray (2.5Y poarse-grained, trace fine quartz gra and illmenite	ottling, weathered 7/2) and pale red(10R vel				
RCFP01\LAPARKER\$\DESK		- strong brown (7 grayish orange (1 Sandy Silt (ML) - mottled dark rec moist, with sandy	7.5YR 5/8), black (7.5YR 2.5/1) and 0YR 7/4) with mica Idish brown (2.5YR 3/4) and dark i clay (CL) bedding	very pale brown / reddish gray (2.5YR 3/1)				
1 - 8/27/20 08:45 - MALT 30 32 32 32 32 32 32 32 32 32 32 32 32 32		<ul> <li></li></ul>	orown (7.5YR 5/8) and black (7.5Y R 3/6), red (2.5YR 4/6) and reddish c	R 2.5/1) gray (2.5YR 5/1) wet,				
EE DATABASE.GD		Elastic Silt (MH) - mottled weak re with sandy clay ( - mottled strong b	) d (10R 5/3) and reddish black (10l CH) bedding vrown (7.5YR 5/8), light brownish g	R 2.5/1) wet, medium, ray (2.5Y 6/2) and black				
Salmple Geology Loop 100 100 100 100 100 100 100 100 100 10		- reddish brown ( 2.5/1) wet, with s	2.5YR 4/4), reddish yellow (7.5YR sandy clay (CH) bedding	6/6) and black(7.5YR				

	so	DUTI	HERN BOF	RING LOG	BORING PZ-25 S Page 2 of 2
	SOL		I COMPANY SERVICES, INC.	PROJECT Additional Hydrogeo	logical Investigation (2016)
	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION Veak Moderate food fright	COMMENTS
	55		Elastic Silt (MH)( <i>Con't</i> ) - yellowish red / light brown (5YR 5/6)		
SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LAPARKER\$\DESKTOP\GPC\SCHERER ADDITIONAL PZS.GPJ	60 65 70 75 80 80 85 80 90 95 90 95 100 105		Bottom of borehole at 56.0 feet.		

SOUT		NY		RI WELL (	ECORD OF CONSTRUCTIO	N	WELL: PZ-25 S PAGE 1 OF 2 ECS38467
SOUTHER	N COMPANY	SERVIC	ES, INC.		PROJECT Additional H	lydrogeological Investig	ation (2016)
EARTH SC	CIENCE AND E	ENVIRO	NMENTAL ENGI	NEERING	LOCATION Plant Sche	erer	
		10	00401				
DATE STAR	(IEU <u>5/24/20</u>	16	COMPLETED	5/25/2016 GR	UUND ELEVATION 525.5		N 1121848.11 E 2404567.52
CONTRACT	UR <u>Cascade</u>			METHOD Roto			
DRILLED BY			LOGGED BY	W. Shaughnessy	CHECKED BY B. Sme	Iser BORING	<b>G DEPTH</b> <u>56 ft.</u>
NOTES	ATER DEPTH:	DURING		COMP	DELATED _32.6 ft. al	ter 48 nrs.	
BOREHOLE	(J)			WELL DAT	Α		COMMENTS
DATA	DEPTH	Prote 4-foo Top	ective aluminum ot square concre of casing Elev. =	cover with bollards te pad 528.24			
ELEV. Strata			-			ELEV. (DEPTH)	
		5	Surface Seal: co	ncrete			
		·				522.5 (3.0)	
		${\longrightarrow}$				. ,	
499.5			Annular Fill: Cen gal. water) Annular Seal: be	nent-Bentonite Grou ntonite pellets (1/2 -	tt (2 - 94# bags PC, 1/4 - 55 - 5 gal. buckect 3/8" pellets)	# bag gel, 55 	
			Filter: 20/20 cilio	a filter sand (5 - 0 5	cubic ft bags)		
			Filler. 20/40 SillC	a mier sanu (5 - 0.5	CUDIC IL DAUS)		
	20		Well: 2" OD PV	C (SCH 40)			

SOUTHERN COMPARY SERVICES, INC. PROJECT _Additional Hydrogeological Interestingation (2016) EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING LOCATION Plant Scherer BORENCE E BORENCE E COMMENTS Protective aluminum cover with holiards 4 Front square concrete pad Top of casing Elev. = 528.24 ELEV. State Contraster 409.5 Creen: 10 ft. 0.010" Slot Prepack 409.5
BOREHOLE E WELL DATA COMMENTS Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 528.24 (CEPTH) (CEPTH) 489.5 COMMENTS COMMENTS

S	OUTI			В	ORII	NG LOG		BORING PZ-26 S Page 1 of 1
so	UTHERN	COMPANY SERVIC	ES, INC.		F	PROJECT Add	tional Hy	lydrogeological Investigation (2016)
EA	RTH SCI	ENCE AND ENVIRO	NMENTAL ENGI	NEERING	I	LOCATION Pla	nt Scher	erer
DATE	E START	ED 6/1/2016	COMPLETED	6/1/2016	GROUN	D ELEVATION	489.1 ft	t COORDINATES N 1121696.65 E 2405733.23
CONT	FRACTO	R Cascade			Rotosoni	с		EQUIPMENT Tracked
DRILI	LED BY	J. Asua	LOGGED BY	W. Shaughness	sy <b>c</b>	CHECKED BY	B. Smels	ser BORING DEPTH _46 ft.
GROU		er Depth: Durin	G	COMP		DELAYED 12	.5 ft. afte	ter 72 hrs.
NOTE	:s							1
DEPTH (ft)	GRAPHIC LOG		MATERIAL	DESCRIPTION		ELEVATION	Veak Moderate Strong	COMMENTS
		Lean Clay (CL) - dark red (2.5YR	3/6) dry, with silt					<u>b</u>
5		- red (2.5YR 4/6)						
·····		- red (2.5YR 4/8)						
		Sandy Silt (ML) - red (2.5YR 4/6) - yellowish red (5	and reddish blac YR 4/6) damp, wit	k (2.5YR 2.5/1) h mica	dry, with	n mica		
20		- red (2.5YR 4/6) <b>Poorly-graded S</b> - mottled yellowisł mica	wet and with Silt (SP h red (5YR 5/8) a	<b>-SM)</b> nd black (5YR 2	2.5/1) fin	ne-grained, with		
		- mottled strong b	rown (7.5YR 4/6)	and black (7.5	YR 2.5/1	)		
35		Elastic Silt (MH) - olive brown (2.5 Silty Sand (SM) - light olive brown	Y 4/4) wet, with fi (2.5Y 5/6) fine-g	ne sand, micace rained, micaceo	eous			
40		Poorly-graded S	and (SP)					
45		- gray / light olive	gray (5Y 6/1) and	white / yellowis	sh gray (8	5Y 8/1) fine to		
9 		- light olive brown	(2.5Y 5/6) fine-g	rained, micaceo	us			
50	.		Bottom of bo	rehole at 46.0 fe	eet.			

SOUTHERN COMP		RECORD OF CONSTRUCTION		WELL: PZ-26 S PAGE 1 OF 1 ECS38467
SOUTHERN COMPAN	NY SERVICES, INC.	PROJECT Additional Hydrogeo	logical Investigation (201	6)
EARTH SCIENCE ANI	D ENVIRONMENTAL ENGINEERING	LOCATION Plant Scherer		
DATE STARTED _6/1/2	2016 COMPLETED 6/1/2016 G	ROUND ELEVATION 489.1 ft		1121696.65 E 2405733.23
	ide METHOD Ro	otosonic	EQUIPMENT Tracked	Ŀ
DRILLED BY <u>J. Asua</u> GROUND WATER DEPT NOTES	LOGGED BY _W. Shaughnessy TH: DURING COMP	CHECKED BY _B. Smelser	BORING DEPTH	_46 ft.
BOREHOLE =	WELL DA	ТА		COMMENTS
DATA HLA UQ ELEV. Strata	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 491.65	5	ELEV. (DEPTH)	
	Surface Seal: concrete			
	Annular Fill: Cement-Bentonite Gro gal. water)	but (3 - 94# bags PC, 1/4 - 55# bag gel	(3.0) (3.0) , 50 	
	Annular Seal: bentonite pellets (1 -	5 gal. buckect 3/8" pellets)	456.1	
454.1	-Filter: 20/40 silica filter sand (5 - 0.	5 cubic ft. bags)	(33.0) (34.8) (34.8)	
446.1	Well: 2" OD PVC (SCH 40)	:k	444.2	
	Sump:0.20 ft.			
			<u>(45.0</u> )	

S	OUT	HERN	BC	RING LOG		BORING PZ-27 D Page 1 of 3
SO EA	UTHER RTH SC	COMPANY IN COMPANY SERVI CIENCE AND ENVIRO	CES, INC. DNMENTAL ENGINEERING	PROJECT _Ad	eological Investigation (2016)	
DATE	E STAR	<b>TED</b> 6/14/2016	COMPLETED 6/17/2016 GR	OUND ELEVATION	472.4 ft	COORDINATES N 1121558.94 E 2406023.17
CON	TRACT	OR Cascade	METHOD Rot	osonic		EQUIPMENT Tracked
DRIL	LED B)	M. Pope		CHECKED BY	B. Smelser	BORING DEPTH <u>126 ft.</u>
GROL NOTE	JND WA	ATER DEPTH: DURIN	NG COMP	DELAYED 1	0 ft. after 24 hi	r <u>s.</u>
DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION		veak toderate HCL trong REACTION	COMMENTS
		Clayey Sand (So - dark brown (7. Lean Clay (CL) - mottled yellowis medium, with min	<b>C)</b> 5YR 3/3) damp, fine to medium-grain sh red (5YR 4/6) and yellowish browi ca	ed n (10YR 5/6) damp,		
وبرا 		- dark brown (10	YR 3/3) with fine quartz gravel			
10 10		Well-graded Sa - yellowish red / I moist, fine to coa	nd with Silt (SW-SM) ight brown (5YR 5/6) and yellowish b ırse-grained, with mica	orown (10YR 5/6)		
15 		- very dark gray	(10YR 3/1) black (10YR 3/1) oxidation	n mottling		
	· · · · · · · · · · · · · · · · · · ·	- dark brown (7.	5YR 3/4) wet			
25 		- brown (7.5YR	4/3) and strong brown (7.5YR $4/6$ ) fill	ne to coarse-grained		
30 30 30		- dark yenowish n Clayey Sand (S - grayish brown	(2.5Y 5/2) wet, with mica			
35		Well-graded Sa - grayish brown weathered rock b	nd with Silt (SW-SM) (2.5Y 5/2) and white / yellowish gray piotite gneiss, fine to coarse-grained,	(5Y 8/1) partially		
		- olive gray(5Y 4	4/2) wet, fine to coarse-grained			
		- mottled olive gr - UD tube attemp	ay (5Y 4/2) and white / yellowish gra	y (5Y 8/1)		
ייין פֿ ארך פֿ גוארך 50		- dark grayish bro coarse-grained, v Well-graded Sa	own (2.5Y 4/2) and yellow (2.5Y 7/6) with mica nd (SW)	) saprolite wet, fine t		



# **BORING LOG**

Page 2 of 3

SO		N COMPANY SERVICES, INC.	PROJECT Addit	ional Hydrogeol	ogical Investigation (2016)
			LUCATION Plan		
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak Moderate Strong	COMMENTS
55		Well-graded Sand (SW)(Con't) - very dark gray (2.5Y 3/1) and dark grayish brown (2 coarse-grained, with mica - very dark greenish gray (10Y 3/1) and greenish black gravel and clay (pulverized rock), biotite gneiss, fresh to	.5Y 4/2) wet, fine to ( (10Y 2.5/1) with o highly weathered		
60		Biotite Gneiss - dark gray / olive gray (5Y 4/1) and light gray (5Y 7/1 medium hard to hard, not to slightly weathered, banded fractured, sub-horizontal fractures - medium hard to hard, inclined, white feldspar and qua medium bedded - increased granitic composition 61 to 63 ft., light gray	) coarse grain, d, moderately artz banding, thin to with black banding		
  		- very dark gray (5Y 3/1) and black (5Y 2.5/2) coarse to very hard, not weathered, inclined, intensely to mode banding, thin bedded	grain, medium hard erately fractured, white		
ADDITIONAL I		- increased granitic composition 71 to 73 ft., light gray	with black banding		
08 08		- gray (2.5Y 5/1) coarse grain, medium hard to very h moderately fractured, black and white banding	ard, folded,		
08:45 - MALIRCEPOTILAPARKERSUDES		- gray (2.5Y 5/1) coarse grain, soft to hard, not weath fractured, black and white banding, thin to medium bec	ered, moderately Ided		
95		- very dark gray (2.5Y 3/1) completely weathered, 93	to 95 ft.		
ATABASE.GDT		- light gray (2.5Y 7/1) hard, inclined and folded beddir fractured, white and dark gray banding, thin to medium fractures	ng, moderately bedded, sub-vertical		
100 - 100       		- intensely fractured, 100 to 101 ft.			
PLE GEOLO		- gray (2.5Y 5/1) and very dark gray (2.5Y 3/1) coars weathered, inclined and folded bedding, moderately fra	e grain, hard, not ctured, white banding		
∑ 110	Ύ//	- near vertical bedding 109 to 111 ft.			

COMPANY         PROJECT         Additional Hydrogenication Investigation (2016)           EXTRINGUENCE AND ENVIRONMENTAL ENVINEERING         LOCATION         Image: Control of Con					ORING LO	G		BORING PZ-27 D Page 3 of 3
SUDITIENT LOWING AN ENVICES, INC.     LOCATION     Plant Badward       EXERTING SCIENCE AND ENVIRONMENTAL ENGINEERING     LOCATION     Plant Badward       E     B     MATERIAL DESCRIPTION     B       ISIG		~~.			PROJECT	Additio	onal Hv	drogeological Investigation (2016)
E         E		SOL	THERI TH SC	N COMPANY SERVICES, INC. IENCE AND ENVIRONMENTAL ENGINEERING	LOCATION	Plan	t Schere	er
Biotite Gneise(Cont)         - gray (2.5Y 6/1) coarse grain, herd, not weathered, inclined, intensely fractured, white and dark gray banding, near horizontal fractures.           128         - soft           128         - soft           138         - soft           139	DEPTH	(ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		ELEVATION	Weak Moderate Strong	COMMENTS
- gray, (2.5% 61) coarse grain, hard, not weathered, intensely fractured, white and dark gray banding, near horizontal fractures     - soft     - soft     Bottom of borehole at 126.0 feet.     130     135     140     140     146     146     155     15		••••		Biotite Gneiss(Con't)				
- soft           128           - soft           139           135           136           140           141           145           155           156           156           156	···· 1 ···· ··· 1 ····	15 20		- gray (2.5Y 6/1) coarse grain, hard, not weathered fractured, white and dark gray banding, near horizon	d, inclined, intensely ntal fractures			
Bottom of borehole at 128.0 feet.		 25		- soft				
	-		2	Bottom of borehole at 126.0 f	eet.			
	 	••••						
	9 0 1	30						
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		••••						
		35						
		••••						
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		40						
		45						
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	2 2 2 1	 50						
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	17/2	55						
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	ABASE							
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	й 	•••••						
		65						
1  170		•••••						
		 70						

	RE WELL C	CORD OF ONSTRUCTION		WELL: PZ-27 D PAGE 1 OF 3 ECS38467		
SOUTHERN COMPANY SERVICE	S, INC.	PROJECT Additional Hydrogeological Investigation (2016)				
EARTH SCIENCE AND ENVIRON	MENTAL ENGINEERING	LOCATION Plant Scherer				
DATE STARTED 6/14/2016	COMPLETED 6/17/2016 GROU	JND ELEVATION _472.4 ft	_ COORDINA	<b>TES</b> <u>N 1121558.94</u> E 2406023.17		
CONTRACTOR Cascade	METHOD _ Rotos	onic	EQUIPMENT	Tracked		
DRILLED BY M. Pope	LOGGED BY W. Shaughnessy	CHECKED BY B. Smelser	BORING	<b>DEPTH</b> <u>126 ft.</u>		
GROUND WATER DEPTH: DURING	COMP	DELAYED10 ft. after 24 hrs.				
NOTES						
	WELL DATA			COMMENTS		
Prote bollar Top o	ctive aluminum cover with ds 4-foot square concrete pad f casing Elev. = 475.43		ELEV.			
ELEV. Strata			(DEPTH)			
470.4	Surface Seal: concrete					
			467.4 (5.0)			
463.4						
	Annular Fill: Cement-Bentonite Grout	(4 - 94# bags PC, 1/2 - 55# bag gel,	75			
440.4 g	al. water)					





2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - WALTRCFP01/LAPARKER\$IDESKTOP/GPC/SCHERER ADDITIONAL PZS\_UPDATED.GPJ

	SOU	TH			BOR	RING LOG	6			BORING	<b>PZ-27 S</b> Page 1 of 1
	SOUTH	FRN	COMPANY SERVI	CES INC		PROJECT Additional Hydrogeological Investigation (2016)					
Ē	EARTH	SCIE	NCE AND ENVIRO	DNMENTAL ENGINEE	RING		Plant S	cherer			
	TEOT						470	4.64			E 0400000 05
			<b>D</b> <u>5/25/2016</u>	_ COMPLETED _5/20			N <u>473</u>	.1 n		ES <u>N 1121505.33</u>	E 2406028.25
		BV I	<u>Cascade</u>				BS	melser		DEDTH 16 ft	
GR			ER DEPTH: DURIN	_ LOGGED BT <u></u> IG CON	IP. 35ft		<u> </u>	after 200 h	rs		
NO	TES _								<u></u> .		
DEPTH	(ft) GRAPHIC	L0G		MATERIAL DES	CRIPTION		Weak LICI	Moderate REACTION		COMMENTS	
		/	Clayey Sand (SO - dark brown (7.5	<b>c)</b> 5YR 3/3) damp, fine to	medium-grained						
 		Ţ	Lean Clay (CL) - mottled yellowis medium, with mic	h red (5YR 4/6) and y ca	ellowish brown (*	10YR 5/6) damp,		_			
Г			- dark brown (10	YR 3/3) with fine quart	z gravel						
			Well-graded Sau - yellowish red / li moist, fine to coa	nd with Silt (SW-SM) ght brown (5YR 5/6) a rse-grained, with mica	nd yellowish brow	wn (10YR 5/6)					
			- very dark gray	(10YR 3/1) black (10YI	R 3/1) oxidation n	nottling					
			- dark brown (7.5	5YR 3/4) wet							
APAKKE			- brown (7.5YR 4	4/3) and strong brown	(7.5YR 4/6) fine	to coarse-grained	d				
			- dark yellowish b	rown (10YR 4/4) wet							
- 45 - MALIKU	0	/	- grayish brown (	(2.5Y 5/2) wet, with min	a						
30 07/170	5		Well-graded Sau - grayish brown ( weathered rock b	nd with Silt (SW-SM) (2.5Y 5/2) and white / iotite gneiss, fine to co	vellowish gray (5` arse-grained,	Y 8/1) partially					
	۵۵۵۵۵ ۵۵۵۵۵ ۵۵۵۵۵۵۰۰۰۰		- olive gray(5Y 4	l/2) wet, fine to coarse	grained						
			- mottled olive gra	ay (5Y 4/2) and white	<sup>/</sup> yellowish gray (	5Y 8/1)					
E				Bottom of boreho	le at 46.0 feet.						
IdWIS 5	0										

	SOUT	HI	ERN		ŕ	FWELL	RECO	ORD OF NSTRUCTION		WELL: PZ-27 S PAGE 1 OF 1 ECS38467
	SOUTHER	N C	OMPA	ANY SEF	VICES, INC.		Р	ROJECT Additional Hydrogeologi	cal Investiga	tion (2016)
	EARTH SC	IEN	ICE A	ND ENV	IRONMENTAL I	ENGINEERING	L	OCATION Plant Scherer		
	DATE STAR	TEC	<b>)</b> <u>5/2</u>	25/2016	COMPLE	TED <u>5/26/2016</u> G	ROUND	DELEVATION _473.1 ft	COORDINA	TES <u>N 1121565.33 E 2406028.25</u>
	CONTRACT	OR	Case	cade		METHOD <u>R</u>	totosonic	<u> </u>	QUIPMENT	
	DRILLED BY GROUND WA NOTES		I. Pop R DEF	e PTH: DU	Logged Ring	BY COMP 3.5 ft	y Ci	HECKED BY <u>B. Smelser</u> DELAYED <u>5.8 ft. after 200 hrs</u> .	_ BORING	DEPTH <u>46 tt.</u>
	BOREHOLE	(ft)				WELL DA	ATA			COMMENTS
5	DATA	DEPTH			Protective alumi 4-foot square cc Top of casing El	num cover with bollard ncrete pad ev. = 475.80	ls		ELEV.	
	ELEV. Strata								(DEPTH)	
5	471.1				Surface Sea	al: concrete			170 1	
	<u>464.1</u>	3 : 25 : 20 : 15 : 25			Annular Fill gal. water)	: Cement-Bentonite Gr	rout (2 -	94# bags PC, 1/4 - 55# bag gel, 55	470.1 (3.0)	
		б				al: bontonito polloto (1	5 gol k	huckast 3/8" pollate)	(_0.0)	
	441.1				- Annular Sea	a, pentonite pellets (1	- o gai. K	Duckedi 3/0 pellets)	110 1	
לואול - רטרר מעוז		:: 35			-Filter: 20/40	) silica filter sand (4 1/2	2 - 0.5 c	cubic ft. bags)	(33.0) (34.8) (34.8)	
		15 : : : 40 :			Well: 2" Ol Screen: 10	D PVC (SCH 40) ft. 0.010" Slot Prepa	ick		428.3	
	427.1	4			Sump:0.20	ft.			(44.8)	
									(45.0)	

	OUTU		505			BORING PZ-28 I Page 1 of 2
5		OMPANY	BOR	ING LOG		
SO	UTHERN	COMPANY SERVIO	CES, INC.	PROJECT Addition	onal Hyd	rogeological Investigation (2016)
EAI	RTH SCIE	NCE AND ENVIRO	NMENTAL ENGINEERING	LOCATION Plan	t Schere	r
DATE	STARTE	<b>D</b> 6/3/2016	_ COMPLETED _6/3/2016 GROU	ND ELEVATION _4	81.4 ft	COORDINATES N 1121394.06 E 2406373.94
СОИТ	RACTOR	Cascade	METHOD Rotosc	nic		EQUIPMENT Tracked
DRILL	ED BY	T. Ardito	LOGGED BY P. Alexander	CHECKED BY B	Smelse	BORING DEPTH 70 ft.
GROU		er depth: Durin	G COMP	_ <b>DELAYED</b> _ 15.5	5 ft. after	<u>24 hrs</u> .
NOTE	s				7	
DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION	ELEVATION	leak loderate trong REACTION	COMMENTS
- 8/27/20 08:45ALTRCFP01/LAPARKER\$/DESKTOP/GP0/SCHERER ADDITIONAL PZS.GPJ - 00 - 00		Silt (ML) - red (2.5YR 5/8) Poorly-graded S - yellowish red (5 oxidation Silt (ML) - mottled red (2.5 6/6) saprolite mo Poorly-graded S - mottled light gra green (5GY 5/2)	and with Silt (SP-SM) SYR 5/8) saprolite moist, loose, fine-grain SYR 5/6), reddish gray (10R 6/1) and red ist, medium stiff, no, fine-grained, some and with Silt (SP-SM) y (2.5Y 7/2), olive brown (2.5Y 4/3) and saprolite moist, loose	ous hed, with mica, ldish yellow (5YR mica, oxidation		
40 40 45 50		- greenish gray (1 Well-graded Sar - greenish gray (1 feldspar, some m	0Y 5/1) moist <b>nd (SW)</b> 0Y 5/1), black (N1) and white (N9) mois ica	st, loose, biotite and		

(Continued Next Page)



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

### **BORING LOG**

Page 2 of 2

SOUTHERN COMPANY SERVICES, INC.

PROJECT Additional Hydrogeological Investigation (2016)

EAR	TH SC	IENCE AND ENVIRONMENTAL ENGINEERING	it Sche	erer
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weak Moderate REACTION	COMMENTS
55 60 65		<ul> <li>yellowish brown / moderate yellowish brown (10YR 5/4) and white (2.5Y 8/1) very soft, highly weathered, banded</li> <li>Biotite Gneiss(Con't)</li> <li>yellowish brown / moderate yellowish brown (10YR 5/4), white (2.5Y 8/1) and dark greenish gray (10Y 4/1) very soft to soft, banded, horizontal to subvertical fractures</li> <li>dark bluish gray (5PB 4/1) and very light gray (N8) hard to very hard, slightly weathered, banded, horizontal to sub-vertical fractures intensely fractured</li> </ul>		
70		- greenish black (5GY 2.5/1) and medium light gray (N6) slightly to moderately weathered, banded, horizontal to sub-vertical fractures, intensely fractured		

	R WELL (	ECORD OF CONSTRUCTION		WELL: PZ-28 I PAGE 1 OF 2 ECS38467
SOUTHERN COMPANY SERVICES, INC.		PROJECT Additional Hydrogeo	logical Investigation (2	2016)
EARTH SCIENCE AND ENVIRONMENTAL	ENGINEERING	LOCATION Plant Scherer		
DATE STARTED _6/3/2016 COMPLE	TED <u>6/3/2016</u> GR	OUND ELEVATION 481.4 ft		N 1121394.06 E 2406373.94
CONTRACTOR Cascade	METHODRot	osonic	_ EQUIPMENT	ked
DRILLED BY T. Ardito LOGGED	BY P. Alexander	CHECKED BY B. Smelser	BORING DEPT	<b>FH</b> _70 ft.
GROUND WATER DEPTH: DURING	COMP	DELAYED 15.5 ft. after 24 hr	<u>s</u> .	
NOTES				
	WELL DAT	Ά		COMMENTS
Protective alum	inum cover with bollards oncrete pad lev = 484 18			
ELEV. Strata			ELEV. (DEPTH)	
Surface Se	al: concrete			
			478.4	
			(0.0)	
469.4				
459.4				
Annular Fil	I: Cement-Bentonite Grou	ut (5 - 94# bags PC, 1/4 - 55# bag ge	I, 55	
454.4 <b>111</b> gal. water)				
5 434 4				
433.4			132 1	
			(49.0)	

SOUTHE	RECORD OF WELL CONSTRUCTION	WELL: PZ-28 I PAGE 2 OF 2 ECS38467
SOUTHERN CO	OMPANY SERVICES, INC.     PROJECT Additional Hydrogeological Investig       CE AND ENVIRONMENTAL ENGINEERING     LOCATION Plant Scherer	ation (2016)
BOREHOLE (E) DATA	WELL DATA	COMMENTS
ELEV. Strata	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 484.18 (CONTINUED) (DEPTH)	
	Annular Seal: bentonite pellets (3/4 - 5 gal. buckect 3/8" pellets) 427.4	
	(54.0) Filter: 20/40 silica filter sand (4 1/2 - 0.5 cubic ft. bags) 422.8 (58.6)	
	Well: 2" OD PVC (SCH 40) Screen: 9.9999999999999999 ft. 0.010" Slot Prepack	
<u>411.4  \ 28:</u>	412.6 (68.8)	

S	OUT			BOF	RING LOG		BORING PZ-29 S Page 1 of 1	
SC EA	OUTHER RTH SC	IN COMPANY SERVIC	ES, INC. NMENTAL ENG	INEERING	itional Hydrogeological Investigation (2016) ant Scherer			
DAT	E STAR	<b>TED</b> <u>5/26/2016</u>	COMPLETED	<u>5/26/2016</u> GRO	UND ELEVATION	488.5 ft	COORDINATES N 1121269.19 E 2406618.29	
CON	TRACT	OR Cascade		METHOD Rotos	sonic		EQUIPMENT Tracked	
DRIL	LED B	M. Pope	LOGGED BY	W. Shaughnessy		B. Smelser	BORING DEPTH 46 ft.	
GROU NOTI	JND WA	ATER DEPTH: DURING		COMP. <u>22 ft.</u>	DELAYED _26	.9 ft. after 10	<u>0 hr</u> s.	
DEPTH (ft)	GRAPHIC LOG		MATERIAL	DESCRIPTION	ELEVATION	Weak Moderate Strong	COMMENTS	
		Sandy Lean Clay - red (2.5YR 4/8)	r <b>(CL)</b> dry, with mica					
5		Sandy Silt (ML) - red (2.5YR 4/8)	with mica	) and black (7.5YR 2	9 5/1) dry			
15								
25		- dark yellowish br	d with Silt (SW own (10YR 4/4)	-SM) damp, fine to mediur	n-grained			
		⊈ - olive brown (2.5	Y 4/4)					
30		- light olive brown	(2.5Y 5/6)					
35		- mottled olive (5)	(4/3) and pale y	rellow (5Y 7/4)				
40		- olive brown (2.5	Y 4/3)					
45		- mottled olive gra 4/1) weathered bio	y / light olive gray otite gneiss	r (5Y 5/2) and dark gi	reenish gray (10Y			
		4	Bottom of b	prehole at 46.0 feet.				
50								

SOUTHERN A	RECORD OF WELL CONSTRU	WELL: PZ-29 S           PAGE 1 OF 1           ECS38467
SOUTHERN COMPANY	SERVICES, INC. PROJECT <u>A</u>	dditional Hydrogeological Investigation (2016)
EARTH SCIENCE AND	ENVIRONMENTAL ENGINEERING LOCATION	Plant Scherer
DATE STARTED _5/26/2	COMPLETED <u>5/26/2016</u> GROUND ELEVATION	COORDINATES          N 1121269.19         E 2406618.29
CONTRACTOR Cascad	METHOD Rotosonic	EQUIPMENT Tracked
DRILLED BY <u>M. Pope</u>	LOGGED BY W. Shaughnessy CHECKED BY	B. Smelser     BORING DEPTH _46 ft.       26.9 ft after 100 brs
NOTES		
BOREHOLE E	WELL DATA	COMMENTS
	Protective aluminum cover with bollards	
DE	4-foot square concrete pad Top of casing Elev. = 491.31	ELEY.
ELEV. Strata	• T • •	(DEPTH)
486.5	Surface Seal: concrete	485.5
22		(3.0)
466.5	Annular Fill: Cement-Bentonite Grout (2 - 94# bags PC gal. water)	, 1/4 - 55# bag gel, 55
	2/2	(30.0)
	<ul> <li>Annular Seal: bentonite pellets (1 - 5 gal. buckect 3/8"  </li> </ul>	455.5
	Filter: 20/40 silica filter sand (5 - 0.5 cubic ft. bags)	(33.0) 
	Well: 2" OD PVC (SCH 40) Screen: 10 ft. 0.010" Slot Prepack	
442.5	Sump:0.20 ft.	443.7 ••••(44.8)
		443.5 (45.0)

SOUT	HERN	BC	ORING LOG		BORING PZ-30 I Page 1 of 2
SOUTHER EARTH SC	N COMPANY SERVIC	ES, INC. NMENTAL ENGINEERING	PROJECT Additi	onal Hydroge t Scherer	eological Investigation (2016)
DATE STAR CONTRACTO DRILLED BY GROUND WA	TED <u>6/2/2016</u> OR <u>Cascade</u> T. Ardito TER DEPTH: DURING	COMPLETED <u>6/2/2016</u> GF METHOD <u>Ro</u> LOGGED BY <u>P. Alexander</u> G COMP	ROUND ELEVATION	. Smelser 0 ft. after 24	COORDINATES         N 1121073.53         E 2407078.99           EQUIPMENT         Tracked           BORING DEPTH         87 ft.           hrs.         No.
DEPTH (ft) (ft) GRAPHIC LOG		MATERIAL DESCRIPTION	ELEVATION	aak HCL derate REACTION ong	COMMENTS
MITIRCFP01/LAPARKERS/DESKTOP/GPC/SCHERER ADDITIONAL PZS/GPJ 0 0 0 0 0 0 0 0 0 0 0 0 0	Sandy Silt (ML) - red (2.5YR 5/6) - damp Silt (ML) - mottled yellowish residuum dry, soft ✓ Poorly-graded Sa - brown (7.5YR 5/	residuum dry, stiff, no, fine-grained red / light brown (5YR 5/6) and str low, fine-grained, trace mica, oxida and with Silt (SP-SM) 4) residuum moist, loose, fine-grain	, trace mica rong brown (7.5YR 5/6) ation ned, with mica		
. GDT - 8/27/20 08:45 -	Sandy Silt (ML) - mottled brown (7 no, with mica, oxid	7.5YR 5/4) and reddish yellow (7.5) ation	YR 8/6) saprolite moist,		
40 40 40 40 40 40 40 40 40 40 40 40 40 4	Poorly-graded Sa - light brownish gra - sub-vertical fract - mottled light red / very pale orange	and with Silt (SP-SM) ay (2.5Y 6/2) moist, loose, fine-grai ures (moderate reddish orange (10R 6/6 (10YR 8/2) saprolite folded fabric	ined ) and very pale brown brown (2.5YR 4/4)		
BI	- very dark grayish	brown (2.5Y 3/2) moist, fine-grain	ed, some mica		



SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LAPARKER\$\DESKTOP\GPC\SCHERER ADDITIONAL P2S.GPJ

## **BORING LOG**

LOCATION Plant Scherer

Page 2 of 2

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING PROJECT Additional Hydrogeological Investigation (2016)

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weak ICI	Moderate REACTION	COMMENTS
		Poorly-graded Sand with Silt (SP-SM)(Con't)		::	
				::	
				:::	
55				:::	
				÷	
		Biotite Gneiss			
	$\langle \rangle$	highly weathered, banded			
60	[[-]			::	
				:::	
	$\times //$			: :	
	16.				
65	//_				
	$\langle \cdot \rangle$	- dark gray (N3) and very light gray (N8) soft, highly weathered, banded			
	$\langle \rangle$	black (5X 2 5/1) and light alive brown (2 5X 5/4) moderately to highly		::	
	$\square$	weathered		:::	
70	$\sim$				
	11				
	$\square$			: :	
75	\'-/				
	$\geq / / /$			: :	
	1/- 1	- very dark greenish gray (10Y 3/1) and very light gray (N8) soft, moderately		::	
	$\left( - \right)$	weathered, foliated			
	1)			::	
• • • • • • • •	$\square$				
	$\langle \rangle$				
	$\sim$			::	
C0					
	/_	Bottom of borehole at 87.0 feet.	_	<u>: :</u> _	
90					
95					
100					
105					
110					

sou	UTI	HERN COMI	PANY		WEL	REC L CO	ORD OF	ON		WELL: PZ-30 I PAGE 1 OF 2 ECS38467
SOUTI	HERN		ANY SERVI	CES. INC.			PROJECT Addition	al Hydrogeolog	gical Investig	ation (2016)
EARTH	H SCI	IENCE A	ND ENVIRO	ONMENTAL ENG	GINEERING		LOCATION Plant S	Scherer		
DATE ST	TART	ED _6/2	2/2016		<b>0</b> 6/2/2016	GROUN	ID ELEVATION 475	5.6 ft	COORDINA	<b>TES</b> <u>N 1121073.53 E 2407078.99</u>
CONTRA	асто	OR Case	cade		METHOD	Rotosor	lic	E	EQUIPMENT	Tracked
DRILLED	) BY	T. Ardit	to	LOGGED BY	P. Alexander		CHECKED BY B.S	Smelser	BORING	<b>G DEPTH</b> 87 ft.
GROUND	WA	TER DEF	PTH: DURIN	NG	_ COMP		<b>DELAYED</b> <u>18.9 ft</u>	t. after 24 hrs.		
NOTES		1								
BOREHO		(#t)			WELL	DATA				COMMENTS
	Ì	PTH	Pro	otective aluminun	n cover with boll	ards				
L de		H H	To	p of casing Elev.	= 478.31				EL EV	
ELEV. S	trata								(DEPTH)	
				-Surface Seal: c	concrete				470.0	
SZ4						•••••			472.6 (3.0)	
· · ONAL		2								
CHEK		<u>=</u>								
ESK1		<u>=</u>								
=K\$/L										
457.6										
		<u>8</u>								
- 12		YZ K								
20 14:										
0/29/2										
		B								
444.6										
I ABA										
E DA		אלקע		_Annular Fill: Ce	ement-Bentonite	Grout (6	- 94# bags PC, 1/2 -	55# bag gel, 7	0	
· ESE				yaı. walerj						
<u>§</u> 438.6										
CCRD										
		¥ 🕅								
2 WE										
		50XX								



2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\ALTRCFP01\LAPARKER\$\DESKTOP\GPC\SCHERER ADDITIONAL PZS\_UPDATED.GPU

	<b></b>			50				BORING PZ-31 I Page 1 of 2
20				BO	KING LOG			
SOL	ITHER	N COMPANY SERVIC	CES INC		PROJECT A	ditic	onal Hy	drogeological Investigation (2016)
EAF	RTH SC	IENCE AND ENVIRO	ONMENTAL ENG	INEERING	LOCATION _F	Plant	t Scher	er
DATE	STAR	TED <u>6/1/2016</u>	COMPLETED	<u>6/2/2016</u> GR	OUND ELEVATIO	N	464.0 f	t COORDINATES N 1121204.03 E 2407445.73
CONT	RACTO	OR Cascade		METHOD Rot	osonic			EQUIPMENT Tracked
DRILL	ED BY	T. Ardito	LOGGED BY	P. Alexander	CHECKED BY	<u>B</u> .	Smels	er BORING DEPTH 77 ft.
GROU	ND WA	TER DEPTH: DURIN	IG	<b>COMP.</b> <u>24 ft.</u>	DELAYED	28.1	ft. afte	<u>er 200 hr</u> s.
NOTE	s							
DEPTH (ft)	GRAPHIC LOG		MATERIAL	DESCRIPTION			Veak Ioderate trong	COMMENTS
5 		Silt (ML) - red (10R 5/6) rd - red (2.5YR 5/8)	esiduum dry, stiff	, no, trace mica ome mica			We Mo	
15 15 20		- oxidation <b>Poorly-graded S</b> - mottled reddish 8/4) residuum dar	and with Silt (Si yellow(7.5YR 6/ mp, loose, fine-gr	<b>P-SM)</b> 6) and pink / moder ained	rate orange pink (5)	′R		
25	<u>ka (sk. k. st</u> 1 1 1 1 1 1 1 1	Silt (ML) - strong brown (7 ▼ grained, feldspar	7.5YR 4/6) and wand biotite	/hite (N9) residuum	moist, soft, fine-			
30 30 35 35		Poorly-graded S - greenish gray (5 grained, some mi	and with Silt (Si G 5/1) and very ca	<b>P-SM)</b> light gray (N8) sapro	olite moist, fine-			
40 40 45 45 50		Biotite Gneiss - yellowish brown gray (10Y 7/1) an - greenish gray ( weathered, felspa	/ moderate yellov d white (N9) high (5GY 5/1) and gr ar banding	vish brown (10YR 5 Ily weathered, felspa reenish black (5GY 2	5/4), light greenish ar banding 2.5/1) soft, highly			

		•				BORING PZ-31 I
S	DUT	HERN BOR	ING LO	G		Page 2 of 2
SO		N COMPANY SERVICES INC	PROJECT _	Additi	onal Hyd	trogeological Investigation (2016)
EAI	RTH SC	CIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION	Plan	t Schere	۲ <u> </u>
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		ELEVATION	Weak Moderate Strong	COMMENTS
		Biotite Gneiss(Con't)				
55 60		- dark gray (N3) and very light gray (N8) soft to medium l weathered, felspar banding	hard, moderat	ely		
65 		- bluish black (10B 2.5/1) and white (N9) very hard, sligh horizontal and sub-vertical fractures, felspar banding	tly weathered			
		Bottom of borehole at 77.0 feet.				
80 80 80 80 80 80 80 80 80 80		Bottom of borenole at 77.0 feet.				

SOUTHE			WELL	RECORD OF CONSTRUCTION		WELL: PZ-31 I PAGE 1 OF 2 <u>ECS38467</u>
SOUTHERN CO	MPANY SERVIC	ES, INC.		PROJECT Additional Hydrogeo	logical Investiga	tion (2016)
EARTH SCIENC	E AND ENVIRO	MENTAL ENG	INEERING	LOCATION Plant Scherer		
	0/4/00/10	0000				
DATE STARTED	_6/1/2016	COMPLETED	6/2/2016	GROUND ELEVATION 464 ft	_ COORDINAT	<b>ES</b> <u>N 1121204.03 E 2407445.73</u>
	Cascade			Rotosonic		Tracked
DRILLED BY T. A	Ardito	LOGGED BY	P. Alexander	CHECKED BY B. Smelser	BORING	<b>DEPTH</b> <u>77 ft.</u>
GROUND WATER	DEPTH: DURING	G	COMP. <u>24 ft.</u>	DELAYED 28.1 ft. after 200 h	<u>nr</u> s.	
			WELL D	ΑΤΑ		COMMENTS
	Prote 4-foo Top	ective aluminum ot square concre of casing Elev. =	cover with bollar te pad 466.89	ds	ELEV.	
ELEV. Strata					(DEPTH)	
		Surface Seal: co	oncrete		461 0	
		Annular Fill: Cer gal. water)	ment-Bentonite G	Srout (6 - 94# bags PC, 1/2 - 55# bag ge	(3.0)	

SOUTHERN A COMPA	RE NY WELL C	ECORD OF CONSTRUCTION	WELL: PZ-31 I PAGE 2 OF 2 <u>ECS38467</u>
SOUTHERN COMPANY	SERVICES, INC.	PROJECT Additional Hydrogeological Investig	ation (2016)
	WELL DATA	A	COMMENTS
DEPTH	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 466.89	ELEV.	
ELEV. Strata (CONTINUE		(DEPTH)	
		408.0 (56.0)	
	Annular Seal: bentonite pellets (3/4 -	5 gal. buckect 3/8" pellets) 403.0 (61.0)	
	Filter: 20/40 silica filter sand (7 1/2 - 0	0.5 cubic ft. bags)	
	Well: 2" OD PVC (SCH 40)		
387.0	Sump:0.20 ft.	389.1 	

2012 WELL CONSTRUCTION RCRD (NO COM) - ESEE DATABASE.GDT - 10/29/20 14:21 - \\ALTRCFP01\LAPARKER\$\DESKTOP\GPC\SCHERER ADDITIONAL PZS\_UPDATED.GPJ

	OUT		PO				BORING PZ-32 D Page 1 of 3
	(	OMPANY	BU				
S	OUTHERN	N COMPANY SERVIO	CES. INC.	PROJECT Add	ition	ial Hy	drogeological Investigation (2016)
E	ARTH SC	IENCE AND ENVIRO	DIMENTAL ENGINEERING	LOCATION Pla	ant S	Scher	er
DAT	TE START	<b>ED</b> <u>5/31/2016</u>	_ COMPLETED _6/1/2016 GR	OUND ELEVATION	462	2.4 ft	COORDINATES N 1121089.64 E 2407719.37
CO	NTRACTO	OR Cascade	METHOD Rote	osonic			EQUIPMENT Tracked
DRI	LLED BY	J. Asua	LOGGED BY W. Shaughnessy	CHECKED BY	B. S	Smels	er BORING DEPTH 126.5 ft.
GRO NOT	ound wa <sup>.</sup> .es	ter Depth: Durin	G COMP. 23.5 ft.	DELAYED _24	.5 ft	t. afte	e <u>r 24 hrs</u> .
DEPTH	(II) GRAPHIC LOG		MATERIAL DESCRIPTION	ELEVATION	ak	derate HCL big REACTION	COMMENTS
	<u> </u>	Silt (MI.)			Me	. Mod	
5	· · · · · · · · · · · ·	- red (2.5YR 4/6)	) residuum dry, stiff, no			· · · · · · · · · · · · · · · · · · ·	
AAL PZS.GPJ		Clayey Sand (SC - red (10R 5/6) d	C) ry, loose, fine-grained, some oxidatior	1		· · · · · · · · · · · · · · · · · · ·	
		Sandy Silt (ML)			_	$\frac{1}{2}$	
15 15		- reddish yellow (	(5YR 6/6) dry			÷ :	
		Silty Sand (SM) - mottled reddish loose, fine-graine - strong brown (7	brown (5YR 5/4) and very dark gray d, trace mica 7.5YR 5/8) moist	(7.5YR 3/1) dry,			
监 찵		¥ ¥ - light brown (7.5	YR 6/4)				
		- mottled light yell	owish brown(10YR 6/4) and light ol	ive brown (2.5Y 5/4)		· · · · · · · · · · · · · · · · · · ·	
27/20 08:45 - MALTF		Sandy Silt (ML) - bluish gray (10E varying amounts	8 5/1) and white (N9) moist, medium of sand	stiff, some clay,		· · · · · · · · · · · · · · · · · · ·	
<sup>®</sup>   <u>3</u> 5							
by LOG - ESEE DATABASE.GI		Poorly-graded S - white (7.5YR 8/ (10YR 3/1) mois - 2" sand (SW) se	and with Clay (SP-SC) (1), very dark bluish gray (10B 3/1) ar t, loose, fine-grained eam at 41 ft.	nd very dark gray		· · · · · · · · · · · · · · · · · · ·	
SIMPLE GEOLOG		Well-graded Sar - greenish black ( weathered biotite	nd (SW) 10GY 2.5/1) saprolite medium to coar gneiss, some silt, pulverized rock (sa	rse-grained, nd with gravel)			



# **BORING LOG**

LOCATION Plant Scherer

#### **BORING PZ-32 D**

Page 2 of 3

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING PROJECT Additional Hydrogeological Investigation (2016)

	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weak HCI	Moderate REACTION	COMMENTS
Γ.			Well-graded Sand (SW)(Con't)			
.						
.						
·	 EE					
ŀ	55					
ŀ	• • • • • • •					
ŀ	•••••		- SW			
·	•••••		- greenish black (10GY 2.5/1) medium to coarse-grained, weathered biotite			
ľ	60		gneiss, some silt			
Γ.			- very dark greenish gray (5GY 3/1)			
.						
.		• • • • •			- : - :	
.	 GE		Well-graded Sand with Silt (SW-SM)			
ŀ	60		- very dark gray (7.51 R 5/1) medium to coarse-grained, some graver (slightly decomposed biotite gneiss)			
ŀ	• • • • • • •					
·	•••••	؞؞؞ٵ؞ ؞	- mottled very dark greenish gray (10GY 3/1) and white (7.5YR 8/1)			
GE.			weathered biotite gneiss			
ZS.	70	- 1	Biotite Gneiss			
<u>ال</u>		1/	- dark gray (7.5YR 4/1) medium to coarse grain, medium hard to hard,			
Ż.	• • • • • • •		slightly to highly weathered, thin to medium bedding, vuggy, moderately fractured, white feldspar and quartz handing.			
Ē.	• • • • • • •	17	haddred, while feldspar and quark barding			
PD.	75	\' - <i>\</i>	- vellowish red (5YR 5/8) water staining			
REF			,			
핅.		//-	- dark gray / brownish gray (5YR 4/1) and black (5YR 2.5/1) medium to			
SICI .		( /_ )	coarse grain, not to slightly weathered, inclined, white banding			
GP(			- siignuy hactuled			
Đ-	80					
Ж	•••••					
\$\DE		$\left  \right\rangle /$	- not to moderately weathered			
Ë.		$\left[ \right] $				
AR <sup>1</sup>	85					
۲۹.	• • • • • • •	/ = 1	- slightly fractured, feldspar rich 84-86 ft.			
P01.	• • • • • • •	1/				
Р.	•••••	$\backslash$				
Į.	90					
<u> </u> .		//	Granitic Gneiss			
8:46			- white (10YR 8/1) and gray (10YR 6/1) medium to coarse grain, hard, not			
20 0	• • • • • • •					
3/27	95					
Ë		Κ/				
0		- 1				
ASE .		1/				
TAB.	100					
PA-	100	17	Biotite Gneiss		-	
ES.			- dark gray (10YR 4/1) and black (10YR 2/1) medium to coarse grain. not			
<u> </u>		1///	to slightly weathered, medium bedded, white banding			
ĕ.		V/- 1			<u> </u>	
ğ	105	ľ, ′−)	Granitic Gneiss			
OLC.	• • • • • • •		gray (101K b/1) and pink (51K 7/3) medium to coarse grain, not		- :	
Ю.	• • • • • • • •		Biotite Gneiss	1 :		
PLE.			- dark gray (10YR 4/1), black (10YR 2/1) and white (10YR 8/1) not			
.SIS	110	$\sum$	weathered, medium bedded, slightly to moderately fractured, sub-horizontal		: :	

						BORING PZ-32 D
	SC	DUTI	BOR	ING LOG		Page 3 of 3
	SOU			PROJECT Addit	ional Hyd	drogeological Investigation (2016)
	EAR	TH SCI	ENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plan	nt Schere	۶۲
DEPTH	(ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak Moderate Strong	COMMENTS
 	15		fractures <b>Biotite Gneiss</b> ( <i>Con't</i> ) - quartz healed fractures (sub-vertical) - medium to coarse sand in fractures			
1:	20		<ul> <li>coarse grain, not to highly weathered, medium bedded, r fractured, alternating competent rock and sand filled fractured</li> </ul>	noderately ires		
	30 35 40 45 50 55 60 65					
	70					

S	OU	TI					RE WELL C	CORD OF		WELL: PZ-32 D PAGE 1 OF 3 ECS38467
	יידיוור							PROJECT Additional Hydrod	geological Investiga	tion (2016)
E/	RTH	SCI			ND ENVIE	RONMENTAL ENG	GINEERING	LOCATION Plant Scherer	<u> </u>	
DAT	E STA	ART	ED	<b>5</b> /3	1/2016			UND ELEVATION 462.4 ft		<b>TES</b> <u>N 1121089.64 E 2407719.37</u>
CON	ITRAC	сто	R	Caso	ade		METHOD Rotos	sonic		Tracked
DRIL	LED I	BY	J.	Asua		LOGGED BY	W. Shaughnessy	CHECKED BY B. Smelser	BORING	<b>DEPTH</b> 126.5 ft.
GRO NOT	UND V ES	NA <sup>-</sup>	TEF	R DEP	TH: DUR	ling	<b>COMP.</b> 23.5 ft.	DELAYED24.5 ft. after 24	<u>l hrs</u> .	
BOR	FHOL	F	<del>(</del>							COMMENTS
D	ATA		EPTH (f		P ∏₽	Protective aluminum -foot square concre	n cover with bollards ete pad	<b>`</b>		
	/. Stra	ata			T	op of casing Elev.	= 465.42		ELEV. (DEPTH)	
				· U	·B	-Surface Seal: o	oncrete			
0 0									459.4	
			2						(3.0)	
2 <u>456</u> .	4	μ	[							
	/									
			<u>;</u>							
			[							
449.	4 🦯									
447.	4		<u>a</u> r							
ARNE	1									
TILLA			50							
CT-T-C-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T	11									
				$\mathbb{X}$						
- 17			25.							
1 02/										
433	4									
			ğ	$\left \right\rangle$						
BASE			···							
			[							
			35			Annular Fill: Ce gal. water)	ment-Bentonite Grout	(4 - 94# bags PC, 1/2 - 55# bag	gel, 80	
<u>420.</u>	4		····{	$\mathbb{X}$						
			[							
		/	<del>1</del>							
			····							
				$\bigotimes$						
417.	4		45.							
7017			20.	××						



<sup>(</sup>Continued Next Page)

SOUT	HERN RE COMPANY WELL C	ECORD OF CONSTRUCTION	WELL: PZ-32 D PAGE 3 OF 3 <u>ECS38467</u>			
SOUTHER EARTH SO	N COMPANY SERVICES, INC. CIENCE AND ENVIRONMENTAL ENGINEERING	PROJECT _ Additional Hydrogeological Investigation (2016)         LOCATION _ Plant Scherer				
BOREHOLE	E       WELL DATA         H       Protective aluminum cover with bollards         4-foot square concrete pad       Top of casing Elev. = 465.42	A ELEV.	COMMENTS			
335.9	Well: 2" OD PVC (SCH 40) Screen: 30 ft. 0.010" Slots					

S	OUT			BORING L	OG		BORING PZ-32 S Page 1 of 2		
SOI	UTHERN RTH SCI	COMPANY SERVICE AND ENVIRO	CES, INC. DNMENTAL ENGINEERING	PROJEC	T <u>Additio</u> DN <u>Plan</u>	onal Hy t Schere	ydrogeological Investigation (2016) rer		
DATE	START	<b>ED</b> 5/31/2016	<b>COMPLETED</b> 6/1/2016	GROUND ELEV	ATION 4	l62.3 ft	t <b>COORDINATES</b> N 1121089.22 E 2407698.44		
СОИТ	RACTO	R Cascade	METHOD	Rotosonic			EQUIPMENT Tracked		
DRILL	ED BY	J. Asua	LOGGED BY P. Alexander	CHECKE	<b>D BY</b> _B.	. Smels	ser BORING DEPTH 57 ft		
GROU NOTE	ND WA1 S	er Depth: Durin	IG _26 ft COMP21.3	ft. DELAY	ED <u>23.8</u>	3 ft. afte	<u>er 200 hr</u> s.		
DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTIO	Ν	ELEVATION	Veak Inderate HCL trong	COMMENTS		
		<b>Silt (ML)</b> - red (2.5YR 4/6	) residuum dry, stiff, no			St M	5		
Close 10		Clayey Sand (So - red (10R 5/6) o	C) Iry, loose, fine-grained, some oxi	dation					
15	Í	Sandy Silt (ML) - reddish vellow	(5YR 6/6) drv						
20		Silty Sand (SM) - mottled reddish loose, fine-graine - strong brown (	brown (5YR 5/4) and very dark d, trace mica 7.5YR 5/8) moist	. gray (7.5YR 3/1) (	lry,				
25		<ul> <li>Iight brown (7.8</li> <li><u>√</u></li> <li>- mottled light yel</li> </ul>	5YR 6/4) lowish brown (10YR 6/4) and li	ght olive brown (2.	5Y 5/4)				
30		Sandy Silt (ML) - bluish gray (10E varying amounts	3 5/1) and white (N9) moist, me of sand	dium stiff, some cla	ay,				
40		<b>Poorly-graded S</b> - white (7.5YR 8 (10YR 3/1) mois - 2" sand (SW) s	<b>Sand with Clay (SP-SC)</b> /1), very dark bluish gray (10B 3 t, loose, fine-grained eam at 41 ft.	/1) and very dark g	ray				
		Well-graded Sa - greenish black ( weathered biotite	nd (SW) (10GY 2.5/1) saprolite medium t gneiss, some silt, pulverized roc	o coarse-grained, k (sand with grave	)				
							BC	DRING PZ-32	S
--------------------	-------	---------------	-------------------------------------	----------	---------	----------------------------	------------------------	-------------	------
	SC	UT	HERN BOR	ING LO	G			Page 2 c	of 2
	SOU	THFR	N COMPANY SERVICES INC	PROJECT	Additic	onal Hydrogeologic	al Investigation (2016	)	
1	EAR	THSC	IENCE AND ENVIRONMENTAL ENGINEERING	LOCATION	Plant	Scherer			
EPTH	(ft)	taphic Log	MATERIAL DESCRIPTION		VATION	REACTION	COMME	NTS	
		5			ELE	Weak Moderate Strong			
····· ···· 5	5		Well-graded Sand (SW)(Con't)						
			Bottom of borehole at 57.0 feet.			<u> </u>			
6	0								
 6 	5								
  ZS.GPJ	0								
	•••••								
	5								
SKTOP/GPC/	0								
PARKER\$\DE	5								
D:									
/20 08:45 - \\A									
se.gd1 - 8/27,	5								
EE DATABAS	0								
GA FOG - ES	)5								
<u>∎</u> 1	10								

	SO	UT	H	ERM DMI				WEL	REC L CC	CORD O	F CTION		WELL: PZ-32 S PAGE 1 OF 2 ECS38467
	SOUT	HER	N C	OMP	ANY SER	VICES.	INC.				dditional Hydrogec	logical Investigat	ion (2016)
	EART	H SC	IEN		ND ENVI	RONME	NTAL ENG	INEERING			Plant Scherer		
	DATE S	TAR	TEC	<b>)</b> _5/3	31/2016	cc	OMPLETED	6/1/2016	_ GROUI	ND ELEVATIO	<b>4</b> 62.3 ft		ES <u>N 1121089.22 E 2407698.44</u>
	CONTR	АСТО	OR	Case	cade			METHOD	Rotoso	nic		EQUIPMENT	Tracked
	DRILLE	D BY		Asua	a	LC	GGED BY	P. Alexander		CHECKED BY	B. Smelser	BORING	DEPTH _57 ft.
	GROUNE	) WA	TE	R DEI	PTH: DUF	RING _2	26 ft.	COMP21.3	ft.	DELAYED	23.8 ft. after 200 ł	<u>n</u> rs.	
	NOTES												
	BOREH	OLE	(ft)					WELL I	DATA				COMMENTS
	DAT	4	ЪТН			Protectiv	e aluminum	cover with boll	ards				
L'L			DE			i-toot sq Fop of ca	luare concre asing Elev. =	te pad : 465.06					
	ELEV. S	Strata				1						(DEPTH)	
					4	-Surf	face Seal: co	oncrete				150 2	
L 720				$\dot{\langle}$								(3.0)	
	456.3		2										
				$\gg$									
			Ō	M									
			- <u></u> -										
1911	449.3												
	447.3		15.	i									
				))))									
ARNE	년 [1]			X									
			20			A		mont Denter I	Oracit 10	04# 5 50			
CFFC						gal.	ular Fill: Cer water)	nent-Bentonite	Grout (2	2 - 94# bags PC	, 1/4 - 55# bag ge	1, 33	
				$\langle \rangle \rangle$									
	1 1		25	Ŵ									
8/20 I				X									
- 10/2	433.3		·										
פר			30										
ABAO				$\mathbb{X}$									
	ļ.		 ນກ	M									
	426.3		ю́ 										
												400.0	
			40.						• • • • • • • • • • • • • • • • • • • •			(38.5)	
צטצ			-* 			<b>≺</b> −Ann	ular Seal: be	entonite pellets	(1 - 5 ga	l. buckect 3/8" p	oellets)		
			····									419.5	
D L L	417.3		45	· · · · · · · · · · · · · · · · · · ·		<b>≺</b> −Filte	er: 20/40 silic	a filter sand (5	- 0.5 cu	bic ft. bags)		417.5	
						•						(44.8)	
			····										
		••••	50	÷Ε		Wel	I: 2" OD PV	C (SCH 40)					
						(	(Continued I	Vext Page)					

SOUTHERN COMF	ANY WEI	RECORD OF	WELL	: <b>PZ-32 S</b> PAGE 2 OF 2 <u>ECS38467</u>
SOUTHERN COMPA EARTH SCIENCE AN	NY SERVICES, INC. ND ENVIRONMENTAL ENGINEERING	PROJECT Additional Hydrog	eological Investigation (2016)	
	WELL Protective aluminum cover with bo 4-foot square concrete pad Top of casing Elev. = 465.06	<b>DATA</b> Illards	COMM (DEPTH)	ENTS
5.3	Sump:0.20 ft.	epack	407.5 (54:8) 407.3	
.3 .****1			(55.0)	

S	OUT		BOF	RING LOG		BORING PZ-33 I Page 1 of 2
SO EA	UTHERN RTH SCI	COMPANY SERVICE	ES, INC. IMENTAL ENGINEERING	PROJECT <u>Additi</u>	onal Hydroge t Scherer	eological Investigation (2016)
DATE CONT DRILI GROU	E START IRACTO LED BY IND WAT	ED <u>6/7/2016</u> R <u>Cascade</u> J. Asua FER DEPTH: DURING	COMPLETED <u>6/8/2016</u> GRO METHOD <u>Rotos</u> LOGGED BY <u>W. Shaughnessy</u> COMP	JND ELEVATION _4 onic _ CHECKED BY _B. DELAYED _39 f	. Smelser t. after 100 h	COORDINATES         N 1121245.25         E 2409064.05           EQUIPMENT         Tracked           BORING DEPTH         76.5 ft.
DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION	ELEVATION	Veak hoderate HCL atrong	COMMENTS
Television         10           10         10		Sandy Lean Clay - red (2.5YR 4/6) Sandy Silt (ML) - red (2.5YR 4/6) - yellowish red / lig Well-graded Sand - mottled yellowish fine to coarse-grain	(CL) dry, no dry, no ht brown (5YR 5/6) d with Silt (SW-SM) red / light brown (5YR 5/6) and black red	(5YR 2.5/1) dry,		
000 L06 - ESEE DATABASE.601 - 8/27/20 08:45 - I/ALTRCFP01		Clayey Sand (SC) - mottled strong br (10YR 8/1) dry, fir Well-graded Sand - mottled light olive 2.5/1) damp, fine	own (7.5YR 5/8), yellowish brown (10 ne to medium-grained <b>d with Silt (SW-SM)</b> brown (2.5Y 5/3), white (2.5Y 8/1) at to coarse-grained, with mica	YR 5/8) and white		
SIMPLE GEOL		Well-graded Sand - olive gray / light o (2.5Y 8/1) saprolit	<b>t (SW)</b> live gray (5Y 5/2), greenish gray (5GY e wet, fine to coarse-grained, weather	5/1) and white ed gneiss		



#### **BORING LOG**

Page 2 of 2

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

EAF	RTH SC	ENCE AND ENVIRONMENTAL ENGINEERING	ATION _F	lant Sch	nere	۶r
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		Weak Moderate	Strong REACTION	COMMENTS
		Well-graded Sand (SW)(Con't)			:	
		- mottled dark gray (7.5YR 4/1) and white (N9)			· · · · · · · · · · · · · · · · · · ·	
60 65 70 75		<ul> <li>Well-graded Sand with Silt (SW-SM)         <ul> <li>very dark greenish gray (10Y 3/1) wet, fine to coarse-grained, w (pulverized rock/biotite gneiss)</li> </ul> </li> <li>Biotite Gneiss         <ul> <li>dark greenish gray (10G 4/1) coarse grain, medium hard to sof moderately to highly weathered, vuggy, black and white banding,</li> </ul> </li> </ul>	ith gravel	d		
₩		feldspar - Driller indicated competent rock at 76 5 ft				
<u> </u>		- Dhile Indicated competent fock at 76.5 h.		<u>_</u>	•	
SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LAPARKER\$\DESKTOP\GPC\S 06 06 06 06 06 06 06 06 06 06 06 06 06						

	SOL	JT		ERM			;	WEI	RE _L C	CORD OF	TION		WELL: PZ-33 I PAGE 1 OF 2 ECS38467
	SOUTH	IER		OMP		SER\	VICES. INC.			PROJECT Addi	tional Hydrogeolo	gical Investiga	ation (2016)
	EARTH	ISC	IEI	NCE A	ND E	ENVIE	RONMENTAL ENG	GINEERING		LOCATION Pla	nt Scherer		
	DATE ST		TE	D <u>6/7</u>	7/201	6		0 <u>6/8/2016</u>	_ GROU	IND ELEVATION	466.4 ft	COORDINA	TES <u>N 1121245.25 E 2409064.05</u>
			JR		cade						I		
	GROUND	WA	TE	R DEI	a PTH:	DUR		COMP.	<u>cssy</u>	DELAYED 39	ft after 100 hrs		<b>DEFTH</b> <u>70.31</u> .
	BOREHO	LE	(ft)					WELL	DATA				COMMENTS
			PTH		П	P ∎₄	rotective aluminur	n cover with bo	llards				
GFJ			Ö			Ť	op of casing Elev.	= 469.38				ELEV.	
	ELEV. St	rata			<del></del>	С В л .						(DEPTH)	
				⊲ , . 	<.		<ul> <li>Surface Seal: of the seal of</li></ul>	concrete				463.4	
AL P2	· · · ·		.: 2	X		X						(3.0)	
	460.4 🧭		•••										
			••••										
			<u>;</u>			$\bigcirc$							
			••••			$\gg$							
	453.4		•••	X		X							
LESK	*** ***												
KEK\$	*** ***												
APAR-	*** *** ***		 .0										
L P 01	*`* *** ***			>>		$\gg$							
	*`* *** ***		•••	X		X							
- 12	* * * * * *		25										
20 14:	***		•••										
10/29	438.4												
- 109			30			$\sum$							
IBASE	, in the second s		•••			X	Annular Fill: Ce gal. water)	ement-Bentonit	e Grout (	4 - 94# bags PC, 1	/2 - 55# bag gel, 9	90	
DAIA			 18			X	<b>,</b>						
	/		Ř										
(MO)			•••										
	426 4												
RCR				Ŵ		$\gg$							
			••••	) ) )		X							
N I K			45.										
5	420.4 <u>• • •</u>	<u>, , , , , , , , , , , , , , , , , , , </u>	•••										
	*** ***	**** ****											
	• • •	٠ ٠ ٠	50			$\otimes$							



CONTRACTY       PROJECT Additional Hydrogeological Investigation (2016)       DATE STARTED 032016 COMPLETED 042016 GROUND ELEVATION 440.8.1       CONTRACTOR Cascade METHOD Rotecome       COMPLETED V. J. Anua       OCOMPLETED V. J. Stradege       ROTES       MATERIAL DESCRIPTION       QUI Strade from provide strang from (7.5YR 5/6) and thate (7.5YR 2.5'1) damp, medium       ONMENTS       COMMENTS       Commentary Stift (MM)	SOUTHERN	RING LOG		BORING PZ-34 S Page 1 of 1
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING     LOCATION     Plant Scheer       DATE STARTED     032016     COMPLETED     64/2016     GROUND ELEVATION     440.8 ft     COORDINATES     N1121331.39     E 200208       CONTRACTOR     Cascade     METHOD     PlantScheer     BORING DEPTH     40.8 ft     COORDINATES     N1121331.39     E 200208       ROLIED BY     J. Asua     LOGGED BY     W. Shaaqhneesy     CHECKED BY     BORING DEPTH     40.8 ft       ROLIED BY     J. Asua     LOGGED BY     W. Shaaqhneesy     CHECKED BY     BORING DEPTH     40.8 ft       NOTES     COMMENTES     COMMENTES     COMMENTES     COMMENTES       Test     CLASTR A(0) dry, no     Test (2.5/R 4(0) dry, no     Test (2.5/R 4(0) dry, no     Test (2.5/R 4(0) dry, no       Samety Sitt (MH)     Elevelstic MMI     Elevelstic MMI (10/R 5(5), links (10/R 2.5/1) damp, medum     Test (2.5/R 4(0) dry, no     Test (2.5/R 4(0) dry, no       Sitt     - moded in brown (2.5/Y 5.6), links (10/R 2.5/1) damp, medum     Test (2.5/R 4(0) dry, no     Test (2.5/R 4(0) dry, no       Sitt     - moded and with Bit (19/SN-80)     Test (2.5/R 4(0) dry, no     Test (2.5/R 4(0) dry, no       Sitt     - moded and with Bit (19/SN-80)     Test (2.5/R 4(0) dry, no     Test (2.5/R 4(0) dry, no       Sitt     - moded and with Bit (19/SN-80)     Test (2.5/R 4(	SOUTHERN COMPANY SERVICES, INC.	onal Hydrogeo	logical Investigation (2016)	
Date StarteD     0/3/2016     COMPLETED     0/4/2016     GROUND ELEVATION     440.8 ft     COORDINATES     N11/2131/50     E/20028       CONTRACTOR     Cascade     METHOD     Rotosonic     EQUIPMENT     Tracked       DRILED BY     J. Asua     LOGGE DFY     W. Shaukhnessy     CHECKED BY     E. Smidser     BORING DEPTH     46 ft       OROUND WATER DEPTH: DURING	EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION Plant	Scherer	
CONTRACTOR     Cascade     METHOD     Redescrite     EQUIPMENT     Tracked       DRILLED BY J. Jasua     LOGGED BY W. Shauchnessy     CHECKED BY I. Sinsist     BORING DEPTH 4611	DATE STARTED _6/3/2016 COMPLETED _6/4/2016 GRC	DUND ELEVATION 4	40.8 ft	_ COORDINATES <u>N 1121331.59</u> E 2409288.37
DRILED BY J. Asua       LOGOED BY W. Shauchnessy       CHECKED BY B. Smelter       BORING DEPTH 46.11.         GROUND WATER DEPTH: DURING	CONTRACTOR Cascade METHOD Roto	osonic		EQUIPMENT Tracked
GROUND WATER DEPTH: DURING	DRILLED BY _J. Asua LOGGED BY _W. Shaughnessy	CHECKED BY _B.	Smelser	BORING DEPTH 46 ft.
Figure     Bit of the bit of	GROUND WATER DEPTH: DURING COMP. 13 ft NOTES	DELAYED		-
Lean Clay (CL) - red (2.5YR 4/6) dry, no 	HLUE DESCRIPTION	ELEVATION	Veak Joderate REACTION Strong	COMMENTS
10       Sandy Slift (ML)         10       Flastic Slit (MH)         10       Flastic Slit (MH)         11       Flastic Slit (MH)         11       Well graded Sand with Slit (SW-SM)         15       • motiled vellowish brown (10YR 5/6), black (10YR 2/1) and white (10YR 8/1) amg. medium         15       • motiled vellowish brown (10YR 5/6), black (10YR 2/1) and white (10YR 8/1) saprolite         16       • motiled light olive brown (2.5Y 5/4), black (10YR 2/1) and white (10YR 8/1) saprolite         20       • motiled light olive brown (2.5Y 5/3) moist         22       • motiled olive (SY 5/3) and strong brown (7.5YR 5/6) wet         • light olive gray / light olive gray (SY 5/2)         30       • motiled olive (SY 5/3) and strong brown (7.5YR 5/6) and white (7.5YR 8/1) weathered feldspar         40       • motiled dark gray (2.5Y 4/1) and white (7.5YR 8/1) weathered blotite greiss         45       Bottom of borehole at 46.0 feet.	Lean Clay (CL) - red (2.5YR 4/6) dry, no - 5			
10       Elastic Silt (MH) - motiled storag brown (7.5YR 5/6) and black (7.5YR 2.5/1) damp, medium Weil-graded Sand with Silt (SW-SM)         • motiled yellowish brown (10YR 5/6), black (10YR 2/1) and white (10YR 8/1) damp, fire to medium-grained         • motiled light olive brown (2.5Y 5/4), black (10YR 2/1) and white (10YR 8/1) saprolite         • light olive brown (2.5Y 5/3) moist         • light olive brown (2.5Y 5/3) moist         • olive gray / light olive gray (5Y 5/2)         • olive gray / light olive gray (5Y 5/2)         • olive gray / light olive gray (5Y 5/2), strong brown (7.5YR 5/6) and white (7.5YR 8/1) weathered feldspar         38         40         • mottled dark gray (2.5Y 4/1) and white (7.5YR 8/1) weathered biotite greiss         44         • Bottom of borehole at 46.0 feet.	Sandy Silt (ML)			
Well-graded Sand with Silt (SW-SM)            • mottled yellowish brown (10YR 5/6), black (10YR 2/1) and white (10YR 8/1) damp, Graine to medium-grained         • mottled light olive brown (2.5Y 5/4), black (10YR 2/1) and white (10YR 8/1) saprolite         • light olive brown (2.5Y 5/3) moist         • nottled olive (5Y 5/3) and strong brown (7.5YR 5/6) wet         • olive gray / light olive gray (5Y 5/2)         • olive gray / light olive gray (5Y 5/2)         • mottled olive gray / light olive gray (5Y 5/2), strong brown (7.5YR 5/6) and white (7.5YR 8/1) weathered feldspar         • mottled dark gray (2.5Y 4/1) and white (7.5YR 8/1) weathered biotite         • mottled dark gray (2.5Y 4/1) and white (7.5YR 8/1) weathered biotite         • Bottom of borehole at 46.0 feet.	10 Elastic Silt (MH) - mottled strong brown (7.5YR 5/6) and black (7.5YR 5/6)	2.5/1) damp. medium		
8/1) damp, fine to medium-grained         15         16         17         18         19         19         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         21         22         23         24         - mottled olive (5Y 5/3) and strong brown (7.5YR 5/6) wet         - olive gray / light olive gray (5Y 5/2)         30         30         - olive gray / light olive gray (5Y 5/2)         30         - mottled olive (7.5YR 8/1) weathered feldspar         35         36         44         - mottled dark gray (2.5Y 4/1) and white (7.5YR 8/1) weathered biotite gneiss         Bottom of borehole at 46.0 feet.	Well-graded Sand with Silt (SW-SM) 	) and white(10YR		
<ul> <li>- light olive brown (2.5Y 5/3) moist</li> <li>- mottled olive (5Y 5/3) and strong brown (7.5YR 5/6) wet</li> <li>- olive gray / light olive gray (5Y 5/2)</li> <li>- mottled olive gray / light olive gray (5Y 5/2), strong brown (7.5YR 5/6) and white (7.5YR 8/1) weathered feldspar</li> <li>- mottled dark gray (2.5Y 4/1) and white (7.5YR 8/1) weathered biotite gneiss</li> </ul>	<ul> <li>8/1) damp, fine to medium-grained</li> <li>- mottled light olive brown (2.5Y 5/4), black (10YR 2/1)</li> <li>8/1) saprolite</li> <li>20</li> </ul>	and white(10YR		
- mottled olive (5Y 5/3) and strong brown (7.5YR 5/6) wet - olive gray / light olive gray (5Y 5/2) - mottled olive gray / light olive gray (5Y 5/2), strong brown (7.5YR 5/6) and white (7.5YR 8/1) weathered feldspar - mottled dark gray (2.5Y 4/1) and white (7.5YR 8/1) weathered biotite gneiss - mottled dark gray (2.5Y 4/1) and white (7.5YR 8/1) weathered biotite gneiss - Bottom of borehole at 46.0 feet.				
- mottled olive gray / light olive gray (5Y 5/2), strong brown (7.5YR 5/6) and white (7.5YR 8/1) weathered feldspar 	- mottled olive (5Y 5/3) and strong brown (7.5YR 5/6)	wet		
40 40 40 40 40 40 40 40 40 40	- mottled olive gray / light olive gray (5Y 5/2), strong bro white (7.5YR 8/1) weathered feldspar	wn (7.5YR 5/6) and		
- mottled dark gray (2.5Y 4/1) and white (7.5YR 8/1) weathered biotite gneiss 45 50	<u>35</u> 			
Bottom of borehole at 46.0 feet.	- mottled dark gray (2.5Y 4/1) and white (7.5YR 8/1) w gneiss	veathered biotite		
50	Bottom of borehole at 46.0 feet.			

SOUTHI		RE WELL C	CORD OF ONSTRUCTION		WELL: PZ-34 S PAGE 1 OF 1 <u>ECS38467</u>
SOUTHERN C		VICES, INC.	PROJECT Additional Hydrogeolo	ogical Investigation	(2016)
EARTHSCIEN	ICE AND ENVIE	KUNMEN I AL ENGINEERING	LOCATION Plant Scherer		
DATE STARTED	6/3/2016	COMPLETED _6/4/2016 GROU	JND ELEVATION 440.8 ft	_ COORDINATES	N 1121331.59 E 2409288.37
CONTRACTOR	Cascade	METHOD Rotos	onic	EQUIPMENT Tra	cked
DRILLED BY <u>J.</u>	Asua	LOGGED BY W. Shaughnessy	CHECKED BY B. Smelser	BORING DEF	<b>PTH</b> <u>46 ft.</u>
GROUND WATER	r depth: Dur	ING COMP. <u>13 ft.</u>	DELAYED		
					COMMENTS
	_ 🗐 _P	rotective aluminum cover with bollards			
DEP	4 T	-foot square concrete pad op of casing Elev. = 443.67			
ELEV. Strata				ELEV. (DEPTH)	
		Surface Seal: concrete		437 8	
				(3.0)	
433.8 432.8 429.8 42		Annular Fill: Cement-Bentonite Grout ( gal. water)	'3 - 94# bags PC, 1/2 - 55# bag gel,	60	
				(29.0)	
                                   		Annular Seal: bentonite pellets (1 - 5 g	al. buckect 3/8" pellets)		
ໍ່ 		- Filter: $20/40$ silica filter sand (5 - 0.5 c	ubic ft bads)	407.6 (33.2)	
		- 1 inci. 20/40 since fince send (5 - 0.5 C	или п. рауо)	405.5 (35.3)	
15   140   1		Well: 2" OD PVC (SCH 40) Screen: 10 ft. 0.010" Slot Prepack		205 5	
394.8		Sump:0.20 ft.		395.3	

	sou	JTH			BOF	RING LOG			BORING PZ-35 I Page 1 of 2
		C	MPANY		DOI				
	SOUTH	IERN C	OMPANY SERVIO	CES, INC.		PROJECT Add	tional Hy	drogeological Investigation (20	16)
'	EARTH	I SCIEN	NCE AND ENVIRO	NMENTAL ENGINE	ERING	LOCATION Pla	nt Schere	er	
	TE ST		<b>n</b> 6/22/2016	COMPLETED 6/	22/2016 <b>GRO</b> I	UND ELEVATION	474 6 ft		1121598 57 E 2406058 33
		CTOR	Cascade		METHOD Rotos		474.0 II		nd
					Shaudhnessy		R Smels		56 ft
GR			R DEPTH: DURIN	G CC	MP.	DELAYED 5	3 ft after	100 hrs	<u> </u>
NO	TES _								
DEPTH	(ft) GRAPHIC	DOJ		MATERIAL DE	SCRIPTION	ELEVATION	Veak Moderate HCL Strong	COM	<i>I</i> IENTS
		11	Sandy Silt (ML)						
	5		- dark red (2.5YF Poorly-graded S - dark red (10R 3	and with Silt (SP-SI //6) dry	M)				
			Clayey Sand (SC - dark reddish bro - yellowish red / li	<b>;)</b> wn (2.5YR 3/4) dry, ght brown (5YR 5/6)	cohesive				
	0		Poorly-graded S - mottled red (2.5 micaceous	and with Silt (SP-SI SYR 4/6) and brown	<b>M)</b> (7.5YR 4/4) moist,	, fine-grained,			
	5		<ul> <li>mottled light yell</li> <li>micaceous (biotite</li> <li>mottled brown (</li> <li>(N1) saprolite we</li> </ul>	owish brown (10YR e and muscovite), oxia 7.5YR 4/4), yellowish t, micaceous	6/4), red (2.5YR 4 dation n red / light brown	l/6) and black (N1) (5YR 5/6) and blacl			
	0		- mottled light yell	owish brown(10YR	6/4) and strong b	rown (7.5YR 5/8)			
	5		Well-graded Sar - mottled strong b grained, micaceou	nd with Silt (SW-SM rown (7.5YR 4/6) an us	) id black (N1) wet,	fine to coarse-			
- CH - CH - CH - CH - CH - CH - CH - CH			- mottled brown (	10YR 5/3) and white	e (N9) weathered f	feldspar			
30 07/17/0	5		Poorly-graded S - mottled dark gra	and (SP) y (2.5Y 4/1) and ligi	ht olive brown (2.5	Y 5/6) fine-grained			
ד. פר יייי	····		Well-graded Sar	nd with Silt (SW-SM	)				
	0 0 0 0 0		- damp - olive brown (2.5 - SW: - olive brown (2.5 (residual/pulverize	5Y 4/3) fine to coarse 5Y 4/3), white (N9) ar ed rock)	-grained nd light gray(10YI	R 7/1) with gravel			
	5 								
SIMPLE GEC	0		Well-graded Sar - dark greenish gr	nd with Clay (SW-SO ray (10Y 4/1) with gra	5) avel (residual/pulve	erized rock)			



SIMPLE GEOLOGY LOG - ESEE DATABASE.GDT - 8/27/20 08:45 - \\ALTRCFP01\LAPARKER\$\DESKTOP\GPC\SCHERER ADDITIONAL P2S.GPJ

#### **BORING LOG**

Page 2 of 2

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

EAF	RTH SC	CIENCE AND ENVIRONMENTAL ENGINEERING	LOCATION _	Plant	t Schere	er
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		ELEVATION	Weak HCL Moderate REACTION Strong	COMMENTS
		<b>Biotite Gneiss</b> - dark gray (10YR 4/1) and light gray (10YR 7/1) medium medium hard to hard, slightly to highly weathered, inclined, intensely fractured, white banding	to coarse gra moderate to	iin,		
		Bottom of borehole at 56.0 feet.				
60						
• • • • • • • • •						
65						
•••••						
•••••						
 70						
•••••						
80						
•••••						
85						
•••••						
•••••						
90						
•••••						
•••••						
95						
•••••						
•••••						
105						
105						
110						

	5 <b>0U</b> '	TH	ERI DM		Y		WEL	RE L CO	CORD OF	= CTION		WELL: PZ-35 I PAGE 1 OF 2 ECS38467
s	OUTHE	RN (	COMP	ANY SE	RVIC	ES, INC.			PROJECT A	lditional Hydroge	ological Investiga	tion (2016)
E	ARTHS	SCIE	NCE A	AND ENV	/IROI	NMENTAL ENG	INEERING		LOCATION _F	Plant Scherer		
DA	TE STA	RTE	<b>D</b> _6/2	22/2016		COMPLETED	6/22/2016	GROU	IND ELEVATION	474.6 ft		<b>TES</b> N 1121598.57 E 2406058.33
co	NTRAC	TOR	Cas	cade			METHOD	Rotosc	onic			Tracked
DRI	LLED E	ΒΥ <u></u>	J. Asu	a		LOGGED BY	W. Shaughne	essy	CHECKED BY	B. Smelser	BORING	<b>DEPTH</b> <u>56 ft.</u>
GRO	OUND W	/ATE	RDE	PTH: DU	JRING	<u> </u>	COMP		_ DELAYED _	5.3 ft. after 100 h	<u>rs</u> .	
BOI	REHOLI	E					WELL	DATA				COMMENTS
.		PTH			Flus 4-foo	h-mount 8" diam	neter steel cove	er				
		B			Тор	of casing Elev. =	= 474.40				ELEV.	
	V. Strat	a • <mark>•</mark> • • • •	ъ. В л.	· B ^	.]						(DEPTH)	
5 <u>472</u> 3	6	<b>I</b> 				Surface Seal: co	oncrete				(0.2)	
469	6	2					•••••				469.6	
		/									(5.0)	
466	6 /											
		Ē										
		15										
LARN												
		50						Creat (	4 04# have DC			
						gal. water)	ment-Bentonite	Grout (4	4 - 94# bags PC	, 1/2 - 55# bag ge	9, 60	
450	6	22										
20 14.												
- 10/23		• • •										
		130										
442	6											
		35										
438	6	•										
		•••••••••••••••••••••••••••••••••••••••			§		•••••				436.6	
		40			-	Annular Seal: be	entonite pellets	(1 - 5 ga	al. buckect 3/8" p	ellets)	(20.0)	
NOI		•			 						432.6	
		تر : 				Filter: 20/40 silio	ca filter sand (4	1/2 - 0.	5 cubic ft. bags)		(12.0)	
428	6										(45.3)	
		**************************************										
		20										

<sup>(</sup>Continued Next Page)

SOUT	HI CC	RECORD OF WELL CONSTRUCTION	WELL: PZ-35 I PAGE 2 OF 2 <u>ECS38467</u>					
SOUTHER EARTH SC	N C	OMPANY SERVICES, INC.         PROJECT         Additional Hydrogeological Investiga           CE AND ENVIRONMENTAL ENGINEERING         LOCATION         Plant Scherer	PROJECT         Additional Hydrogeological Investigation (2016)           LOCATION         Plant Scherer					
BOREHOLE DATA	DEPTH (ft)	WELL DATA Flush-mount 8" diameter steel cover 4-foot square concrete pad Top of casing Elev. = 474.40 ELEV.	COMMENTS					
ELEV. Strata 423.6 *****	55	(CONTINUED) (DEPTH) Well: 2" OD PVC (SCH 40) Screen: 10 ft. 0.010" Slot Prepack 419.3 Sump:0.20 ft.						

								BORING PZ-36 I
	SC	TUC	HERN		BOR	ING LOG		rage 1012
	SOL	JTHER	N COMPANY SERVICE	S, INC.		PROJECT Addi	tional Hyd	rogeological Investigation (2016)
	EAF	RTH SO	CIENCE AND ENVIRON	MENTAL ENGINEE	RING	LOCATION Pla	nt Schere	r
1	DATE	STAR	TED _ 6/4/2016	COMPLETED _6/5	/2016 <b>GROL</b>	JND ELEVATION	478.9 ft	COORDINATES N 1120410.99 E 2407256.25
0	CONT	RACT	OR Cascade		METHOD Rotoso	onic		EQUIPMENT Tracked
	DRILL	ED B	T. Ardito	LOGGED BY P. A	lexander	CHECKED BY	B. Smelse	r BORING DEPTH 97 ft.
G	ROUI	ND WA S	ATER DEPTH: DURING	CON	ИР	<b>DELAYED</b> 49	.8 ft. after	<u>24 hrs</u> .
┢							NO	
	DEPTH (ft)	GRAPHIC LOG		MATERIAL DES	CRIPTION	ELEVATION	Veak hoderate trong REACTIC	COMMENTS
			Silt (ML)				<u> </u>	
			- Ted (2.5 FR 4/6) d	ry, sun, no				
	5	<u> </u>						
	•••••							
S.GPJ								
IAL PZ		1111						
			- red (2.5YR 5/6) d	rv. stiff. some mica				
RERAL	15	$\left\{ \left  \right\rangle \right\}$						
SCHE								
P/GPC	20							
DESKTO			- saprolite					
KER\$\			Poorly-graded Sar	nd with Silt (SP-SM	)			
LAPAR			- motiled readish br	wn (51R 5/4) and wn (7.5YR 5/6), pin	k (5YR 7/3) and I	ight red (2.5YR		
CFP01	• • • • • • • • •		slight ovidation					
NALTR	30		Well-graded Sand	with Silt (SW-SM)	l strong brown (7	5YR 5/6) saprolite		
08:45 -			moist, loose, bande	d, some mica				
8/27/20	35		- mottled brown (7.	5YR 5/3), reddish br	rown (2.5YR 5/4)	and light gray		
GDT -			(2.5Y 7/2) moist, h	orizontal and sub-ve	rtical banding			
ABASE			- relict fractures 38	to 43 ft.				
EE DAT	40							
6 - ESI			Poorly-graded Sar	nd with Silt (SP-SM	)			
JGYLC	45		- mottled reddish ye brown (2.5Y 6/3) s	anow (7.5YR 6/6), ye saprolite wet, very loo	ose, some mica	and light yellowish		
GEOL(	•••••		- relict fractures 46	to 48 ft. (horizontal a	and sub-vertical)			
SIMPLE	50		Poorly-graded Sar ⊥ - mottled light gray	nd with Clay (SP-S0 (10YR 7/2), light rec	<b>C)</b> Idish brown (2.5Y	′R 6/3) and light		



#### **BORING LOG**

Page 2 of 2

SOUTHERN COMPANY SERVICES, INC. FARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

	EAF	RTH SC	IENCE AND ENVIRONMENTAL ENGINEERING	N Plar	t Scher	er
	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Weak Moderate Strong	COMMENTS
	55 60		reddish brown (2.5YR 7/4) saprolite moist, loose, some mica, some oxidation 47 to 56 ft., foliation 55 to 57 ft. <b>Poorly-graded Sand with Clay (SP-SC)</b> ( <i>Con't</i> ) - mottled gray (2.5Y 6/1), olive gray / light olive gray (5Y 5/2) and ver gray (5Y 3/1) saprolite moist, loose, some mica	y dark		
VAL PZS.GPJ	70		<b>Biotite Gneiss</b> - greenish gray (10Y 6/1), white (7.5YR 8/1) and dark greenish gray 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	(10GY		
PC\SCHERER ADDITION	75		- white (10YR 8/1) and greenish gray (5BG 5/1) very soft to soft, moderately weathered, banded, water staining, moderately disintegra	ted		
R\$\DESKTOP\GI	80		- medium light gray (N6), white (N9) and dark bluish gray (10B 4/1) slightly weathered, banded, horizontal and sub-vertical fractures, wat staining, slightly disintegrated	hard, er		
TRCFP01\LAPARKE	85		- dark bluish gray (10B 4/1) hard, slightly weathered, banded, slightly disintegrated	/		
08:45 - \\AL			- white (N9) and bluish gray (10B 5/1) hard, slightly weathered, ban sub-vertical fractures, water staining, slightly disintegrated	ded,		
DT - 8/27/20	95		<ul> <li>- intensly fractured</li> <li>- hard, not to slightly weathered, massive, horizontal and sub-vertical</li> </ul>			
\SE.G			Bottom of borehole at 97.0 feet.			
SIMPLE GEOLOGY LOG - ESEE DATABA	100 105 110	- - - - - - - - -				

S	OUT	HER COM			WEL	REC L CC	ORD OF	ION		WELL: PZ-36 I PAGE 1 OF 2 ECS38467
s	OUTHER	N COMI	PANY SERVI	CES, INC.			PROJECT Addition	nal Hydrogeolog	jical Investiga	ation (2016)
E/	ARTH SO		AND ENVIR	ONMENTAL ENG	BINEERING		LOCATION Plant	Scherer		
DAT		<b>TED</b> 6	/4/2016	COMPLETED	6/5/2016	GROUN	<b>DELEVATION</b> 47	8.9 ft	COORDINA	<b>TES</b> N 1120410.99 E 2407256.25
CON	ITRACT	<b>OR</b> Ca	scade	—	METHOD	- Rotosor	nic	E		Tracked
DRI	LED B	T. Arc	lito	LOGGED BY	P. Alexander		CHECKED BY B.S	Smelser	BORING	<b>DEPTH</b> _97 ft.
GRO		TER DE	EPTH: DURI	NG	COMP		DELAYED 49.8 f	ft. after 24 hrs.		
NOT	ES									
BOR	REHOLE	(#)			WELL I	DATA				COMMENTS
		PTH	Pro	otective aluminun	n cover with boll	ards				
GLJ		B	To	p of casing Elev.	= 481.52				ELEV.	
	√. Strata								(DEPTH)	
		م ¤ ار را		-Surface Seal: c	oncrete				475.9	
									(3.0)	
HEKE		Ē								
5										
		<u>15</u>								
	а									
<u></u>		עו								
14:21										
178120										
449.	9									
		gg.								
с <u>а - (</u>										
		<b>.</b> 9		_Annular Fill: Ce	ement-Bentonite	Grout (6	- 94# bags PC, 1/2 ·	- 55# bag gel, 7	0	
2 <u>4</u> 36.	<u>.9</u>									
		<b>4</b> 5								
430. 10	9									



### PROJECT: Plant Scherer PROJECT NUMBER: 166235004 DRILLED DEPTH: 56.00 ft LOCATION:

# RECORD OF BOREHOLE PZ-36S 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

SHEET 1 of 2 DEPTH W.L.: 35.5' ELEVATION W.L.: 446.69' DATE W.L.: 8/24/18 TIME W.L.: 09:05

	_	SOIL PROFILE				s	AMPLE	ES		
DEPTH	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
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							WELL CASING Interval: 0-45' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread
5	- - - 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			475.4	S-1	ROTO SONIC	<u>7.50</u> 10.00		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 FILTER PACK
10	- - - - - - - - - - - - - - - - - - -	10.00 - 20.00	CL		469.4					Interval: 43-55' Type: No. 20-40 Sand FILTER PACK SEAL Interval: 38.8-43' Type: 3/8' Pel-Plug ANNULUS SEAL
		Silty CLAY with some sand; sand; fine to coarse; red; cohesive; w <pl firm="" residuum<="" stiff;="" td="" to="" w~pl;=""><td></td><td></td><td></td><td></td><td>U</td><td></td><td></td><td>Interval: 0-38.8' Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum</td></pl>					U			Interval: 0-38.8' Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum
15	- 465 		CL			S-2	ROTO SONI	<u>2.00</u> 10.00		DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
20	 460 	20.00 - 25.00 Clayey SAND; sand: fine to coarse; reddish-pink to red;			459.4 20.00					
T 9/4/20	- - - - - - - - - - - - -	non-cohesive; moist to wet; compact to dense; RESIDUUM	SC				NIC			
25 25 DUDULICI		25.00 - 30.00 Clayey SAND; sand: fine to coarse; reddish brown; micacaceous; non-cohesive; moist to wet; compact to dense; RESIDUUM	SC		454.4 25.00	S-3	ROTO SC	<u>8.50</u> 10.00		
EY UPDATED.GP 00	- - - 450 - -	30.00 - 40.00 Clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse: red to light grey: micacaceous: non-cohesive: moist:			449.4 30.00					- - -
	- - - - - - - - - - - - - - - - - - -	compact to dense; SAPROLITE	SC			S-4	ROTO SONIC	<u>10.00</u> 10.00		
RECORD PLANT	- - - 440	Log continued on next page			439.4					
D1 DF	OG SCA RILLING RILLER	LE: 1 in = 5 ft 3 COMPANY: Cascade 5 M. Rodrigues		GA IN CHEC DATE	SPECT KED B 10/31/	OR: /: Tii /19	C. Ti moth	dwell y Rich	nards, PG	GOLDER



SURVEY UPDATED.GPJ ₽ 6 2018 SCHERER PLANT RECORD

S	DUT		BOF	RING	;		BORING PZ-37 PAGE 1 OF <u>ECS3846</u>
SO EAI	UTHE RTH S	RN COMPANY SERVICES, INC.PROJECTCIENCE AND ENVIRONMENTAL ENGINEERINGLOCATION	Addit Plan	ional Hy t Scher	/drogeol er	logical Inv	vestigation (2016)
	E STAF	RTED 6/2/2016       COMPLETED 6/2/2016       SURF. ELEV. 479         FOR Cascade       EQUIPMENT Tracked       ME	9.5 THOD	C	OORDIN sonic		N:1121178.48 E 2408419.19
DRILI 30RI NOTE	LED B NG DE ES	Y _J. Asua       LOGGED BY _W. Shaughnessy       CHECKED B         EPTH _72.5 ft.       GROUND WATER DEPTHDURING	Y <u>B</u> .: COM	Smelser P	ſ	_ ANGLE _ DELAY	E BEARING YED _43 ft. after 48 hrs.
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	Veak HCL Moderate REACTION	BROUNDWATER BESERVATIONS	Comp protec 4-foot Top of	WELL DATA eletion: tive aluminum cover with bollards; square concrete pad f casing Elev. = 482.18
5 10 15 20 25		<ul> <li>- dark red (2.5YR 3/6) dry</li> <li>- red (2.5YR 4/6)</li> <li>- yellowish red (5YR 4/6)</li> <li>Silty Sand (SM)</li> <li>- red (10R 5/6) dry, fine-grained, with mica</li> <li>- weak red (10R 5/3)</li> <li>- mottled reddish brown (2.5YR 4/4) and reddish black (2.5YR 2.5/dry, weathered schist</li> <li>- weak red (2.5YR 5/2)</li> </ul>	(1)				Annular Fill:
<u>30</u> <u>35</u> <u>40</u> <u>45</u>		<ul> <li>mottled reddish brown (2.5YR 4/4) and strong brown (7.5YR 5/6)</li> <li>Elastic Silt (MH)         <ul> <li>reddish brown (2.5YR 4/4) wet</li> </ul> </li> <li>Silty Sand (SM)         <ul> <li>reddish brown (2.5YR 5/4) fine to coarse-grained. with mica</li> <li>yellowish red (5YR 4/6) and reddish brown (2.5YR 4/4) with coar gravel (residual quartz+feldspar viens)             <ul>                       mottled grayish brown (10YR 5/2) and white (10YR 8/1)</ul></li>                          Silt (ML)                       mottled strong brown (7.5YR 5/8) and black (7.5YR 2.5/1)</ul></li>                            Silty Sand (SM)</ul>	se				Cement-Bentonite Grout (4 - 9 bags PC, 1/2 - 55# bag gel, 90 gal. water)



#### LOG OF TEST BORING

<b>BORING PZ-37</b>	l
PAGE 2 OF 2	2
ECS38467	2

S	DUTH		RINO	3		BORING PZ-37 I PAGE 2 OF 2 <u>ECS38467</u>	
COMPANY       PROJECT       Additional Hydrogeological Investigation (2016)         SOUTHERN COMPANY SERVICES, INC.       PROJECT       Additional Hydrogeological Investigation (2016)							
EAF	RTH SC	THE COMPANY SERVICES, INC.	nt Sche	rer	•		
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weak HCL Moderate REACTION	GROUNDWATER OBSERVATIONS	Con prot 4-fo Top	WELL DATA npletion: ective aluminum cover with bollards; ot square concrete pad of casing Elev. = 482.18	
		Silt (ML) (Con't)		00		Annular Fill:	
<u>55</u> 60		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				Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water) Annular Seal: - bentonite pellets (1 - 5 gal. buckect 3/8" pellets) Filter: - 20/40 silica filter sand (5 - 0.5 cubic ft. bags)	
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				Standpipe: 2" OD PVC (SCH 40) Screen:	
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				Sump:0.200000000000003 ft.	
		Bottom of borehole at 72.5 feet.				Çave-in to 72.5 ft.	
75							
80							
85	-						
90	-						
95							
100							
105	_						
110							

	SC	DUI	CC CC	ERN DMP	ANY		WELL	RE(	CORD OF		WELL: PZ-37 I PAGE 1 OF 2 ECS38467
	SOU	THEF	RN C	OMPA	NY SERVIC	ES. INC.			PROJECT Additional Hydrogeolog	ical Investiga	ation (2016)
	EAR	THS	CIE		ND ENVIRO	NMENTAL ENG	INEERING		LOCATION Plant Scherer		
							_ /_ /				
	ATE	STAF	RΤΕ	D <u>6/2/</u>	2016	COMPLETED	<u>    6/2/2016      </u>	GROU	ND ELEVATION 479.5 ft	COORDINA	TES <u>N 1121178.48 E 2408419.19</u>
C	ONTI	RACI	OR	Casc	ade			Rotoso	nic E	QUIPMENT	Tracked
DF	RILLI	ED B	Y <u> </u>	J. Asua		LOGGED BY	W. Shaughness	y	CHECKED BY <u>B. Smelser</u>	_ BORING	<b>DEPTH</b> <u>72.5 ft.</u>
GR		ND W	ATE	RDEP	TH: DURIN	G	COMP		_ DELAYED 43 ft. after 48 hrs.		
				1							
в	ORE	HOLE	Ê				WELL DA	ΑΤΑ			COMMENTS
	DA	ГА	DEPTH (		Prot 4-fo	ective aluminum ot square concre	cover with bollard	ds			
EL	EV.	Strata			Тор	or casing ciev	- 402.10			ELEV. (DEPTH)	
			:	5.	·B	Surface Seal: co	oncrete	_			
27				· · · · ·	· · · · · · · · · · · · · · · · · · ·					476.5	
			: - -							(3.0)	
2											
46	57.5		[]								
			12								
			5								
		    -  -	[•]  •] • • •								
-			цо								
1.1			12								
45	2.5		9 								
45	0.5					Annular Fill: Cer gal. water)	ment-Bentonite G	irout (4	4 - 94# bags PC, 1/2 - 55# bag gel, 9	0	
			35								
	25										
	2.5		<b>İ</b>								
			40.								
<u>4</u> 3	8.5		L								
	55										
			45.								
3											
			<b> </b>								
			50								



S	DUI	LOG OF TEST	BOI	RING	6		BORING PZ-38 PAGE 1 OF ECS384
	. 1/T'T T	SUMPANY SERVICES INC. PROJECT	Addit	tional H	vdroaeo	loaica	al Investigation (2016)
SO EAI	RTH S	SCIENCE AND ENVIRONMENTAL ENGINEERING	N_Plar	nt Scher	er		
DATE	STA	RTED <u>6/22/2016</u> COMPLETED <u>6/23/2016</u> SURF. ELEV. <u>48</u>	2.2	C	OORDI	NATE	ES: N 1121475.86 E 2406352.98
	FRAC	TOR Cascade EQUIPMENT Tracked MI	ETHOL BY B	D <u>Rotos</u> Smelse	sonic r	۵N	NGLE BEARING
BORI	NG D	EPTH _76 ft GROUND WATER DEPTHDURING	COM	IP		DE	ELAYED _16.3 ft. after 100 hrs.
NOTE	ES						
				z			
-	<u>ں</u>		NO	19 110	VTER		WELL DATA
∰T†	APH	MATERIAL DESCRIPTION	VATI	REAC	DWA VATI-	C	Completion:
Ö	GR.		ELEY	k erate F	OUN SER/	flu sc	ush-mount 8" diameter steel cover; 4-f
		0-m to 0% (ML)		Wea Mode Stror	GR( OB(		
		sandy Silt (ML) - dark red (2.5YR 3/6) dry				·5.	·U. Surface Seel:
						· 5 ·	
5							
		- with mica				Ň	
		Poorly-graded Sand with Silt (SP-SM)		-			
10		- yellowish red / light brown (5YR 5/6) dry, fine-grained					
		Elastic Silt (MH)					
		- yellowish red / light brown (5YR 5/6) and brown (7.5YR 5/4) micaceous				Ň	
15		- brown (7.5YR 5/3) damp					
		Poorly-graded Sand with Silt (SP-SM)					
		- grayish brown (10YR 5/2) fine-grained, micaceous					
20	***** *****	Well-graded Sand (SW)	Idenár			×.	
		seam	uspal				
		Poorly-graded Sand with Silt (SP-SM) - grayish brown (10YR 5/2) and strong brown (7.5YR 4/6) saproli	e wet,				
25		fine-grained, white banding, interbedded by weathered feldspar ar quartz seams	d				
						X	Annular Fill:
							bags PC, 1/2 - 55# bag gel, 9
30						Ø	gai. water)
							-
						×.	
35							
	· · · · · ·	Well-graded Sand with Silt (SW-SM)					
		- mottled olive gray / light olive gray (5Y 5/2) and pale yellow (5Y saprolite wet, fine to coarse-grained	3/2)			Ň	
40						$\bowtie$	
		- mottled grayish olive (10Y 4/2) and pale yellow (2.5Y 7/4)					
		- mottled gravish brown (2.57 5/2) and hale vellow (2.57 7/4) with	mice				
45		motiou grayion brown (2.01 0/2) and pale yellow (2.01 1/4) will	mud			Ň	
						Ŵ	
						17.2.1	



#### LOG OF TEST BORING

LOCATION	Plant Scherer

SC	DUT	LOG OF TEST BO	RIN	G	BORING PZ-38 I PAGE 2 OF 2 ECS38467
SO EAF	UTHEF RTH SC	COMPANY       PROJECT _Add         RN COMPANY SERVICES, INC.       PROJECT _Add         CIENCE AND ENVIRONMENTAL ENGINEERING       LOCATION _Pla	itional I int Sche	Hydrogeol erer	logical Investigation (2016)
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Veak HCL Moderate REACTION	BROUNDWATER BSERVATIONS	WELL DATA Completion: flush-mount 8" diameter steel cover; 4-foot square concrete pad
55 60		<ul> <li>Well-graded Sand with Silt (SW-SMYCon't)</li> <li>- mottled olive gray / light olive gray (5Y 5/2), brown (7.5YR 4/4) and white (N9) weathered biotite gneiss</li> <li>- mottled dark grayish brown (2.5Y 4/2) and white (N9)</li> <li>- mottled black (N1) and white (N9)</li> <li>Poorly-graded Sand (SP)</li> <li>- yellowish brown (10YR 5/6) and dark grayish brown (2.5Y 4/2) fine-grained</li> </ul>			Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water) Annular Seal: - bentonite pellets (1 - 5 gal. buckect 3/8" pellets) Filter:
<u>65</u> 70 75		Biotite Gneiss - grayish brown (2.5Y 5/2) fine to coarse grain, gravelly sand (pulverized weathered rock)			<ul> <li>20/40 silica filter sand (4 1/2 - 0.5 cubic ft. bags)</li> <li>Standpipe:</li> <li>2" OD PVC (SCH 40)</li> <li>Screen:</li> <li>10 ft; 0.010" Slot Prepack</li> <li>Sump:0.2000000000003 ft.</li> </ul>
80 85 90 95 100		Bottom of borehole at 76.0 feet.			Cave-in to 76 ft.
105	-				

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING DATE STARTED 0/22/2016 COMPLETED 0/23/2016 GROUND ELEVATION 482.2 ft COORDINATES N 1121475.86 E 24 CONTRACTOR CacadoMETHOD RotoconicEOUPMENT Trackod DRULED BY J.AsuaLOGGED BY W. Shaudhnessy. CHECKED BY S. SmelserBORING DEPTH 76.1,GROUND WATER DEPTH: DURINGCOMPDELAYED 16.3.1t, after 100 hrs. NOTES	<b>Z-38  </b> E 1 OF 2 CS38467	WELL: PZ PAGE ECS	CORD OF ONSTRUCTION	R		HERN	OUT	S
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING     LOCATION     Plant Scherer       DATE STARTED     6222016     COMPLETED     6232016     GROUND ELEVATION     482.2 ft     COORDINATES     N1121475.86     E24       CONTRACTOR     Cascade     METHOD     Robusonic     EQUIPMENT     Tracked       DRILED 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 ths.     NOTES       BOREHOLE     Fluids-mount 6' diameter steel cover     Hot space concrete pad     (ELEV)     (ELEV)       1     Fluids-mount 6' diameter steel cover     (Fluids-mount 6' diameter steel cover     (ELEV)     (ELEV)       1     Fluids-mount 6' diameter steel cover     (ELEV)     (ELEV)     (ELEV)       1     Fluids-mount 6' diameter steel cover     (ELEV)     (ELEV) <th></th> <th>igation (2016)</th> <th>PROJECT Additional Hydrogeological Investiga</th> <th>ICES, INC.</th> <th>ANY SERVI</th> <th></th> <th>OUTHER</th> <th>S</th>		igation (2016)	PROJECT Additional Hydrogeological Investiga	ICES, INC.	ANY SERVI		OUTHER	S
DATE STARTED       0.222/2016       COMPLETED       0.222/2016       COORDINATES       N1121475.86       E244         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.       DOGED ft. after 100 hrs.         NOTES			LOCATION Plant Scherer	ONMENTAL ENGINEERING	AND ENVIRO	CIENCE A	ARTH SC	E/
CONTRACTOR       Cascade       METHOD       Rotosonic       EQUIPMENT       Tracked         DRILLED BY       J. Asua       LOGGED BY       W. Shaughnessy       CHECKED BY       B. Smelser       BORING DEPTH       DT         GROUND WATER DEPTH:       DURING	406352.98	IATES <u>N 1121475.86 E 240</u>	UND ELEVATION _482.2 ft COORDINA	COMPLETED	22/2016	TED _6/2		DA
DRULLED BY       J. Asua       LOGED BY       W. Shaughnessy       CHECKED BY B. Smelser       BORING DEPTH 76 ft.         GROUND WATER DEPTH: DURING       COMP       DELAYED 16.3 ft. after 100 hrs.       NOTES         NOTES       WELL DATA       COMMENTS         BOREHOLE       WELL DATA       COMMENTS         Flush-mount 8" diameter steel cover       4-foct square concrete pad       COMMENTS         Common relevance       Flush-mount 8" diameter steel cover       4-foct square concrete pad       COMMENTS         Common relevance       Flush-mount 8" diameter steel cover       4-foct square concrete pad       COMMENTS         Common relevance       Flush-mount 8" diameter steel cover       4-foct square concrete pad       Commenter         Common relevance       Flush-mount 8" diameter steel cover       4-foct square concrete pad       Commenter         Common relevance       Flush-mount 8" diameter steel cover       4-foct square concrete pad       Commenter         Common relevance       Flush-mount 8" diameter steel cover       4-foct square concrete pad       Commenter         Common relevance       Flush-mount 8" diameter steel cover       4-foct square concrete pad       Commenter         Common relevance       Flush-mount 8" diameter steel cover       4-foct square concrete pad       Commenter         Commo		ITTracked	sonic EQUIPMENT	METHOD _ Ro	cade	OR Case	NTRACT	cor
GROUND WATER DEPTH: DURING COMP DELAYED 16.3 ft. after 100 hrs. NOTES  BOREHOLE  BOREHOLE  COMMENTS Flush-mount 8" diameter steel cover 4-foct square concrete pad to of casing Elev	-	IG DEPTH 76 ft.	CHECKED BY B. Smelser BORING	LOGGED BY W. Shaughnessy	а	J. Asua	LLED BY	DRI
NOTES     COMMENTS       BOREHOLE DATA     EUV. Stell     Flush-mount 8" diameter steel cover 4-fost square concrete pad Top of casing Elev. = 482.24     CELV. (DEPTH)       444.2     V.     - Surface Seal: concrete     477.2 (5.0)       471.2     V.     - Surface Seal: concrete       463.2     R       463.3     R       463.4     R       463.5     R       463.6<			<b>DELAYED</b> <u>16.3 ft. after 100 hr</u> s.	NG COMP	PTH: DURIN	TER DEP	UND WA	GRO
BOREHOLE DATA       COMMENTS         COMMENTS       Flush-mount 8" diameter steel cover 4-foot square concrete pad Top of casing Elev. = 482.24       CELV. Steel         444.2       V       -       -         463.2       V       -       -         463.2       V       -       -         448.2       V       -       -         V       V       -       -         V       V       -       -         V       V       -       -         V       V       -       -         V       V       -       -<							E9	
UNIA       Elev. Strate       Flush-mount 8" diameter steel cover 4-foot square concrete pad Top of casing Elev. = 482.24         ELEV. Strate       9.1       9.1       9.1         474.2       9.1       9.1       9.1         474.2       9.1       9.1       9.1         474.2       9.1       9.1       9.1         474.2       9.1       9.1       9.1         474.2       9.1       9.1       9.1         474.2       9.1       9.1       9.1         466.2       9.1       9.1       9.1         466.2       9.1       9.1       9.1         466.2       9.1       9.1       9.1         466.2       9.1       9.1       9.1         466.2       9.1       9.1       9.1         466.2       9.1       9.1       9.1         466.2       9.1       9.1       9.1         466.2       9.1       9.1       9.1         466.2       9.1       9.1       9.1         466.2       9.1       9.1       9.1         466.2       9.1       9.1       9.1         9.1       9.1       9.1       9.1		COMMENTS	A la la la la la la la la la la la la la	WELL DAT		( <b>t</b> t)	REHOLE	BOF
B         Top of casing Elev. = 462.24           ELEV. steam         0           411.2         0           422.2         0           466.2         0           466.2         0           466.2         0           1         0				ush-mount 8" diameter steel cover	Flu □ ■4_f	HT		
EEV.         Strate         Depth           4         1         <		v.	ELEV.	op of casing Elev. = 482.24	То	B		
- Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 446.2		<u>+)</u>	(DEPTH)		· · · · ·		V. Strata	ELE
477.2 (5.0) 471.2 471.2 466.2 466.2 466.2 462.2 467.2 466.2 467.2 466.2 467.2 466.2 467.2 466.2 467.2 477.2 467.2 47				-Surface Seal: concrete				
(5.0)		2	477.2			2		
474.2       1.11         471.2       9         466.2       9         463.2       9         463.2       9         463.2       9         463.2       9         463.2       9         463.2       9         463.2       9         463.2       9         463.2       9         463.2       9         9       9         463.2       9         9       9         463.2       9         9       9		))	(5.0)					
471.2 465.2 4							.2 · · · ·	474
466.2 463.2 473.4 47							2	471
466.2 463.2 463.2 462.2 8 7 8 8 8 7 8 8 8 8 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8								
466.2						12		
463.2 462.2 462.2 462.2 463.2 462.2 463.2 462.2 463.2 472.5 47							.2	466
462.2 *** R 462.2 *** R 5 462.2 *** R 5 5 6 462.2 *** R 5 6 7 7 8 7 7 7 7 7 7 7 7 7 7 7 7 7							2	463
Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water)							2	462
Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water)								
Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water)								
Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water)								
Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water)								
Annular Fill: Cement-Bentonite Grout (4 - 94# bags PC, 1/2 - 55# bag gel, 90 gal. water)								
			(4 - 94# bags PC, 1/2 - 55# bag gel, 90	Annular Fill: Cement-Bentonite Gro gal. water)				
							2	446
						- <b></b>		
						14		
							۵۰۵۹۵۵ ۵۰۹۵۵ ۵۰۵۹۵۵	



### PROJECT: Plant Scherer PROJECT NUMBER: 166235004 DRILLED DEPTH: 80.00 ft LOCATION:

# RECORD OF BOREHOLE PZ-39S 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

### SHEET 1 of 2 DEPTH W.L.: 35.9' ELEVATION W.L.: 438.59' DATE W.L.: 8/24/18 TIME W.L.: 09:10

	SOIL PROFILE SAMPLI									
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
- 0	470	0.00 - 6.50 clayey SILT with some organic matter; dark reddish brown; non-cohesive; moist; compact; RESIDUUM								WELL CASING Interval: 0-76 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread
- 5 -	- - - - - - - - - - - - -	6.50 - 10.00	ML		465.3	S-1	ROTO SONIC	<u>10.00</u> 10.00		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
		silty CLAY; grey to brown; cohesive; w~PL; soft to firm; RESIDUUM	CL		461.8					Interval: 64-79' Type: No. 20-40 Sand FILTER PACK SEAL Interval: 62.5-64' Type: 3/8" PEL-PLUG
10 -	- - 460	10.00 - 20.00 sitty CLAY; high plasticity; red to reddish brown; cohesive; w>PL; stiff to very stiff; RESIDUUM			10.00					ANNULUS SEAL Interval: 0-62.5' Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4'
15 -	  455		CL			S-2	ROTO SONIC	<u>7.50</u> 10.00		Protective Casing: Auminum  PRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
- 20		20.00 - 30.00			451.8					-
9/4/20	450 450	silty-sandy CLAY and clayey SAND mix; sand: fine; red; cohesive; w <pl firm;="" residuum<="" soft="" td="" to="" w~pl;=""><td></td><td></td><td></td><td></td><td>Q</td><td></td><td></td><td></td></pl>					Q			
25 - 25 -	 445 		CL-SC			S-3	ROTO SON	<u>7.50</u> 10.00		
12_SURVEY UPDATEC		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					-
PLANT_SCHERER_2018_10		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	<u>10.00</u> 10.00		
12002 40 -	_	Log continued on next page			431.8					
LO DR DR DR	LOG SCALE: 1 in = 5 ft       GA INSPECTOR: C. Tidwell         DRILLING COMPANY: Cascade       CHECKED BY: Timothy Richards, PG         DRILLER: M. Rodrigues       DATE: 10/31/19									

PROJECT: Plant Scherer PROJECT NUMBER: 166235004 DRILLED DEPTH: 80.00 ft LOCATION:

# RECORD OF BOREHOLE PZ-39S 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

SHEET 2 of 2 DEPTH W.L.: 35.9' ELEVATION W.L.: 438.59' DATE W.L.: 8/24/18 TIME W.L.: 09.10

		SOIL PROFILE SAMPLES									
DEPTH	(ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
4	0.  	- 430 	40.00 - 50.00 clayey SAND with silt; sand: fine to coarse; red to orange; non-cohesive; wet; loose to compact; RESIDUUM			40.00		<u> </u>			WELL CASING Interval: 0-76 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread WELL SCREEN Interval: 66-76' Motorial: 0.010" Slotted
4		- - 425 -		SC			S-5	ROTO SON	<u>9.50</u> 10.00		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
5		_ _ 420 _	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					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
5	- 55 -	- - 415	57.00 - 60.00 sitly SAND with trace clay; micacaceous; tan to grey; non-cohesive; moist to wet: compact to dense; SAPROLITE			414.8 57.00	S-6	ROTO SONIC	<u>10.00</u> 10.00		DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
6	 00 	- - 410	60.00 - 68.00 silty SAND with trace clay and some fine gravel; sand: fine to coarse; tan to grey; micacaceous; non-cohesive; moist to wet; compact to dense; SAPROLITE	SM		411.8 60.00					
IEDMONT.GDT 9/4/20	- 	- - - - 405		SM			S-7	ROTO SONIC	<u>10.00</u> 10.00		
KVEY UPDATED.GPJ P	- - - 0'	-	68.00 - 70.00 sitty SAND with trace clay and some fine gravel; sand: fine to coarse; dark grey; micacaceous; non-cohesive; moist; dense; SAPROLITE 70.00 - 77.00 sitty SAND with trace clay and some fine gravel; sand: fine to coarse; dark grey; micacaceous; non-cohesive; moist; dense; SAPPO!	SM		403.8 68.00 401.8 70.00					
RER_2018_10_12_SUF	- - /5	— 400 — — —		SM			S-8	OTO SONIC	<u>9.00</u> 10.00		
ECORD PLANT_SCHE		395  	77.00 - 80.00 silty SAND with trace clay and some gravel; sand: fine to coarse; gravel: fine to coarse; dark grey; micacaceous; non-cohesive; moist; dense to very dense; TWR Note: Drill chatter at 77' Boring completed at 80.00 ft	TWR		394.8 77.00 391.8		<u></u>			
Image: Description of the second s											GOLDER

PR PR DR LO	COJECT: COJECT RILLED [ CATION	RECORD O Plant Scherer NUMBER: 166235004 DEPTH: 84.00 ft State Started: 8/15/18 DATE COMPLETED: 8/15/18 State Started: 8/15/18	F B(	ORE	HOL NOF EAS GS I TOC	E F RTHING: ELEVA CELEV	PZ- G: 1,1 2,400 ATION /ATIC	<b>401</b> 16,960 5,934.7 I: 510. N: 512	SHE 0.39 DEF 72 ELE 1 DAT 2.55 ft TIM	EET 1 of 3 PTH W.L.: 31.8' VATION W.L.: 480.42' 'E W.L.: 8/17/18 E W.L.: 13:25	
	7	SOIL PROFILE				s	AMPL	ES			
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
- 0	= 510 <sup></sup>  	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	
- 5 - -	505  									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	
- 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			500.1 10.00					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	
- 15 - - -	495 495 		МН			S-1	ROTO SONIC	<u>7.00</u> 10.00		Pad: 4'x4' Protective Casing: Aluminum <b>DRILLING METHODS</b> Soil Drill: Sonic Rock Drill: Sonic	
20 -		20.00 - 22.80 sity CLAY with some sand; sand: fine to coarse; reddish brown; cohesive; w <pl; compact;="" firm;="" residuum<="" soft="" td="" to=""><td>CL</td><td></td><td>490.1 20.00</td><td></td><td></td><td></td><td></td><td>-</td></pl;>	CL		490.1 20.00					-	
- - 25		22.80 - 27.60 sandy SILT with some clay; sand: fine to coarse; reddish brown with black; micacaceous; non-cohesive; moist; loose; RESIDUUM	SM		22.80	S-2	OTO SONIC	<u>8.00</u> 10.00		-	
-		27.60 - 30.00 silty CLAY with some sand and nodules of organic matter; sand: fine to coarse; reddish brown; cohesive; w <pl; firm;<br="" soft="" to="">RESIDUUM</pl;>	CL		482.5 27.60	_	æ			-	
30	- 480 	30.00 - 36.80 silty CLAY; red; cohesive; w>PL; very soft; RESIDUUM			30.00						
- 35 — -	475 		CL		473.3	S-3	ROTO SONIC	<u>9.50</u> 10.00		-	
		36.80 - 40.00 clayey SAND; sand: fine; reddish-pink; micacaceous; non-cohesive; wet; compact; SAPROLITE	SC		36.80 470.1						
1.00	G SCA	Log continued on next page		GA INS	SPECT		Сті	idwell	1	<u> </u>	
DR	LOG SCALE: 1 in = 5 ft     GA INSPECTOR: C. Tidwell       DRILLING COMPANY: Cascade     CHECKED BY: Timothy Richards, PG       DRILLER: M. Rodrigues     DATE: 10/31/19										

BOREHOLE RECORD PLANT\_SCHERER\_2018\_10\_12\_SURVEY UPDATED.GPJ PIEDMONT.GDT 9/4/20

	PROJECT: Plant Scherer       DRILL RIG: Geoprobe 8140LC       NORTHING: 1,116,960.39       DEPTH         PROJECT NUMBER: 166235004       DATE STARTED: 8/15/18       EASTING: 2,406,934.72       ELEVAT         DRILLED DEPTH: 84.00 ft       DATE COMPLETED: 8/15/18       EASTING: 2,406,934.72       ELEVAT         DATE COMPLETED: 8/15/18       DATE COMPLETED: 8/15/18       EASTING: 2,406,934.72       ELEVAT         DATE COMPLETED: 8/15/18       DATE COMPLETED: 8/15/18       EASTING: 1,116,960.39       DATE W											
	DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	SAMPLE NO.	AMPLI JAL	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
	40 - - 45 - - - - -		40.00 - 50.00 clayey SAND; sand: fine; reddish pink; micacaceous; cohesive; w <pl; saprolite<="" soft="" soft;="" td="" to="" very=""><td>SC</td><td></td><td>40.00</td><td>S-4</td><td>ROTO SONIC</td><td><u>5.00</u> 10.00</td><td></td><td>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'</td></pl;>	SC		40.00	S-4	ROTO SONIC	<u>5.00</u> 10.00		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'	
	50 — - -	460 	50.00 - 55.00 sandy CLAY; sand: fine to coarse; light tan; micacaceous; cohesive; w>PL; soft to firm; SAPROLITE	СН		460.1 50.00		<u> </u>			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: Aluminun	
	55 — - - -	455   	<ul> <li>55.00 - 57.50</li> <li>clayey SAND; sand: fine to coarse; brown; micacaceous; non-cohesive to cohesive; moist to wet; compact; SAPROLITE</li> <li>57.50 - 65.00</li> <li>clayey SAND; sand: fine to coarse; dark grey; micacaceous; highly weathered rock; non-cohesive; moist; compact to dense; SAPROLITE</li> </ul>	SC		455.1 55.00 452.6 57.50	- S-5	ROTO SON	<u>10.00</u> 10.00		DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic	
DT 9/4/20	60 — - - -	450 		SC		445.1		ONIC	8.00			
ATED.GPJ PIEDMONT.G	65 — - - -	445   	<ul> <li>65.00 - 68.50</li> <li>clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse; light grey to grey, micacaceous; some weathered quartz; orange mottling; non-cohesive; moist to wet; dense; TWR</li> <li>68.50 - 70.00</li> <li>silty GRAVEL; gravel: fine to coarse; dark grey; micacaceous; highly weathered rock: non-cohesive; wet; dense; to yery dense;</li> </ul>	TWR		441.6 68.50	S-6	ROTO S	10.00			
IT_SCHERER_2018_10_12_SURVEY UPD/	70 - - 75 -	440      435 	BEDROCK 70.00 - 80.00 BIOTITE GNEISS; fresh; banded coarse and fine; gneissic banding; crystals fine to coarse; strong	BR		440.1 70.00	S-7	ROTO SONIC	<u>8.50</u> 10.00			
ECORD PLAN	- 80 —	- 	Log continued on next page			430.1					-	

BOREHOLE REC 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





PIEDMONT. GPJ UPDATED SURVEY 5 6 2018 SCHERER PLANT RECORD



PIEDMONT.GDT SURVEY UPDATED.GPJ 10\_12\_ 2018 SCHERER PLANT RECORD BOREHOLE

### PROJECT: Plant Scherer PROJECT NUMBER: 166235004 DRILLED DEPTH: 45.00 ft LOCATION:

# RECORD OF BOREHOLE PZ-41S DRILL RIG: Geoprobe 8140LC DATE STARTED: 8/16/18 DATE COMPLETED: 8/16/18 DATE COMPLETED: 8/16/18 DATE COMPLETED: 8/16/18

### SHEET 2 of 2 DEPTH W.L.: 25.8' ELEVATION W.L.: 465.55' DATE W.L.: 8/17/18 TIME W.L.: 14:45

			SOIL PROFILE	SAMPLES							
	(ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	40 —	_	40.00 - 41.00 silty-sandy CLAY with trace gravel: sand: fine to coarse: gravel: fine	CL		40.00	0,				WELL CASING
	-	- 445	to coarse; grey; micacaceous; cohesive; w~PL; firm; SAPROLITE 41.00 - 43.00 silty SAND with trace gravel; sand: fine to coarse; gravel: fine; light grey to grey; micacaceous; non-cohesive; dry; dense to very dense; TWR 43.00 - 45.00 clayey- silty SAND with some silt and gravel; sand: fine to coarse;	TWR		41.00 445.6 43.00	S-4	ROTO SONIC	<u>3.00</u> 5.00		Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread WELL SCREEN Interval: 35-45 Material: 0.010" Slotted
	45 —		gravel: fine to coarse; grey; micacaceous; non-cohesive; moist to wet; dense; TWR Boring completed at 45.00 ft			443.6				<u>(한</u> 士의 -	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
	- 50	440 								-	FILTER PACK SEAL Interval: 27-32' Type: 3/8" PEL-PLUG
	_	_								_	Interval: 0-27' Type: Portland Cement and Quick Gel Bentonite Mix
	_	_ 435								-	WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum
	55 — _									-	DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
	_	-								-	
	- 60 —	- 430 -								_	
	_	-								-	
DT 9/4/20	_	- 425 -									
EDMONT.G	65 —	-								-	
ED.GPJ PI	_	_ 420									
Y UPDATE	70 —	_								_	
12_SURVE	-	_								-	
2018_10_	-	— 415 —								_	
CHERER	- כו										
PLANT_S	_	_ 410									
RECORD	80 —	_									
BOREHOLE F	Image: Scale: 1 in = 5 ft       GA INSPECTOR: C. Tidwell         DRILLING COMPANY: Cascade       CHECKED BY: Timothy Richards, PG         DRILLER: M. Rodrigues       DATE: 10/31/19									nards, PG	GOLDER

	PRO PRO DRI LOO	OJECT OJECT ILLED I CATION	Plant Scherer NUMBER: 166235004 DEPTH: 105.00 ft J: Plant Scherer NUMBER: 166235004 DATE STARTED: 8/20/18 DATE COMPLETED: 8/21/18	F BC	DRE	HOL NOF EAS GS E TOC	E F THING: ELEVA ELEV	PZ- G: 1,1 2,40 TION ATION	<b>421</b> 16,013 5,294.1 1: 500. N: 503	SHE 5.79 DEP 2 ELEV 5 DATI 3.18 ft TIME	ET 1 of 3 TH W.L.: 9.5' /ATION W.L.: 493.47' E W.L.: 8/22/18 E W.L.: 15:15
		z	SOIL PROFILE	1	1	1	S	AMPL	ES		
	DEPTH (ft)	ELEVATIO (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	0 — — — 5 — —	- 500 - - - - 495 - - -	0.00 - 10.00 Hydrovac 0-10'								WELL CASING Interval: 0-96' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread 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 FILTER PACK Interval: 83-96' Type: No. 20-40 Sand FILTER PACK SEAL Interval: 77-83'
	10 — _ _ _	 490  	10.00 - 20.00 Clayey SILT with some sand; sand: fine to coarse; red; micacaceous; non-cohesive; wet; loose to compact;RESIDUUM			490.5		NC			Type: 3/8" PEL-PLUG ANNULUS SEAL Interval: 0-77' Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum
	15 — - - - -	485   		ML		480.5	S-1	ROTO SON	<u>10.00</u> 10.00		Soli Dnil: Sonic Rock Drill: Sonic
TED.GPJ PIEDMONT.GDT 9/4/20	20 — - - 25 — - - -	- 480 - - - - 475 - -	20.00 - 30.00 sitly CLAY with some sand; sand: fine to coarse; red to reddish brown; micacaceous; cohesive; w~PL to w>PL; loose to compact; RESIDUUM	CL		20.00	S-2	ROTO SONIC	<u>10.00</u> 10.00		
SCHERER_2018_10_12_SURVEY UPDA	30 — — — 35 —	- 470 465 	30.00 - 37.00 silty CLAY with some sand; sand: fine to coarse; red to reddish brown; micacaceous; cohesive; w~PL to w>PL; loose to compact; RESIDUUM	CL		470.5 30.00 463.5	S-3	ROTO SONIC	<u>9.50</u> 10.00		
ECORD PLANT	- - 40	-	37.00 - 40.00 clayey SAND with silt; sand: fine to coarse; brown to grey; micacaceous; non-cohesive; wet; compact; SAPROLITE Log continued on next page	SC		37.00 460.5					
BOREHOLE R	Log continued on next page       GA INSPECTOR: C. Tidwell         LOG SCALE: 1 in = 5 ft       GA INSPECTOR: C. Tidwell         DRILLING COMPANY: Cascade       CHECKED BY: Timothy Richards, PG         DRILLER: M. Rodrigues       DATE: 10/31/19										

PROJECT: Plant Scherer PROJECT NUMBER: 166235004 DRILLED DEPTH: 105.00 ft LOCATION:

# RECORD OF BOREHOLE PZ-42I 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

SHEET 2 of 3 DEPTH W.L.: 9.5' ELEVATION W.L.: 493.47' DATE W.L.: 8/22/18 TIME W.L.: 15:15

		SOIL PROFILE					SAMPLES			
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
40 -	- 460	40.00 - 45.00 clayey SAND with silt; sand: fine to coarse; brown to grey; micacaceous; non-cohesive; wet; compact; SAPROLITE			40.00					WELL CASING Interval: 0-96'
- - 45 - - -	- - - - - - - - - - - - - - - - - -	45.00 - 50.00 silty SAND with some clay and gravel; sand: fine to coarse; gravel: fine; grey; micacaceous; non-cohesive; moist; compact to dense; SAPROLITE	SC		<u>455.5</u> 45.00	- S-4	ROTO SONIC	<u>10.00</u> 10.00		Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread 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 FILTER PACK Interval: 83-96' Type: No. 20-40 Sand
- 50 -	- - - - - - - - - - - - - - -	50.00 - 60.00 sitly SAND with some clay and gravel; sand: fine to coarse; gravel: fine; grey; micacaceous; non-cohesive; moist to wet; dense to very dense; SAPROLITE			450.5 50.00					FILTER PACK SEAL Interval: 77-83' Type: 3/8" PEL-PLUG ANNULUS SEAL Interval: 0-77' Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4'
- 55 -	- - - - - - - - - -		SM			S-5	ROTO SONIC	<u>8.50</u> 10.00		Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
- 00	- - - - - - - - - - - - - - - -	60.00 - 70.00 No Recovery Note: Assumed SAPROLITE based on surrounding samples			440.5					
TED.GPJ PIEDMONT.GDT 9	- - - - - - - - - - - - - - - - - - -		SM			S-6	ROTO SONIC	<u>0.00</u> 10.00		
18_10_12_SURVEY UPDA	- 430 - 430 	70.00 - 77.00 silty SAND to silty GRAVEL; sand: fine to coarse; gravel: fine to coarse; black to dark grey; micacaceous; non-cohesive; wet; dense to very dense; SAPROLITE	SM-GM		430.5 70.00		DINC			
- 52 - 52	- 425 	77.00 - 80.00 sitty SAND/GRAVEL ; sand: fine to coarse; gravel: fine to coarse;			423.5 77.00	S-7	ROTO SC	<u>6.00</u> 10.00		
ORD PLA	-	grey to dark grey; micacaceous; non-cohesive; dry to moist; dense to very dense; TWR	TWR	Pool	420.5				-	
	Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Continued on next page       Image: Continued on next page         Image: Content page: Continued on next page									
PROJECT: Plant Scherer PROJECT NUMBER: 166235004 DRILLED DEPTH: 105.00 ft LOCATION:

#### RECORD OF BOREHOLE PZ-42I DRILL RIG: Geoprobe 8140LC DATE STARTED: 8/20/18 DATE COMPLETED: 8/21/18 DATE COMPLETED: 8/21/18 DATE COMPLETED: 8/21/18 DATE COMPLETED: 8/21/18

SHEET 3 of 3 DEPTH W.L.: 9.5' ELEVATION W.L.: 493.47' DATE W.L.: 8/22/18 TIME W.L.: 15:15

	1									
	Z	SOIL PROFILE				s.	AMPLI	ES		
DEPTH (ft)	ELEVATIC (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV.	AMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
- 80	- 420 	80.00 - 84.50 silty SAND to silty GRAVEL; sand: fine to coarse; gravel: fine to coarse; dark grey; micacaceous; non-cohesive; wet; dense to very dense; TWR	TWR		(1)	0	<u> </u>		-	WELL CASING Interval: 0-96' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread WELL SCREEN Interval: 86-96' Material: 0.010" Skated
85	- 	84.50 - 85.00 BIOTITE GNEISS; moderately weathered; crystals: medium to coarse; gneissic banding; black/white; strongBEDROCK 85.00 - 90.00 No Recovery	BR		416 415.5 85.00	S-8	ROTO SON	<u>5.00</u> 10.00		Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010 End Cap: 0.4 FILTER PACK
- 90 -		Note: Assumed BEDROCK do to gravel found in previous interval and drill chatter/hard drilling	BR		410.5					Type: No. 20-40 Sand FILTER PACK SEAL Interval: 77-83' Type: 3/8" PEL-PLUG
-	- 410 - -	90.00 - 95.00 BIOTITE GNEISS; moderately weathered; crystals: medium to coarse; gneissic banding; black/white; strong	BR		90.00					ANNULUS SEAL Interval: 0-77' Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'X4' Protective Casing: Aluminum
- 95 -	- - - - - - - -	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	ROTO SONIC	<u>5.00</u> 10.00		<b>DRILLING METHODS</b> Soil Drill: Sonic Rock Drill: Sonic
- - 100	- - - - - - - 400	100.00 - 105.00 No recovery; rock dropped out of sample			400.5		0			
DT 9/4/20	- - - - - - -	Note: Assumed BEDROCK do to gravel found in previous intervals and drill chatter/hard drilling	BR		305.5	S-10	ROTO SONIC	<u>0.00</u> 5.00		
0. 105	- 	Boring completed at 105.00 ft			000.0				- <u>- المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد ا</u>	
12_SURVEY UPDATED	- - - - - - -								- - - -	
LANT_SCHERER_2018_10	- - - - - - - - - -									
- UNO 120 -	-									
BOREHOLE RE DR DR	G SCA	LE: 1 in = 5 ft cOMPANY: Cascade M. Rodrigues		GA INS CHECI DATE:	SPECT KED BY 10/31	OR: Y: Tii /19	C. Ti moth	dwell y Rich	ards, PG	GOLDER

PR PR DR LO	OJECT: OJECT ILLED [ CATION	Plant Scherer NUMBER: 166235004 DEPTH: 55.00 ft Jepster Jepster NUMBER: 166235004 DEPTH: 55.00 ft DATE STARTED: 8/17/18 DATE COMPLETED: 8/17/18	F BC ₋c ₃	DRE	HOLI NOF EAS GS I TOC	E P THING: ELEVA	<b>Z-4</b> G: 1,1 2,405 TION ATION	15,598 15,598 5,507.1 : 501. N: 504	SH 3.12 DE 6 EL 2 DA 4.03 ft TIM	EET 1 of 2 PTH W.L.: 19.00 EVATION W.L.: 485.00' TE W.L.: 8/17/18 IE W.L.: 15:00:00
DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	AMPLE 34	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	- 500 	0.00 - 10.00 Hydrovac 0-10'								<ul> <li>WELL CASING         <ul> <li>Interval: 0-50.5'</li> <li>Materiai: Schedule 40 PVC</li> <li>Diameter: 2"</li> <li>Joint Type: Flush/Thread</li> </ul> </li> <li>WELL SCREEN         <ul> <li>Interval: 40.5-50.5'</li> <li>Materiai: 0.010" Slotted Schedule 40 PVC</li> <li>Diameter: 4" Outer/2" Inner Slot 5ize: 0.010</li> <li>End Cap: 0.4</li> <li>FILTER PACK Interval: 37.5-52'</li> <li>Type: No. 20–40 Sand</li> <li>FILTER PACK SEAL</li> <li>Interval: 32-37.5'</li> <li>Type: 38" PEL-PLUG</li> </ul> </li> </ul>
10 - - - 15 - - -	- 490 	10.00 - 15.00 clayey SILT with some sand; sand: fine to coarse; red; non-cohesive; wet; loose to very loose; RESIDUUM 15.00 - 20.00 clayey SILT with some sand; sand: fine to coarse; light reddish tan; micacaceous; non-cohesive; wet; loose to compact; RESIDUUM	ML		491.2 10.00 486.2 15.00	- S-1	ROTO SONIC	<u>6.50</u> 10.00		ANNULUS SEAL Interval: 0-32' Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic
20   25  	- 480 - 480 	20.00 - 30.00 clayey SILT with sand; sand: fine to coarse; reddish brown to brown; micacaceous; non-cohesive; moist to wet; compact to dense; RESIDUUM	ML		481.2 20.00	S-2	ROTO SONIC	<u>10.00</u> 10.00		-
30 30 - - - - - - - - - - - - - - - - - -	- 470 470 	30.00 - 40.00 silty-clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse; brown; micacaceous; non-cohesive; moist to wet; dense; SAPROLITE	SC-SM		471.2 30.00 461.2	S-3	ROTO SONIC	<u>10.00</u> 10.00		
LOC DRI DRI	G SCA LLING LLER:	Leg continued on next page LE: 1 in = 5 ft COMPANY: Cascade M. Rodrigues	) ( [	GA IN: CHEC DATE:	SPECT KED B 10/31	OR: /: Tir /19	C. Tie nothy	dwell y Rich	hards, PG	GOLDER

RECORD OF BOREHOLE PZ-43S DRILL RIG: Geoprobe 8140LC DATE STARTED: 8/17/18 NORTHING: 1,115,598 EASTING: 2,405,507.1 SHEET 2 of 2 DEPTH W.L.: 19.00 ELEVATION W.L.: 485.00' DATE W.L.: 8/17/18 TIME W.L.: 15:00:00 NORTHING: 1,115,598.12 EASTING: 2,405,507.16 PROJECT: Plant Scherer PROJECT NUMBER: 166235004 DRILLED DEPTH: 55.00 ft GS ELEVATION: 501.2 DATE COMPLETED: 8/17/18 LOCATION: TOC ELEVATION: 504.03 ft SOIL PROFILE SAMPLES ELEVATION (ft) DEPTH (ft) MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES WELL CONSTRUCTION g GRAPHIC LOG ELEV. USCS TYPE SAMPLE REC DESCRIPTION DETAILS DEPTH (ft) 40 40 00 - 45 00 40.00 WELL CASING silty-clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse; brown; micacaceous; non-cohesive; moist to wet; Interval: 0-50.5' Material: Schedule 40 PVC 460 dense; SAPROLITE Diameter: 2" Joint Type: Flush/Thread SC-SM WELL SCREEN WELL SCREEN Interval: 40.5-50.5' Material: 0.010" Slotted Schedule 40 PVC Diameter: 4" Outer/2" Inner Slot Size: 0.010 ROTO SONIC 456.2 10.00 45 -S-4 45.00 - 50.00 silty-clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse; grey; micacaceous; non-cohesive; moist to wet; dense to very dense; SAPROLITE 45.00 10.00 0  $\mathbf{e}$ End Cap: 0.4 455 FILTER PACK Interval: 37.5-52' SM-GM Type: No. 20--40 Sand 0 Pa FILTER PACK SEAL Interval: 32-37.5' Type: 3/8" PEL-PLUG b eff 451.2 50 50.00 - 55.00 50.00 ANNULUS SEAL 10 sity-clayey SAND with some gravel; sand: fine to coarse; gravel: fine to coarse; grey; micacaceous; non-cohesive; moist to wet; dense to very dense; SAPROLITE Interval: 0-32' Type: Portland Cement and 0 450 D Quick Gel Bentonite Mix SM-GM WELL COMPLETION  $\mathcal{Y}^{\circ}$ 0 Pad: 4'x4 Pa Protective Casing: Aluminum Þ ROTO SONIC DRILLING METHODS 446.2 <u>10.00</u> 10.00 Soil Drill: Sonic Rock Drill: Sonic 55 S-5 Boring completed at 55.00 ft 445 60 440 9/4/20 65 435 70 -430 75 425 80 GA INSPECTOR: C. Tidwell LOG SCALE: 1 in = 5 ft DRILLING COMPANY: Cascade CHECKED BY: Timothy Richards, PG DATE: 10/31/19 DRILLER: M. Rodrigues

GDT. PIEDMONT. SURVEY UPDATED.GPJ ₽ 6 2018 SCHERER PLANT RECORD BOREHOLE



#### Location resurveyed May - July 2020

PR PR DR LO	PROJECT: Plant Scherer PROJECT NUMBER: 166235004 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: 510.36 ft       SHEET 1 of 3 DEPTH W.L.:19.8' ELEVATION W.L.: 490.39' DATE W.L.:9/7/18 												
		SOIL PROFILE				S	AMPLES						
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS				
0		0.00 - 5.00 silty CLAY with some sand; sand: fine; red; cohesive; w <pl; firm<br="">to stiff; FILL</pl;>	CL						WELL CASING Interval: 0-114' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread				
- 5		5.00 - 10.00 silty CLAY-clayey SILT with trace sand; sand: fine; red;			502.9 5.00	- S-1	ROTO <u>8.00</u> SONIC 10.00		<ul> <li>WELL SCREEN Interval: 104-114'</li> <li>Material: 0.010" Slotted Schedule 40 PVC</li> <li>Diameter: 4" Outer/2" Inner Slot Size: 0.010"</li> <li>End Cap: 0.4</li> </ul>				
-		non-cohesive; wet; loose to compact; RESIDUUM	CL-ML						FILTER PACK Interval: 103-114' Type: No. 20-40 Sand Quantity: 200 lbs				
- 10	-	10.00 - 15.00 clayey SILT with sand; sand: fine to coarse; orange brown; non-cohesive; moist to wet; compact; RESIDUUM			497.9 10.00				Interval: 98-103'     Type: 3/8" PEL-PLUG     Quantity: 5 gallons     ANNULUS SEAL     Interval: 0-98'				
-			ML		492.9	6.0	ROTO 7.60		<ul> <li>Jype: Portland Cement and Quick Gel Bentonite Mix</li> <li>Quantity: Cement: 1128 lbs Quick Gel: 150 lbs Water:</li> <li>120 gallons</li> <li>WELL COMPLETION</li> </ul>				
		15.00 - 20.00 sandy SILT-silty SAND; sand: fine to coarse; orange brown; non-cohesive; wet; loose; RESIDUUM	ML-SM		15.00	5-2	SONIC 10.00		Pad: 4'x4' Protective Casing: Aluminum DRILLING METHODS Soil Dril: Sonic Rock Drill: Sonic				
- 20		20.00 - 30.00 clavery-sithy SAND with some gravel: sand: fine to coarse; gravel;			487.9 20.00								
		fine; orange brown; micacaceous; non-cohesive; moist to wet; compact to dense; RESIDUUM							-				
25	  		SC-SM			S-3	ROTO <u>8.00</u> 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;			477.9 30.00				-				
-   -		orange-brown; micacaceous; non-cohesive; moist to wet; dense; RESIDUUM	sc						-				
35 —	-	35.00 - 40.00 sitty GRAVEL and SAND with some clay; sand: fine to coarse; gravel: fine to coarse; orange brown;micacaceous; weathered rock and black carbon deposits; non-cohesive; moist to wet; dense to very dense; RESIDUUM	SM-GM		472.9 35.00	S-4	ROTO <u>8.00</u> SONIC 10.00		-				
40		Log continued on next page			467.9				-				
LOC DRI DRI	G SCAI LLING LLER:	LE: 1 in = 5 ft COMPANY: Cascade M. Rodrigues	с С	GA INS CHECI DATE	SPECT (ED B) 10/31/	OR: /: Tii /19	C. Tidwell mothy Ricł Rev. 11/10/2	nards, PG	GOLDER				

BOREHOLE RECORD PLANT\_SCHERER\_2018\_10\_12\_SURVEY UPDATED.GPJ PIEDMONT.GDT 11/10/20

#### Location resurveyed May - July 2020

RECORD OF BOREHOLE PZ-441 DRILL RIG: Geoprobe 8140LC DATE STARTED: 8/23/18 DATE OF AUTORNAL STARTED: 8/23/18 DATE OF AUTORNAL STARTED: 8/23/18 SHEET 2 of 3 PROJECT: Plant Scherer PROJECT NUMBER: 166235004 DRILLED DEPTH: 114.00 ft NORTHING: 1,121,515.40 EASTING: 2,404,330.23 GS ELEVATION: 507.9 DEPTH W.L.:19.8' ELEVATION W.L.: 490.39' DATE COMPLETED: 9/5/18 DATE W.L.:9/7/18 LOCATION: TOC ELEVATION: 510.36 ft TIME W.L.:07:55 SOIL PROFILE SAMPLES CLEVATION (ft) DEPTH (ft) WELL CONSTRUCTION 0 N ELEV. MONITORING WELL DIAGRAM and NOTES GRAPHIC LOG USCS TYPE SAMPLE REC DESCRIPTION DETAILS Щ DEPTH (ft) 40 40.00 40 00 - 43 00 WELL CASING silty GRAVEL and SAND with some clay; sand: fine to coarse; Interval: 0-114' Material: Schedule 40 PVC gravel: fine to coarse; orange brown;micacaceous; weathered rock and black carbon deposits; non-cohesive; moist to wet; dense to very dense; RESIDUUM SM-GM Diameter: 2" Joint Type: Flush/Thread silty GRAVEL and SAND with some clay; sand: fine to coarse; 464.9 465 WELL SCREEN gravel: fine to coarse; tan to dark grey; micacaceous; weathered rock fragments; non-cohesive; moist to wet; dense; SAPROLITE SM-GM Interval: 104-114 Material: 0.010" Slotted Schedule 40 PVC ROTO <u>8.00</u> SONIC 10.00 462.9 Diameter: 4" Outer/2" Inner Slot Size: 0.010" 45 S-5 45.00 - 50.00 silty SAND with clay and gravel; sand: fine to coarse; gravel: fine 45.00 End Cap: 0.4 to coarse; grey to dark grey; micacaceous; weathered rock; non-cohesive; moist to wet; dense; SAPROLITE FILTER PACK Interval: 103-114' Type: No. 20-40 Sand Quantity: 200 lbs SM 460 FILTER PACK SEAL Interval: 98-103' 457.9 Type: 3/8" PEL-PLUG 50 50.00 - 60.00 50.00 Quantity: 5 gallons silty SAND with clay and gravel; sand: fine to coarse; gravel: fine to coarse; grey to dark grey; micacaceous; weathered rock; non-cohesive; moist to wet; dense; SAPROLITE ANNULUS SEAL ANNULUS SEAL Interval: 0-98' Type: Portland Cement and Quick Gel Bentonite Mix Quantity: Cement: 1128 lbs Quick Gel: 150 lbs Water: 455 120 gallons S-6 ROTO 8.00 SONIC 10.00 WELL COMPLETION 55 SM Pad: 4'x4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Sonic Rock Drill: Sonic 450 447.9 60 60.00 - 69.50 60.00 silty SAND with clay and gravel; sand: fine to coarse; gravel: fine to coarse; grey to dark grey; micacaceous; weathered rock; non-cohesive; moist to wet; dense; SAPROLITE 11/10/20 445 PIEDMONT.GDT ROTO <u>8.70</u> SONIC 10.00 SM S-7 65 GPJ 440 SURVEY UPDATED. 438.4 437.9 69.50 - 70.00 जफ GM 70 silty GRAVEL with sand; sand: fine to coarse; gravel: fine; dark 70.00 grey; micacaceous; non-cohesive; moist; dense to very dense; SAPROLITE 70.00 - 80.00 silty SAND and silty GRAVEL; sand: fine to coarse; gravel: fine; dark grey, micacaeous; non-cohesive; moist; dense to very dense; SAPROLITE 5 435 6 2018 ROTO <u>10.00</u> SONIC <sub>10.00</sub> 75 SM-GM S-8 SCHERER PLANT 430 RECORD 427.9 80 Log continued on next page LOG SCALE: 1 in = 5 ft GA INSPECTOR: C. Tidwell 🕓 GOLDER

CHECKED BY: Timothy Richards, PG DATE: 10/31/19 Rev. 11/10/2020

BOREHOLE DRILLING COMPANY: Cascade

DRILLER: M. Rodrigues

#### Location resurveyed May - July 2020

PR PR DR LO	PROJECT: Plant Scherer PROJECT NUMBER: 166235004 DRILL RIG: Geoprobe 8140LC DATE STARTED: 8/23/18       DRILL RIG: Geoprobe 8140LC DATE STARTED: 8/23/18       NORTHING: 1,121,515.40 EASTING: 2,404,330.23 GS 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												
	z	SOIL PROFILE				s	AMPLES						
DEPTH (ft)	ELEVATIO (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS				
80 — - - 85 — -	 425  	80.00 - 90.00 silty SAND and silty GRAVEL; sand: fine to coarse; gravel: fine to coarse; dark grey; micacaceous; non-cohesive; moist to wet; dense to very dense; SAPROLITE	SM-GM		80.00	S-9	ROTO <u>9.00</u> SONIC 10.00		WELL CASING         Interval: 0-114'         Material: Schedule 40 PVC         Diameter: 2"         Joint Type: Flush/Thread         WELL SCREEN         Interval: 04-114'         Material: 0.010" Slotted Schedule 40 PVC         Diameter: 4" Outer/2" Inner Slot Size: 0.010"         End Cap: 0.4         FILTER PACK				
- 90	.— 420 .—	90.00 - 91.00	SM-GM		417.9 90.00				<ul> <li>Interval: 103-114' Type: No. 20-40 Sand Quantity: 200 lbs</li> <li>FILTER PACK SEAL Interval: 98-103' Type: 3/8" PEL-PLUG Quantity: 5 gallons</li> </ul>				
- - - 95		sing SARD and SARVEL; said: line to coarse; gravel, line to very dense; SAPROLITE 91.00 - 97.00 silty GRAVEL with sand; sand: fine to coarse; gravel: fine to coarse; dark grey; micacaceous; non-cohesive; moist to wet; very dense; weathered; TWR	TWR		91.00	S-10	ROTO <u>9.50</u> SONIC 10.00		<ul> <li>ANNULUS SEAL Interval: 0-98'</li> <li>Type: Portland Cement and Quick Gel Bentonite Mix</li> <li>Quantity: Cement: 1128 lbs Quick Gel: 150 lbs Water: 120 gallons</li> <li>WELL COMPLETION Pad: 4'x4'</li> <li>Protective Casing: Aluminum</li> </ul>				
	 - 410 -	97.00 - 100.00 AMPHIBOLITE; fresh to slightly weathered; crystals fine to coarse; strong rock; BEDROCK	 BR		<u>410.9</u> 97.00 407.9				DRILLING METHODS     Soil Drill: Sonic     Rock Drill: Sonic				
-	  405	100.00 - 105.00 No Recovery Note: Assumed BEDROCK based on previous sample and hard drilling	BR		100.00				-				
105 — 	  400	105.00 - 110.00 AMPHIBOLITE; fresh to slightly weathered; crystals fine to coarse; strong rock; BEDROCK	BR		105.00	- S-11	SONIC 10.00		-				
110 — 	  395	110.00 - 115.00 AMPHIBOLITE; fresh to slightly weathered; crystals fine to coarse; very strong rock; BEDROCK	BR		<u>397.9</u> 110.00	S-12	ROTO <u>4.00</u> SONIC 4.00		-				
		Boring completed at 114.00 ft			392.9 115.00				-				
120 – LOC DRI DRI	G SCAI	LE: 1 in = 5 ft COMPANY: Cascade M. Rodrigues		GA INS CHECH DATE:	SPECT KED BY 10/31	OR: /: Tii /19	C. Tidwell nothy Rich Rev. 11/10/2	nards, PG	GOLDER				

BOREHOLE RECORD PLANT\_SCHERER\_2018\_10\_12\_SURVEY UPDATED.GPJ PIEDMONT.GDT 11/10/20

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 165.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-45D DRILL RIG: TS 150 DATE STARTED: 3/8/20 DATE COMPLETED: 3/9/20 DAT

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

	-	SOIL PROFILE				S	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
- 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: 11 Pack Screen
5	505 							Grout 2 2 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	FILTER PACK Unantity: 2015 FILTER PACK Interval: 105' - 165' Type: #1 Sand Quantity: 20.5bags FILTER PACK SEAL Interval: 1018' - 105'
10	500   	10.00 - 14.00 CL, CLAY, low to moderate plasticity, dark red, moist, w~PL, soft, quartz, vermiculite, plagioclase	CL		499.7 10.00 495.7	1	ROTO <u>7.70</u> SONIC 5.00	Riser –	Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 101.8' Type: Cement-Bentonite Quantity: 1100Ibs Cement, 20Ibs Bentonite, 160gal Water WeLL COMPLETION
15 -	495  	<ul> <li>CL, CLAY, low to moderate plasticity, orange-red brown, moist,</li> <li><u>w-PL</u>, soft, quartz, vermiculite, plagioclase</li> <li><u>15.00 - 25.00</u></li> <li>CL, CLAY, low to moderate plasticity, dark red, moist, w~PL, soft, quartz, vermiculite, plagioclase,</li> <li>23.5' - 25', SM, SILTY SAND, fine to medium sand, silvery white to tan, non to low plasticity, w<pl, biotite,<="" li="" loose,="" quartz,="" soft=""> </pl,></li></ul>	CL		494.7 15.00				Pac: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
- 20 0.201 8/1	490 490 	feldspar	CL			2	ROTO <u>7.00</u> SONIC 10.00		
	485   	25.00 - 35.00 CL, CLAY, low plasticity, orange red clay, soft, w~PL			484.7 25.00				
INVESTIGATION BORING LOG	480 480 	33'-35' SM, SILTY SAND, fine to medium sand, silvery white to tan, non to low plasticity, w <pl, biotite,="" feldspar<="" loose,="" quartz,="" soft="" td=""><td>CL</td><td></td><td></td><td>3</td><td>ROTO <u>6.00</u> SONIC 10.00</td><td></td><td></td></pl,>	CL			3	ROTO <u>6.00</u> SONIC 10.00		
JRD PLANI SCHEREK CK6	- 475 	35.00 - 53.50 SM, SILTY SAND, fine to medium sand, tannish brown, non to low plasticity, w <pl, biotite,="" feldspar,="" loose,="" quartz,="" saprolitic<="" soft="" td=""><td>SM</td><td></td><td>474.7 35.00</td><td>4</td><td>ROTO <u>9.50</u> SONIC 10.00</td><td></td><td></td></pl,>	SM		474.7 35.00	4	ROTO <u>9.50</u> SONIC 10.00		
LOC DR DR DR DR	G SCA	Log continued on next page LE: 1 in = 5 ft © COMPANY: Cascade Drilling Vern Olsen	) ( [	GA INS CHECI DATE:	SPECT ( (ED B) 5/29/2	OR: /: Ra 0	M. Boatma Ichel P. Kii	an, PG rkman, PG	GOLDER

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 165.00 ft LOCATION: Juliette, GA

# RECORD OF BOREHOLE PZ-45D DRILL RIG: TS 150 DATE STARTED: 3/8/20 DATE COMPLETED: 3/9/20 DAT

SHEET 2 of 5 DEPTH W.L.:23.50' ELEVATION W.L.: 488.66' DATE W.L.:3/31/20 TIME W.L.:8:20

	_	SOIL PROFILE				s	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
40		35.00 - 53.50 SM, SILTY SAND, fine to medium sand, tannish brown, non to low plasticity, w <pl, biotite,="" feldspar,="" loose,="" quartz,="" saprolitic<br="" soft="">(<i>Continued</i>)</pl,>				4	ROTO <u>9.50</u> SONIC <sup>10.00</sup>		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"
45 - - - - 50 -	- 465 		SM			5	ROTO 11.00 SONIC 10.00		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
- - - 55 -		53,50       -55,00         SC, CLAYEY SAND, fine to coarse sand, dark green and white, loose/compact. soft, non to low plasticity, w <pl< td="">         55.00       -65.00         SM, SILTY SAND, very fine grain, medium to dark green, low to non plastic, moist to wet, decreases with depth</pl<>	sc		456.2 53.50 454.7 55.00	-			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
5PJ PIEDMONT.GDT 8/18/20			SM			6	ROTO <u>10.00</u> SONIC <sub>10.00</sub>		
0GS_SURVEY UPDATED.G	- 	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				
VESTIGATION BORING LO	- - - - - - - - - - - - - - -		SM			7	ROTO <u>10.00</u> SONIC <sub>10.00</sub>		
- 52 - 57 - 57 - 57 - 57 - 57 - 57 - 57	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" massive water staining from 78'-80'			434.7 75.00	8	ROTO <u>9.00</u> SONIC 10.00		
- 08 - 08 LOC LOC LOC LOC LOC LOC LOC LOC LOC LOC	G SCA	Log continued on next page LE: 1 in = 5 ft COMPANY: Cascade Drilling Vern Olsen	С С С	GA IN: CHEC DATE:	SPECT KED B 5/29/2	OR: 7: Ra 20	M. Boatma achel P. Kii	an, PG rkman, PG	GOLDER



PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 165.00 ft LOCATION: Juliette, GA

RECORD OF BOREHOLE PZ-45D DRILL RIG: TS 150 DATE STARTED: 3/8/20 DATE COMPLETED: 3/9/20 DAT

SHEET 4 of 5 DEPTH W.L.:23.50' ELEVATION W.L.: 488.66' DATE W.L.:3/31/20 TIME W.L.:8:20

		_	SOIL PROFILE				S	AMPLES			
DEPTH	(tt)	ELEVATION (ff)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL DIAGRAM and NOTE	WELL CONSTRUCTION DETAILS
120		- - -	103.50 - 165.00 METAGABBRO, fine grain, pyrite, biotitie, hornblende, unfoliated, poorly jointed, slightly to moderately weathered, medium strong				12	ROTO <u>2</u> SONIC 1	<u>2.90</u> 0.00		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"
12	5	- 365 - -	Rock sample collected 136.5'-137.0'								Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 105' - 165' Type: #1 Sand Quantity: 20.5bags FILTER PACK SEAL
13(		380 - - -					13	ROTO <u>3</u> SONIC 1	<u>3.80</u> 0.00		<ul> <li>Interval: 101.8 - 105 Type: Pel Plug</li> <li>Quantity: 5gal Bucket</li> <li>ANNULUS SEAL Interval: 0' - 101.8' Type: Cement-Bentonite</li> <li>Quantity: 1100lbs Cement, 20lbs Bentonite, 160gal</li> <li>Water</li> <li>WELL COMPLETION Pad: 4' x 4'</li> </ul>
T 8/18/20	5	- 375 - - - 								Sand –	Protective Casing: Aluminum     DRILLING METHODS     Soil Drill: Roto Sonic     Rock Drill: Roto Sonic     -
ATED.GPJ PIEDMONT.GD		- - - - 365		BR			14	SONIC 1	0.00		
IGATION BORING LOGS_SURVEY UPD/ 12	5 — - - - - - - - - - - - - - - - - - - -	- - - - 360 -					15	ROTO <u>(</u> SONIC 1	<u>8.60</u> 0.00	0.010" Slotted – Screen	
ORD PLANT SCHERER CR6 INVEST	5	- - 355 - - - - 350					16	ROTO <u>8</u> SONIC 1	<u>3.80</u> 0.00		
	v − OG RIL RIL	SCA LING LER:	Log continued on next page LE: 1 in = 5 ft COMPANY: Cascade Drilling Vern Olsen		GA IN CHEC DATE:	SPECT( KED BY 5/29/2	OR: ': Ra 0	M. Boa achel P	atma . Kii	an, PG rkman, PG	GOLDER

PR PR DR LO	OJECT: OJECT ILLED E CATION	E Plant Scherer NUMBER: 20139484 DEPTH: 165.00 ft St. Juliette, GA	= BC	REF	HOLE NOF EAS GS E TOC		<b>PZ-45D</b> IG: 1,125,29 : 2,400,250.3 ATION: 509 VATION: 51	SHE           6.24         DEP           55         ELE*           .7         DAT           2.33 ft         TIME	ET 5 of 5 TH W.L.:23.50' VATION W.L.: 488.66' E W.L.:3/31/20 E W.L.:8:20		
DEPTH (ft)	EVATION (ft)		S	PHIC	ELEV.	S IE NO.	AMPLES	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS		
160 —			SN	GRA	DEPTH (ft)	SAMPI	T I		WELL CASING		
- - - 165	- - 345		BR		344.7	16	ROTO <u>8.80</u> SONIC 10.00		Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 110' - 165' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010"		
-		Boring completed at 165.00 ft						-	End Cap: 3" FILTER PACK Interval: 105' - 165' Type: #1 Sand Quantity: 20.5bags FILTER PACK SEAL		
	- 340								Annuel val. 101.0 - 105 Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 101.8' Type: Cement-Bentonite Quantity: 1100lbs Cement, 20lbs Bentonite, 160aal		
- 175 — -								- - - -	Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic		
	- 							- - - -			
								- - - -			
	- 315										
LOC DRI DRI	200 1       Image: Constraint of the second se										

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 53.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-46D DRILL RIG: TS 150 DATE STARTED: 3/16/20 DATE COMPLETED: 3/17/20 DATE COMPLET

SHEET 1 of 2 DEPTH W.L.:12.42' ELEVATION W.L.: 427.11' DATE W.L.:3/31/20 TIME W.L.:12:42

		SOIL PROFILE				S	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0 -	 445 	0.00 - 5.00 Hand auger CL, SILTY CLAY, little to very fine sand, 7.5 YR 3/3 dark brown, vein quartz cobbles throughout, residual soil/colluvium	CL						WELL CASING Interval: 0' - 23.5' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 23.5' - 53.5' Material: LI-Back Screen
5 -	  440 	5.00 - 15.00 Hand auger and core barrel overdrill 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			442.1 5.00			Riser – 23 us –	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'
10 -	  435 		ML					Grout – Start Grout –	Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 16' Type: Cement-Bentonite Quantity: 300lbs Cement, 10lbs Bentonite, 30gal Water
15 -	   430 	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 15.00	1	8.00	Bentonite -	WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
J PIEDMONT.GDT 8/18/2 - 07	   425						10.00		
JGS_SURVEY UPDATED.GPJ	-   420 		TWR			2	<u>8.00</u> 10.00	Sand -	
STIGATION BORING LC	   415				414.1				
- 35 - 35 - 35 - 35 - 35 - 35 - 35 - 35	  410	33.00 - 53.00 AMPHIBOLITE/HORNBLENDE GNEISS, fine grained, minor oxidation at 38' and 42.5', quartz-plagioclase-biolite-hornblende, trace pyrite, foliated	BR		33.00	3	<u>10.00</u> 10.00		
DRD PLA	F	Rock sample collected 49.0'-49.5'							
40 - LO LO DR	G SCA	Leg continued on next page LE: 1 in = 5 ft COMPANY: Cascade Drilling	(			OR: \$ 7: Ra	S. George achel P. Ki	, PG rkman, PG	GOLDER

#### PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 53.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-46D DRILL RIG: TS 150 DATE STARTED: 3/16/20 DATE COMPLETED: 3/17/20 DATE COMPLET

SHEET 2 of 2 DEPTH W.L.:12.42' ELEVATION W.L.: 427.11' DATE W.L.:3/31/20 TIME W.L.:12:42

		_	SOIL PROFILE			S	AMPLES			
PTH		ATION (ft)		S	₽ F	ELEV.	ÖN	Ш. О	MONITORING WELL	WELL CONSTRUCTION
DE		) ELEV	DESCRIPTION	USC:	LOG	DEPTH	WPLE	TYPE	DIAGRAM and NOTES	DETAILS
40		- 405	33.00 - 53.00 AMPHIBOLITE/HORNBLENDE GNEISS, fine grained, minor oxidation at 38' and 42.5', quartz-plagioclase-biotite-hornblende, trace pyrite, foliated		U	(ft)	S 3	<u> </u>		WELL CASING Interval: 0' - 23.5' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded
45		- - - - 400	Rock sample collected 49.0'-49.5' (Continued)	BR					0.010" Slotted – – Screen – –	WELL SCREEN Interval: 23.5' - 53.5' Material: U-Pack Screen Diameter: 2" Stot Size: 0.010" End Cap: 3" FILTER PACK Interval: 20' - 53.5' Twps: #1 Sand
50		-					4	<u>8.00</u> 10.00		Guantity: 9.5 Bags FILTER PACK SEAL Interval: 16' - 20' Type: Pel Plug Quantity: Sgal Bucket
		- 395 	Boring completed at 52.00 ft			394.1				Antorus O' - 16' Type: Cement-Bentonite Quantity: 300lbs Cement, 10lbs Bentonite, 30gal Water
55		-	Boring completed at 55.00 ft						- -	WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS
20		- 390 -							-	Soil Drill: Roto Sonic Rock Drill: Roto Sonic
VT.GDT 8/18/ 09		-							-	
PJ PIEDMON		- 385 -							-	
UPDATED.G	; _	-							-	
GS_SURVEY		- 380 -							-	
N BORING LO		-							-	
IVESTIGATIO		- 375							-	
ERER CR6 IN	+ - - -	-							-	
PLANT SCH		- 370							-	
08 CORE	) - DG RIL	SCA	LE: 1 in = 5 ft COMPANY: Cascade Drilling	(		SPECT KED BY	OR: /: Ra	S. George achel P. Kii	, PG kman, PG	GOLDER
N D	RIL	LER:	Vern Olson	C	DATE:	5/29/2	20			

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 26.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-47D DRILL RIG: TS 150 DATE STARTED: 3/11/20 DATE COMPLETED: 3/11/20 DATE COMPLETED: 3/11/20

SHEET 1 of 1 DEPTH W.L.:9.70' ELEVATION W.L.: 400.19' DATE W.L.:3/31/20 TIME W.L.:10:55

		7	SOIL PROFILE	_			S	AMPLES		
	DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	AMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	0	- 	0.00 - 6.00 GRANITE, N4 medium dark grey, hard, quartz, plagioclase, biotite, no fractures.	BR		400.8	1	ROTO <u>1.00</u> SONIC 6.00	Sch 40 PVC _ 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	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" Stot Size: 0.010" End Cap: 3"
		- 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		6.00	2	ROTO <u>4.70</u> SONIC 10.00	Bentonite	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 WELL COMPLETION
8/18/20		- 	16.00 - 26.00 GRANITE, SB 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			<u>390.8</u> 16.00			0.010" Slotted – Screen –	Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
DATED.GPJ PIEDMONT.GDT	20	- 385  	Rock sample collected 19.7'-20.3'	BR			3	ROTO <u>10.00</u> SONIC <sub>10.00</sub>		
ORING LOGS_SURVEY UP			Boring completed at 26.00 ft			380.8				-
CR6 INVESTIGATION B										
CORD PLANT SCHERER		- 370  								
BOREHOLE RE	LOC DRII DRII	G SCAI	LE: 1 in = 5 ft COMPANY: Cascade Drilling Tom Ardito	( ( [	GA INS CHECI DATE:	SPECT (ED B) 5/29/2	OR: (: Ra 20	B. Steele, achel P. Ki	PG 🚯	GOLDER

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 65.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-48S DRILL RIG: TS 150 DATE STARTED: 3/4/20 DATE COMPLETED: 3/4/20 DATE COMPLETED: 3/4/20

SHEET 1 of 2 DEPTH W.L.:30.50' ELEVATION W.L.: 413.56' DATE W.L.:3/31/20 TIME W.L.:10:35

		7	SOIL PROFILE				S	AMPLES			
	DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH	SAMPLE NO.	ТҮРЕ	MONITORIN DIAGRAM an	G WELL d NOTES	WELL CONSTRUCTION DETAILS
	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.								WELL CASING Interval: 0' - 50.75' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded
	- 5 -	- - - 435 -		CL					Grout – Riser –		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
	 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		<u>431.3</u> 10.00	1	ROTO <u>5</u> SONIC 5	00 00		Interval: 44' - 48' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 44' Type: Cement-Bentonite Quantity: 600lb Cement, 30lb Bentonite, 70gal Water
	- 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.			427.3			_		Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
IEDMONT.GDT 8/18/20	- - 20 -	_ _  420		ML			2	ROTO <u>1(</u> SONIC <sub>1(</sub>	<u>0.00</u> .00		
SURVEY UPDATED.GPJ P	- 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.			418.3 23.00					
INVESTIGATION BORING LOG		- - - 410 -	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).			<u>411.3</u> 30.00	3	ROTO <u>1(</u> SONIC <sub>1C</sub>	<u>0.00</u> .00		
CORD PLANT SCHERER CR6	35	- 405  	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		405.3 36.00 402.3 39.00	4	ROTO 10 SONIC 10	<u>.00</u>		
BOREHOLE RE	LOC DRI DRI	S SCA LLING LLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Tom Ardito	( (	GA INS CHEC DATE:	SPECT KED BY 5/29/2	0R: /: Ra	S. Geo achel P.	ge, PG Kirkman, PG	S	GOLDER



PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 106.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-49D DRILL RIG: TS 150 DATE STARTED: 3/3/20 DATE COMPLETED: 3/6/20 DAT

SHEET 1 of 3 DEPTH W.L.:4.50' ELEVATION W.L.: 362.79' DATE W.L.:3/31/20 TIME W.L.:8:35

		SOIL PROFILE				S	AMPLES	6		
DEPTH (ff)	ELEVATION (ft)	DESCRIPTION	uscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0 -	+	0.00 - 2.00 SM, SILTY SAND, fine sand, brown, wet, w <pl, non-plastic,<br="">loose/soft, biotite and quartz</pl,>	SM		262.0					WELL CASING Interval: 0' - 76' Material: Sch 40 PVC
		2.00 - 4.00 SAND, fine sand, non-plastic, w <pl, and="" compact,="" graded<="" green="" hue,="" moist,="" pepper="" salt="" td="" uniform="" with=""><td>SP</td><td></td><td>2.00</td><td></td><td></td><td></td><td></td><td>Joint Type: Threaded WELL SCREEN Interval: 76' - 106'</td></pl,>	SP		2.00					Joint Type: Threaded WELL SCREEN Interval: 76' - 106'
5 -		4.00 - 8.00 SP, SAND, coarse sand, non-plastic, w <pl, compact,="" moist,="" salt<br="">and pepper with green hue, uniform graded</pl,>			4.00				Grout –	Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"
	+		SP							FILTER PACK Interval: 73.5' - 106' Type: #1 Sand
		8.00 - 15.00			356.9 8.00					FILTER PACK SEAL Interval: 69.8' - 73.5' Type: Pel Plug Quantity: 5nal Bucket
10			SM			1	ROTO- SONIC	<u>11.00</u> 5.00	Riser – x* x* -	ANNULUS SEAL Interval: 0' - 69.8' Type: Cement-Bentonite Quantity: 554lbs Cement, 20lbs Bentonite, 60gal Water
15 -					349.9					WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
	-	15.00 - 35.00 SM, Sand and Silt, moist, medium green,w <pl, non-plastic,<br="">loose, firm, large white grain, plagioclase, RESIDUUM/SAPROLITE</pl,>			15.00					DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
TED.GPJ PIEDMONT.GDT 8/18/20 00	- 345   					2	ROTO- SONIC /	<u>10.00</u> 10.00		- - - -
36 INVESTIGATION BORING LOGS_SURVEY UPDAT 00 52	340   335    		SM		220.0	3	ROTO- SONIC ,	<u>10.00</u> 10.00		
32 - 32 - 32 - 32 - 32 - 32 - 32 - 32 -	   	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		35.00	4	ROTO SONIC	<u>6.00</u> 10.00		
BOREHOLE RE DE DE	G SCA	Leg continued on next page LE: 1 in = 5 ft COMPANY: Cascade Drilling Vern Olson	 ( (	GA INS CHECI DATE:	SPECT KED BY 5/29/2	OR: ′: Ra 0	M. Boa	atma P. Kii	an, PG rkman, PG	GOLDER

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 106.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-49D DRILL RIG: TS 150 DATE STARTED: 3/3/20 DATE COMPLETED: 3/6/20 DAT

SHEET 2 of 3 DEPTH W.L.:4.50' ELEVATION W.L.: 362.79' DATE W.L.:3/31/20 TIME W.L.:8:35

		-	SOIL PROFILE				s	AMPLES			
	DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	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> )				4	ROTO <u>6</u> SONIC <sup>11</sup>	<u>8.00</u> 0.00		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" Stet Size: 0.010"
	45	- 320 		BR		309.9	5	ROTO 1 SONIC 11	<u>0.00</u>		Shi 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
ATED.GPJ PIEDMONT.GDT 8/18/20	55 — — 60 — — — 65 —	- 310 - -  - 305    - 300	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'			55.00	6	ROTO <u>s</u> SONIC 11	<u>).70</u> 0.00		Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
CR6 INVESTIGATION BORING LOGS_SURVEY UPI		- - 295 - - - - - - - - - - - - - - - - - - -				289.9	7	ROTO <u>7</u> SONIC 1	7 <u>.80</u> 0.00	Bentonite	
RECORD PLANT SCHERER (	80 -	- - - - 285	Log continued on next page	BR		75.00	8	ROTO <u>1</u> SONIC <sub>1</sub>	<u>0.00</u> 0.00	Sand	
BOREHOLE	LOG DRI DRI	G SCAI	LE: 1 in = 5 ft COMPANY: Cascade Drilling Vern Olson	( ( [	GA INS CHECH DATE:	SPECT (ED B) 5/29/2	0R: /: Ra :0	M. Boa achel P	atma . Kii	an, PG rkman, PG	GOLDER

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 106.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-49D DRILL RIG: TS 150 DATE STARTED: 3/3/20 DATE COMPLETED: 3/6/20 DAT

SHEET 3 of 3 DEPTH W.L.:4.50' ELEVATION W.L.: 362.79' DATE W.L.:3/31/20 TIME W.L.:8:35

		SOIL PROFILE				s	AMPLE	s			
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH	SAMPLE NO.	ТҮРЕ	REC	MONITORING DIAGRAM and	WELL NOTES	WELL CONSTRUCTION DETAILS
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 Rock sampled collected at 77.8' - 78.9'	BR		279.9	8	ROTO SONIC	<u>10.00</u> 10.00			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" Sch Size: 0.010"
- 85		78-85' weakly foliated Fractures at 82.8', 83.1' ( <i>Continued</i> ) 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			85.00				0.010" Slotted – Screen		FILTER PACK Interval: 73.5' - 106' Type: #1 Sand Quantity: 9 Bags FILTER PACK SEAL Interval: 69.8' - 73.5' Type: Pel Plug
90	- 275 - - - - - - - - - - - - - - - - -		BR		269.9	9	ROTO SONIC	8.50 10.00			Qu'antity: 5gal Bucket ANNULUS SEAL Interval: 0' - 69.8' Type: Cement-Bentonite Quanity: 554lbs Cement, 20lbs Bentonite, 60gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
07 8/18/20 		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'			95.00						DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
TED.GPJ PIEDMONT.GC			BR			10	ROTO SONIC	7.70 11.00			
VOLO -	260			X · X · X · X · X · X ( · X · X · X · X · X · X X · X · X · X · X · X ( - X · X · X · X · X · X X · X · X · X · X · X · X	258.9					· <b> </b>  -	-
		Boring completed at 106.00 ft								-	-
VESTIGATION BORIN	255  									-	-
	250 									-	
- CORD PLA	_ 245									-	-
BOREHOLE RE DR DR	G SCA LLING LLER:	LE: 1 in = 5 ft cOMPANY: Cascade Drilling Vern Olson	( ( [	GA INS CHEC DATE:	SPECT KED BY 5/29/2	OR: ′: Ra 0	M. Bo achel	patma P. Kii	ın, PG kman, PG	\$	GOLDER

RECORD OF BOREHOLE PZ-49S SHEET 1 of 1 NORTHING: 1,123,434.46 EASTING: 2,410,605.99 PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 25.50 ft DRILL RIG: TS 150 DATE STARTED: 3/7/20 DEPTH W.L.:6.70' ELEVATION W.L.: 361.01' DATE W.L.:3/31/20 DATE COMPLETED: 3/7/20 GS ELEVATION: 365.2 LOCATION: Juliette, GA TOC ELEVATION: 367.89 ft TIME W.L.:8:30 SOIL PROFILE SAMPLES CLEVATION (ft) DEPTH (ft) WELL CONSTRUCTION 0 N GRAPHIC LOG ELEV. MONITORING WELL DIAGRAM and NOTES USCS ТҮРЕ SAMPLE REC DESCRIPTION DETAILS Ш DEPTH (ft) 0 365 0.00 - 10.00 WELL CASING Hydro-vac for utility clearance Interval: 0 - 15' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 15' - 25' Material: U-Pack Screen Grout Diameter: 2" Slot Size: 0.010" End Cap: 3" 5 -- 360 FILTER PACK Interval: 13' - 25' Type: #1 Sand Riser Quantity: 4.5 Bags FILTER PACK SEAL Interval: 7' - 13' Type: Pel Plug Quantity: 5gal Bucket 355.2 10 -10.00 - 11.00 GP, SANDY GRAVEL, fine gravels with fine to coarse sand, 355 ਹਰ 10.00 k GP <u>10</u>00 354.2 ANNULUS SEAL Bentonite poorly graded, greenish-brown, wet, W < PL, non-plastic, loose. Interval: 0' - 7' Type: Cement-Bentonite Quantity: 200lbs Cement, 11 00 11.00 - 20.50 SM, SILTY SAND, wet, non to low plasticity, W < PL, loose to ROTO <u>7.00</u> SONIC 5.50 firm. Residuum soil after diorite 10lb Bentonite, 20gal 1 Water WELL COMPLETION Pad: 4' x 4 Protective Casing: Aluminum 15 350 SM DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic Sand 8/18/20 PIEDMONT.GDT 20 ROTO <u>10.00</u> SONIC <sub>10.00</sub> - 345 344.7 2 20.50 - 25.50 20.50 CL, CLAY with some sand, dark to medium green, spotted, low plasticity, W < PL, moist to wet, soft to firm. 0.010" CL Slotted – Screen SURVEY UPDATED.GPJ 25 -- 340 339.7 Boring completed at 25.50 ft PLANT SCHERER CR6 INVESTIGATION BORING LOGS 30 -- 335 35 - 330 RECORD 40 GA INSPECTOR: M. Boatman, PG LOG SCALE: 1 in = 5 ft BOREHOLE 🕓 GOLDER CHECKED BY: Rachel P. Kirkman, PG DRILLING COMPANY: Cascade Drilling DATE: 5/29/20 DRILLER: Vern Olson

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 100.00 ft LOCATION: Juliette, GA

# RECORD OF BOREHOLE PZ-50D DRILL RIG: TS 150 DATE STARTED: 3/17/20 DATE COMPLETED: 3/18/20 DATE COMPLETED: 3/18/20

SHEET 1 of 3 DEPTH W.L.:26.05 ELEVATION W.L.: 447.73 DATE W.L.:3/21/2020 TIME W.L.:10:15

		7	SOIL PROFILE				S	AMPLES		
	DEPTH (ft)	ELEVATIO	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	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'
	- 5 — -	- 465 								Material: U-Pack Screen Diameter: 2" Stot Size: 0.010" End Cap: 3" FILTER PACK Interval: 87' - 100' Type: U-Pack Prepack Quantity: 4 bags
	- 10 —	- - 460	10.00 - 20.00 CL, CLAY with little silt and trace fine sand, dark green and white			460.66 10.00				FILTER PACK SEAL Interval: 84' - 87' Type: Pel Plug Quantity: 2.5 gal bucket
	-	-	speckled, low PL, W < PL, soft to firm, residuum after metagabbro, plagioclase, moist.				1	ROTO <u>5.00</u> SONIC 5.00		Interval: 0' - 84' Type: Cement-Bentonite Quantity: 277.2lbs Cement, 7lbs Bentonite, 17gal Water WELL COMPLETION
8/13/20	15 — - -	 455  		CL						Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
1).GPJ PIEDMONT.GDT	- 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.			450.66 20.00	- 2	ROTO <u>10.00</u> SONIC <sub>10.00</sub>		
GS_SURVEY UPDATED (	- 25 — - -	- 445 		SM						
R6 INVESTIGATION BORING LO			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.			<u>441.66</u> 29.00	3	ROTO <u>10.00</u> SONIC <sub>10.00</sub>		
CORD PLANT SCHERER C	35 — - - 40 —	435  				430.66	4	ROTO <u>10.00</u> SONIC <sub>10.00</sub>		
BOREHOLE RE	LOG DRI DRI	S SCA LLING LLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Tom Ardito	( ( [	GA INS CHECP DATE:	SPECT (ED B) 5/29/2	0R: 1: Ra 0	M. Boatma achel P. Kii	an, PG rkman, PG	GOLDER

#### PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 100.00 ft LOCATION: Juliette, GA

# RECORD OF BOREHOLE PZ-50D DRILL RIG: TS 150 DATE STARTED: 3/17/20 DATE COMPLETED: 3/18/20 DATE COMPLETED: 3/18/20

SHEET 2 of 3 DEPTH W.L.:26.05 ELEVATION W.L.: 447.73 DATE W.L.:3/21/2020 TIME W.L.:10:15

		7	SOIL PROFILE				s	AMPLES		
	DEPTH (ft)	LEVATION (ft)	DESCRIPTION	ISCS	APHIC LOG	ELEV.	IPLE NO.	rype Rec	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	40 —	Ш	40.00 - 41.50		5	(ft) 40.00	SAM		109851 10980 84885 10980 84885 10980	WELL CASING
	-	- 430 -	SC, CLAYEY SAND with trace to little fine gravels, dark green, low to moderate PL, W ~ PL, compact to firm, moist, subround to vulta gravels, vein quartz, fluvial/alluvial.	sc – – –		429.16				Interval: 0' - 90' Material: Sch 40 PVC Diameter: 2"
	-	-	41.50 - 50.00 SM-GM, SILTY SAND to SILTY GRAVEL, well graded, light to dark green black non PL $W \leq PL$ due to wet (~15') dense to				4	ROTO <u>10.00</u> SONIC		Joint Type: Threaded
	_	-	very dense.			•		10.00		Interval: 90' - 100' Material: U-Pack Screen
	45 —	- 125				< <				Slot Size: 0.010" End Cap: 3"
	-	-		SM-GN						FILTER PACK Interval: 87' - 100'
	-	-								Type: U-Pack Prepack Quantity: 4 bags
	_	-								FILTER PACK SEAL Interval: 84' - 87' Type: Pel Plug
	50 —	- 420	50.00 - 55.00			420.66 50.00	5	ROTO <u>7.40</u> SONIC 10.00		Quantity: 2.5 gal bucket
	_	-	moist.							Interval: 0' - 84' Type: Cement-Bentonite
	_	-		SM						7lbs Bentonite, 17gal Water
	_	-								WELL COMPLETION Pad: 4' x 4'
	55 —	- 415	55.00 - 70.00 Deeply weathered METAGABBRO, extremely weak to weak,			55.00				Protective Casing: Aluminum DRILLING METHODS
	-	-	plagioclase-amphibole, weathering rhine where fresher, salt/pepper fine to medium grained.							Soil Drill: Roto Sonic Rock Drill: Roto Sonic
/13/20	-	-	65-70 assumed same as above, washed out.							-
GDT 8	-	_								
AONT.0	60 —	- 410					6	SONIC 10.00		
PIEDN	-	_								-
GPJ	-	_		TWR						
TED (1	-									
UPDA	65 —	— 405								
JRVEY	_	-								
GS_SI	-	-								_
NG LO	_	_				400.66		ROTO 2 90		-
I BORI	70	- 400	70.00 - 75.00 METAGRABBRO, dark green and white, fresh to slightly wath the strand the strand the strand to force the			70.00	7	SONIC 10.00		
SATION	_	-	fractures - indicative of water movement.							-
/ESTIG	-	-		BR						-
R6 IN	-					395.66				
RER C	/5 -	- 395	75.00 - 100.00 METAGABBRO, fine to medium grained, dark green to black and white amphibiles and planiculase unfailated freeb to slichtly	<b>—</b> —-		75.00				
SCHE	_	-	weathered, medium strong to strong.				0	ROTO 7.75		-
PLANT	-		sized particles.	DR			0	SONIC 10.00		
CORD	- 80	-	Rock sample collected 94.0'-94.5'						0000 0000 0000 0000	
E REC	LOG	SCA	Log continued on next page LE: 1 in = 5 ft		GA INS	SPECTO	OR:	M. Boatm	an. PG	
SEHOL	DRI	LLING	COMPANY: Cascade Drilling	(	CHEC	KED BY	': Ra	achel P. Ki	rkman, PG	GOLDER
BOF	DRI	LLER:			JAIE:	5/29/2	U			



PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 126.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-51D DRILL RIG: TS 150 DATE STARTED: 3/6/20 DATE COMPLETED: 3/8/20 DATE COMPLETED: 3/8/20

SHEET 1 of 4 DEPTH W.L.:38.4' ELEVATION W.L.: 507.58' DATE W.L.:3/17/2020 TIME W.L.:13:30

		7	SOIL PROFILE				S	AMPLES		
-	⊑ ££	(ft)		S	ULC I	ELEV.	: NO.	Шо	MONITORING WELL	WELL CONSTRUCTION
		ELEV	DESCRIPTION	nsc	LOG	DEPTH	MPLE	REC		DETAILS
	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			(ft)	SA			WELL CASING Interval: 0' - 116' Material: Sch 40 PVC Diameter: 2"
	-	- 540 -	soπ to soπ, residual soli						Riser	Joint Type: Threaded WELL SCREEN Interval: 116' - 126' Material: U-Pack Screen Diameter: 2"
	5	-		CL						Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 113' - 126' Type: 20/30 Sand Quertitu: 6 Ranc
	-	- 535				533.2			Grout –	FILTER PACK SEAL Interval: 109.8' - 113' Type: Pel Plug Quantity: 5gal bucket
	-	- - 530	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		10.00	1	<u>5.00</u>		ANNULUS SEAL Interval: 0' - 109.8' Type: Cement-Bentonite Quantity: 250Ibs Cement, 15Ibs Bentonite, 30gal Water
	- 15	-				507.0		0.00		WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
8/18/20	-	- - 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		16.00				Soil Drill: Roto Sonic Rock Drill: Roto Sonic
J PIEDMONT.GDT	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 21.00 - 26.00 No Recovery	 ML		523.2 20.00 522.2 21.00	2	<u>5.00</u> 10.00		
PDATED.GP	- 25	520 								
OGS_SURVEY U	-	- 	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 pyrolucite			<u>517.2</u> 26.00				
ATION BORING L	30	-		ML		540.7	3	<u>6.50</u> 10.00		
R6 INVESTIG	-	- 510	32.50 - 36.00 Wash out			32.50				
PLANT SCHERER C		- - 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			507.2 36.00 504.2	4	<u>10.00</u> 10.00		
CORE	40 -	-	Log continued on payt page	ML		39.00				
BOREHOLE RE	LOG DRII DRII	G SCAI LLING LLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling C. Hall	( [	GA INS CHECI DATE:	SPECT ( (ED BY 5/29/2	OR: I ⁄: Ra 0	B. Steele, chel P. Ki	PG rkman, PG	GOLDER

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 126.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-51D DRILL RIG: TS 150 DATE STARTED: 3/6/20 DATE COMPLETED: 3/8/20 DATE COMPLETED: 3/8/20

SHEET 2 of 4 DEPTH W.L.:38.4' ELEVATION W.L.: 507.58' DATE W.L.:3/17/2020 TIME W.L.:13:30

	_	SOIL PROFILE					S	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC	DOJ	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
40	- - - 500	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 ( <i>Continued</i> )					4	<u>10.00</u> 10.00		WELL CASING Interval: 0' - 116' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 116' - 126' Material: U-Pack Screen
45 —			ML							Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 113' - 126' Type: 20/30 Sand Quantity: 6 Bass
- - 50		50.00 - 52.50 ML, sandy SILT, little clay, 5YR 5/3 olive, very weathered biotite gneiss, rich in biotite-muscovite-guartz, moist, soft				493.2 50.00	5	<u>9.00</u>		FILTER PACK SEAL Interval: 109.8' - 113' Type: Pel Plug Quantity: 5gal bucket ANNULUS SEAL Interval: 0' - 109.8'
-	- 490	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		10.00		Type: Cernent-Bentonite Quantity: 250lbs Cement, 15lbs Bentonite, 30gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
	- - 485	56.00 - 59.50				487.2 56.00				DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
- 09 001 8/	- - - -	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		AVL'AVLAVI		483.7 59.50	6	<u>. 10.00</u> 10.00		
	480 		TWR			477.2				
	- 475	MLS, sandy SILT, compact to loose sand, rich in muscovite-biotite, quartz, amphibolite, grey 1 5/1 greenish grey, wet, loose	ML			475.2 68.00				
	- - 						7	<u>2.00</u> 10.00		
		76.00 - 80.90 BIOTITE GNEISS, 5Y 4/1 olive grey, biotite, plagioclase, quartz, weathered from fractures, bard				467.2 76.00				
ECORD PLANT	- 465 -	Log continued on next page	BR				8	<u>4.90</u> 10.00		
	G SCA LLING LLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling C. Hall		GA CHE DAT	INS ECI TE:	SPECT KED BY 5/29/2	DR: ': Ra 0	B. Steele, achel P. Kir	PG kman, PG	GOLDER

	-	SOIL PROFILE				S	AMPLES		
н (ff)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
80 — - - 85 —	- - 460 	80.90 - 86.00	BR		462.3 80.90	8	<u>4.90</u> 10.00		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"
- - 90 - -		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. 91.00 - 92.00 BIOTITE GNEISS, 5Y 4/1 olive grey, biotite, plagioclase, quartz, weathered from fractures, hard	BR		452.2 91.00 451.2	9	<u>6.00</u> 10.00		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.
- 95 — -	450  	92.00 - 96.00 No Recovery 96.00 - 100.20			447.2 96.00				15/bś Bentonite, 30gal Water WELL COMPLETION Pad: 4' X 4' Protective Casing: Alumin DRILLING METHODS Soil Drill: Roto Sonic
- - 00 - - - - - -	- - 445      	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 BR		443 100.20 441.8 101.40	10	<u>5.20</u> 10.00		Rock Drill: Roto Sonic
	- - 435 - - - - - 430 -	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		<u>437.2</u> 106.00	11	<u>3.80</u> 10.00	Bentonite -	
	- - 425 -	116.00 - 126.00 BIOTITE GNEISS, N4 medium dark grey, biotite-plagioclase-muscovite-quartz, heavily fractured. Quartz vein at 117', compact Rock sample collected 118.0'-118.5'	BR		<u>427.2</u> 116.00	12	<u>5.50</u> 10.00	0.010" Slotted – Screen	-

Γ

PF PF DF LC	ROJECT ROJECT RILLED I DCATION	: Plant Scherer NUMBER: 20139484 DEPTH: 126.00 ft V: Juliette, GA	F BC	RE	HOLE NOF EAS GS I TOC		PZ-51D IG: 1,119,23 : 2,399,955 ATION: 543 VATION: 54	SHE 07 DEF 07 ELE 3.2 DAT 46.04 ft TIM	ET 4 of 4 PTH W.L.:38.4' VATION W.L.: 507.58' E W.L.:3/17/2020 E W.L.:13:30
		SOIL PROFILE				s	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
B INVESTIGATION BORING LOGS_SURVEY UPDATED.GP1 811820		I16.00 - 126.00         BIGITTE GNEERS, N44 medium dark grey, biotite-placical composed in the second composed in the second composed of the second c			DEPTH (ft)	12	<u>5.50</u> 10.00	Sand	DETAILS         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
- 651 PLANT SCHERER CF	  385 							-	
LO DR DR	G SCAI ILLING ILLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling C. Hall	( ( [	GA INS CHECH DATE:	SPECT KED BY 5/29/2	OR: Y: Ra 20	B. Steele, achel P. Ki	PG rkman, PG	GOLDER

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 77.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-52DRILL RIG: GSI CC Crawler<br/>DATE STARTED: 3/17/20NORTHING: 1,122,822.91<br/>EASTING: 2,403,622.69<br/>GS ELEVATION: 519.4<br/>TOC ELEVATION: 521.84 ft

SHEET 1 of 2 DEPTH W.L.:32.50' ELEVATION W.L.: 489.12' DATE W.L.:3/31/20 TIME W.L.:10:25

		_	SOIL PROFILE				S	AMPLES		
DEPTH	(H)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
C	(  -	-	0.00 - 9.50 Hydro-vac for utility clearance							WELL CASING Interval: 0' - 67' Material: Sch 40 PVC
	-	-								Diameter: 2" Joint Type: Threaded
5	5	- 515 -								Interval: 67' - 77' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"
		-								FILTER PACK Interval: 65' - 77' Type: #6 Sand Quantity: 3 bags
	_	- 510	9.50 - 13.70			509.9 9.50				FILTER PACK SEAL Interval: 61.5' - 65' Type: Pel Plug Quantity: 5gal Bucket
10	) - - -	-	ML, sandy SILT, low plasticity, fine sand, reddish brown, plagioclase-biotite, biotite gneiss parent, non-cohesive, moist, loose. Residual soil	ML					Grout – x x -	ANNULUS SEAL Interval: 0' - 61.5' Type: Cement-Bentonite Quantity: 554.4lbs Cement, 20lbs Bentonite, 70gal water
15	-	- 505	13.70 - 30.00 ML, sandy SILT, low plasticity, fine sand, bronze to light yellowish brown, plaqioclase, increasing weathering of biotite, relict foliation,			505.7 13.70	1	ROTO <u>7.80</u> SONIC 9.50		WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
		-	biotite gneiss parent, non-cohesive, moist to dry, loose. SAPROLITE							DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
18/20	-	-							Riser –	-
20 20 8	)	- 500								
PIEDMON	-	-		ML						
TED.GPJ		- 495					2	ROTO <u>10.00</u> SONIC 10.00		-
-YOUN YE	;  -	-								-
SS_SURVI	_	-							-	-
RING LOC	-  -  (	- 490	- 30 00 - 33 00			489.4				
ATION BO	-	-	SP, SAND, fine to medium grained, light yellowish-brown, plagioclase-quartz, non-cohesive, moist, loose.	SP		50.00				-
IVESTIG/	-	-	33.00 - 34.00 SP, SAND, medium grained, white, quartz-plagioclase-pegmatite,	SP		486.4 33.00 485.4		ROTO 9.60		-
1ERER CR6 IF	 	- 485 - -	<u>non-cohesive</u> , moist, dense to loose. SAPROLITE	ML		34.00	3	SONIC 10.00		
ANT SCH		-	37.00 - 39.00 SP, SAND, medium grained with some course gravel, white, guartz-planclase-permatite, por-cobesive, moiet dense to	 		482.4 37.00				-
ORD PL	  - 	- 480				480.4 39.00	4	ROTO SONIC		
	<u>Γ'</u>	SC 41	Log continued on next page					L Prices		l
	RIL	LING	COMPANY: Cascade Drilling	0	CHEC	KED BY	/: Ra	ichel P. Ki	rkman, PG 🛛 🕓	GOLDER
D Bog	RIL	LER:	Jimmy Hall	0	DATE:	5/29/2	20			

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 77.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-52DRILL RIG: GSI CC Crawler<br/>DATE STARTED: 3/17/20NORTHING: 1,122,822.91<br/>EASTING: 2,403,622.69<br/>GS ELEVATION: 519.4<br/>TOC ELEVATION: 521.84 ft

SHEET 2 of 2 DEPTH W.L.:32.50' ELEVATION W.L.: 489.12' DATE W.L.:3/31/20 TIME W.L.:10:25

	7	SOIL PROFILE				s	AMPLE	S			
DEPTH (ft)	ELEVATIO	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV.	SAMPLE NO.	ТҮРЕ	REC	MONITORING DIAGRAM and	WELL NOTES	WELL CONSTRUCTION DETAILS
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> )				0					WELL CASING Interval: 0' - 67' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN
	- 475 -		SM			4	ROTO SONIC	<u>10.00</u> 10.00			Interval: 67' - 77' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 65' - 77' Tvne: #6 Sand
	- 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						Quantity: 3 bags FILTER PACK SEAL Interval: 61.5' - 65' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 61.5' Type: Cement-Bentonite Quantity: 554 4lbs Cement
- - 55 -	- 465  	54.00 - 77.00 SM, SILTY SAND, fine sand, low plasticity, blueish grey to greenish black, quartz-lilite-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	<u>7.50</u> 10.00			201bs John Amb Cernent, 201bs Bentonite, 70gal water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
	- 460 										
	- - 455 -		SM			6	ROTO- SONIC	<u>10.00</u> 10.00	Bentonite –		
	- - 								Sand –		
- 70 – 70 – 70 – 70 – 70 – 70 – 70 – 70	-				· · ·	7	ROTO	<u>10.50</u>	0.010" Slotted – Screen		
	445 				442.4			0.00			
	_ 440	Boring completed at 77.00 ft							l	\  	
	G SCA LLING LLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Jimmy Hall	(	GA IN: CHEC DATE:	SPECT KED B` 5/29/2	OR: Y: Ra 20	H. Bri achel I	ssey P. Kir	kman, PG	Ç	GOLDER

#### PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 45.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-53DRILL RIG: TS 150NORTHING: 1,121,932.34DATE STARTED: 3/18/20EASTING: 2,404,813.43DATE COMPLETED: 3/19/20GS ELEVATION: 513.6TOC ELEVATION: 516.64 ft

SHEET 1 of 2 DEPTH W.L.:26.20' ELEVATION W.L.: 490.29' DATE W.L.:3/31/20 TIME W.L.:9:55

	-	SOIL PROFILE				S	AMPLES				
DEPTH (ft)	ELEVATIO	DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	AMPLE NO.	TYPE REC	MONITORINO DIAGRAM and	G WEL I NOTE	L S	WELL CONSTRUCTION DETAILS
0	- - - 510 - - -	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.	CL		505.6	0		Grout –			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: 32' - 35' Type: #1 Sand Quantity: 3 Bags
	505    500	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		<u>500.6</u> 13.00	1	ROTO <u>7.00</u> SONIC 7.00	Riser –			FILTER PACK SEAL Interval: 27' - 32' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 27' Type: Cement-Bentonite Quantity: 450lbs Cement, 17lbs Bentonite, 45gal Water Wetl COMPLETION Pad: 4' x 4'
15 — — — 20 —	-  495 	17.00 - 20.00 MIL, CLAYEY SILT, 7.5 YR 5/8 strong brown, very weathered hornblende gneiss, relict foliation.	ML ML		496.6 17.00 493.6 20.00	- 2	ROTO <u>10.00</u> SONIC <sub>10.00</sub>				Protective Casing: Aluminum <b>DRILLING METHODS</b> Soil Drill: Roto Sonic Rock Drill: Roto Sonic
	-  490 	ML, CLAYEY SILT, trace time sand, 7.5 YR 5/4 weak red to pink to 10 YR 5/4 yellowish brown, deeply weathered biotit 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		488.6 25.00						
	- 485  	32.00 - 35.00	ML		<u>481.6</u> 32.00	3	ROTO <u>7.00</u> SONIC 10.00	Bentonite –			
	480   475 	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 gneis, foliation present, cohesive, firm to stiff, moist, moist to wet at 36', contact between biotite gneiss and biotite hornblende gneiss.			478.6 35.00	4	ROTO <u>6.00</u> SONIC 10.00	Sand –			
LOC	G SCA	LE: 1 in = 5 ft	1	GA INS	SPECT	OR:	S. George	, PG			GOLDER
DRI	LLING LLER:	COMPANY: Cascade Drilling Vern Olson		CHECI DATE:	KED BN 5/29/2	r: Ra 20	ichel P. Ki	rkman, PG			

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS\_SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

PR PR DR LO	RECORD OF BOREHOLE PZ-53SHEET 2 of 2PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 45.00 ft LOCATION: Juliette, GADRILL RIG: TS 150 DATE STARTED: 3/18/20 DATE STARTED: 3/19/20NORTHING: 1,121,932.34 EASTING: 2,404,813.43 GS ELEVATION: 513.6 TOC ELEVATION: 516.64 ftSHEET 2 of 2DEPTH W.L.:26.20' ELEVATION W.L.: 490.29' 									
		SOIL PROFILE				s	AMPLES			
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
40	- - - - 470	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 gneis, 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 <u>6.00</u> SONIC 10.00	0.010" Slotted – Screen	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"	
45 — - -	- -	Boring completed at 45.00 ft			468.6			- [_ <del>   </del>     - -	Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 32' - 35' Type: #1 Sand Quentity: 3 Bage	
- - 50 —	- 465 - 465 							-	FILTER PACK SEAL Interval: 27' - 32' Type: Pel Plug Quantity: 5gal Bucket Interval: 0' - 27'	
-	 460							-	Type: Cement-Bentonite Quantity: 450lbs Cement, 17lbs Bentonite, 45gal Water WELL COMPLETION Pad: 4' x 4'	
55 — - -	-							-	Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic	
60	- 455 							-		
	 450							-	-	
	- - -							-		
70 – 70 –	- 445 							-		
	- - 440							- - -	-	
								-	-	
	- 435	IF: 1 in = 5 ft				Op.	S George	PG	-	
	LOG SCALE: 1 in = 5 ft       GA INSPECTOR: S. George, PG         DRILLING COMPANY: Cascade Drilling       CHECKED BY: Rachel P. Kirkman, PG         DRILLER: Vern Olson       DATE: 5/29/20									

PR PR DR LO	RECORD OF BOREHOLE PZ-54SHEET 1 of 2PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 45.00 ft LOCATION: Juliette, GADRILL RIG: TS 150 DATE STARTED: 3/19/20 DATE STARTED: 3/19/20 DATE COMPLETED: 3/19/20 TOC ELEVATION: 490.2 TOC ELEVATION: 492.96 ftSHEET 1 of 2										
		SOIL PROFILE				s	AMPLES				
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WE	LL ES	WELL CONSTRUCTION DETAILS	
0 - - - 5 - -		0.00 - 10.00 Hydro-vac for utility clearance.						Grout –		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	
- 10 -	-				480.2			Riser –		FILTER PACK SEAL Interval: 29' - 33' Type: Pel Plug Quantity: 5gal Bucket	
-	480 	10.00 - 20.80 CL, CLAY, red brown, soft to moist, low plasticity, minor muscovite and vermiculite, W < PL.			10.00	1	ROTO <u>1.90</u> SONIC 5.00			ANNULUS SEAL Interval: 0' - 29' Type: Cement-Bentonite Quantity: 500Ibs Cement, 17Ibs Bentonite, 45gal Water WELL COMPLETION Pad: 4' x 4'	
15	475 		CL							Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic	
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. 23.00 - 24.00 CL, CLAY, red brown, soft to moist, low plasticity, minor	CL		469.4 20.80 467.2 23.00 466.2	2	ROTO <u>4.20</u> SONIC 10.00				
25	- 465 	CL, CLAY with trace to some silt, ocherish brown, moderate plasticity, W ~ PL, moist, soft to firm.	ML		24.00						
30	- 460 	31.00 - 45.00			459.2 31.00	3	ROTO <u>10.00</u> SONIC <sub>10.00</sub>	Bentonite –			
35	- 455  		ML			4	ROTO <u>8.20</u> SONIC 10.00	Sand -			
LOC DRI DRI	G SCAI	LE: 1 in = 5 ft COMPANY: Cascade Drilling Vern Olson	( ( [	GA INS CHEC DATE:	SPECT KED B 5/29/2	OR: Y: Ra 20	M. Boatma achel P. Ki	ı an, PG rkman, PG	Ç	GOLDER	

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS\_SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

PF PF DF LC	RECORD OF BOREHOLE PZ-54SHEET 2 of 2PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 45.00 ft LOCATION: Juliette, GADRILL RIG: TS 150 DATE STARTED: 3/19/20 DATE STARTED: 3/19/20 DATE COMPLETED: 3/19/20 DATE COMPLETED: 3/19/20 TOC ELEVATION: 490.2 TOC ELEVATION: 492.96 ftSHEET 2 of 2DRILL PLOPE 									
	SOIL PROFILE SAMPLE									
DEPTH (ft)	ELEVATIO (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
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		445.2	4	ROTO <u>8.20</u> SONIC 10.00	0.010" Slotted – Screen –	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"	
45 -	- 445 	Boring completed at 45.00 ft						-	Silo 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	
55 -	  435							-	Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS	
PJ PIEDMONT.GDT 8/18/20 00 -								-	Soil Drill: Roto Sonic Rock Drill: Roto Sonic	
5 LOGS_SURVEY UPDATED.C	- 425 425 									
- 02 - 02 - 02	- 420 									
- 08 - 08 - 08 - 08 - 08 - 08 - 08 - 08	415   									
LO DR DR DR	LOG SCALE: 1 in = 5 ft       GA INSPECTOR: M. Boatman, PG         DRILLING COMPANY: Cascade Drilling       CHECKED BY: Rachel P. Kirkman, PG         DRILLER: Vern Olson       DATE: 5/29/20									

#### PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 35.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-55DRILL RIG: TS 150NORTHING: 1,121,931.60DATE STARTED: 3/20/20EASTING: 2,409,132.43DATE COMPLETED: 3/20/20GS ELEVATION: 444.2TOC ELEVATION: 447.21 ft

SHEET 1 of 1 DEPTH W.L.:20.00' ELEVATION W.L.: 426.98' DATE W.L.:3/31/20 TIME W.L.:9:10

		7	SOIL PROFILE				S	AMPLES		
	DEPTH (ft)	EVATION (ft)	DESCRIPTION	scs	APHIC -OG	ELEV.	PLE NO.	YPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
					GR	DEPTH (ft)	SAMF	н ш		
	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						WELL CASING Interval: 0' - 26' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 26' - 36' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 24' - 36'
	-	- 	10.00 - 23.50			<u>434.2</u> 10.00				Iype: #1 Sand Quantity: 3.5 Bags FILTER PACK SEAL Interval: 18.5' - 24' Type: Pel Plug Quantity: 5gal Bucket
	-	- - - 430	deeply weathered hornblende-biotite gneiss. Residual soil.				1	ROTO <u>3.00</u> SONIC 5.00		ANNOLUS SEAL Interval: 0'- 18.5' Type: Cement-Bentonite Quantity: 300lbs Cement, 15lbs Bentonite, 35gal Water WELL COMPLETION Pad: 4' x 4'
8/18/20	15 — - - -	- - - - 425		CL						Protective Casing: Aluminum <b>DRILLING METHODS</b> Soil Drill: Roto Sonic Rock Drill: Roto Sonic
D.GPJ PIEDMONT.GDT	20					<u>420.7</u> 23.50	2	ROTO <u>10.00</u> SONIC <sub>10.00</sub>		
LOGS_SURVEY UPDATE	25	-	25' driller noted top of transitionally weathered rock, hard rock encounctered interlayered with weathered saprolite. 25.00 - 36.00 Transitionally weathered rock, interlayered unweathered rock and saprolite, poor recovery (saprolite washed out).			419.2 25.00				
INVESTIGATION BORING	30	- 415 - - - 		TWR			3	ROTO <u>4.00</u> SONIC 10.00		
HERER CR6	35 —	-	Boring completed at 35.00 ft			408.2 36.00				
CORD PLANT SCI		- - - 405								
BOREHOLE RE	Image: Construction of the image: Constructined of the image: Construction of the image: Construct									

PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 46.00 ft LOCATION: Juliette, GA

## RECORD OF BOREHOLE PZ-56DRILL RIG: TS 150NORTHING: 1,123,524.68DATE STARTED: 3/19/20EASTING: 2,409,037.21DATE COMPLETED: 3/19/20GS ELEVATION: 430.8TOC ELEVATION: 433.68 ft

SHEET 1 of 2 DEPTH W.L.:36.60' ELEVATION W.L.: 396.96' DATE W.L.:3/31/20 TIME W.L.:9:00

	SOIL PROFILE						AMPLES				
(f)	(ft)		S	с ЧС	ELEV.	NO.	шо	MONITORING WELL	WELL CONSTRUCTION		
DE	ELEV	DESCRIPTION	nsc	GRAPI LOG	DEPTH	AMPLE	REC		DETAILS		
0	430	0.00 - 10.00 Hydro-vac for utility clearance			(ft)	S/			WELL CASING Interval: 0' - 35.75' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded		
- 5									WELL SCREEN Interval: 35.75' - 45.75' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"		
	425  							Grout – 20000 – 20000 – 2000 – 2000 – 2000 – 2000 – 2000 – 2000 – 2000 –	FILTER PACK Interval: 33' - 46' Type: #1 Sand Quantity: 4 bags		
	$\frac{1}{2}$								FILTER PACK SEAL Interval: 30' - 33' Type: Pel Plug		
- 10 - - -	420 420 	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.			420.8	1	ROTO <u>6.00</u> SONIC 6.00	Riser	Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 30' Type: Cement Quantity: 600lbs Cement, 70gal water WELL COMPLETION		
- 15	 415		SP						Pad: 4 X 4 Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic		
- 02 8/18/20 - 02 - 02		18.80 - 20.60	 ML		412 18.80	2	ROTO <u>5.00</u> SONIC 5.00				
JPDATED.GPJ PIEDMONT.C		19.5-20.6 pulverized predomionantly Na-plagioclase layer, 2.5 Y         7/3 pale brown.         120.60 - 21.00         TWR, weathered BIOTITE GNEISS, very dark grey to black,         medium grained.         21.00 - 34.00         TWR, weathered BIOTITE GNEISS, slight to moderate oxidation         throughout. oxidation staining at 28', fracture 30'-30.5'	<u> </u>    		21.00	3	ROTO <u>4.00</u> SONIC 5.00				
ESTIGATION BORING LOGS_SURVEY (	- 400 		TWR			4	ROTO <u>8.00</u> SONIC 10.00	Benonite			
- 35 - 35 - 35 - 35 - 35 - 35 - 35 - 35	  395				396.8 34.00 394.8 36.00						
ORD PLANT SCHI		BIOTITE GNEISS, fine to medium grained, hornblende-quartz-plagioclase-biotite.	BR		00.00	5	ROTO <u>8.50</u> SONIC 10.00	#1 Sand			
	] g sca	Log continued on next page	(	GA INS	SPECT	OR.	S. George	. PG 🦰			
	LOG SCALE: 1 In = 5 ft       GA INSPECTOR: S. George, PG         DRILLING COMPANY: Cascade Drilling       CHECKED BY: Rachel P. Kirkman, PG         DRILLER: Tom Ardito       DATE: 5/29/20										

PR PR DR LO	OJECT: OJECT ILLED [ CATION	Plant Scherer NUMBER: 20139484 DEPTH: 46.00 ft I: Juliette, GA	F B(	ORE	HOL NOF EAS GS E TOC	E I THING TING ELEV ELEV	PZ-56 IG: 1,123,52 : 2,409,037. ATION: 430 VATION: 43	4.68 21 0.8 33.68 ft	SHE DEP ELE DATI TIME	ET 2 of 2 TH W.L.:36.60' VATION W.L.: 396.96' E W.L.:3/31/20 E W.L.:9:00
DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	AMPLE NO.	AMPLES HALES	MONITORING WI DIAGRAM and NO	ELL DTES	WELL CONSTRUCTION DETAILS
40	390  	36.00 - 46.00 BIOTITE GNEISS, fine to medium grained, hornblende-quartz-plagioclase-biotite. <i>(Continued)</i>	BR		(11)	<u>σ</u>	ROTO <u>8.50</u> SONIC 10.00	0.010" Slotted – Screen		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"
-	- 385 - -	Boring completed at 46.00 ft			384.8				= - - -	End Cap: 3" FILTER PACK Interval: 33' - 46' Type: #1 Sand Quantity: 4 bags FILTER PACK SEAL Interval: 30' - 33'
50	- 380 -								-	Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 30' Type: Cement Quantity: 600lbs Cement, 70gal water
- 55 — -	- 375 								-	WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
U PIEDMONT.GDT 8/18/20	- - 370 -								-	
DGS_SURVEY UPDATED.GF	- 365 								-	
NVESTIGATION BORING L	- 360 								-	
RD PLANT SCHERER CR6	- 355  									
- 80 - 80 - 80 - 80 - 80 - 80 - 80 - 80	G SCAI LLING LLER:	.E: 1 in = 5 ft COMPANY: Cascade Drilling Tom Ardito		GA INS CHECP DATE:	SPECT (ED B) 5/29/2	OR: 7: Ra	S. George achel P. Ki	, PG rkman, PG	\$	GOLDER
#### RECORD OF BOREHOLE PZ-57 DRILL RIG: GSI CC Crawler DATE STARTED: 3/18/20 DATE COMPLETED: 3/19/20 DATE COMPLETED: 3/19/20

SHEET 1 of 2 DEPTH W.L.:33.60' ELEVATION W.L.: 405.66' DATE W.L.:3/31/20 TIME W.L.:9:30

		SOIL PROFILE				S	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	- 435	0.00 - 5.00 Hand auger for utility clearance.							WELL CASING Interval: 0' - 49' Material: Sch 40 PVC Diameter: 2
- - 5 -	- - - - - - - - - - - - - - -	5.00 - 13.00			<u>431.4</u> 5.00	1	ROTO <u>7.00</u> SONIC 4.00	Grout	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
- 10 — -	- - - - - - - - - - - - - - - - - - -		ML						FILTER PACK SEAL Interval: 43' - 46' Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 43' Type: Cement-Bentonite Quantity: 277.2lbs Cement, 10lbr Bentonite 35gal
- - 15		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. 15.00 - 18.00 ML sandy SULT Jow PL fine sand dry - 2/5 X 6/3 licht vellowich	ML		423.4 13.00 421.4 15.00	2	ROTO <u>10.00</u> SONIC <sub>10.00</sub>	Riser – 20000 – 20000 – 2000 – 2000 – 2000 – 2000 – 2000 – 2000 – 2000 –	Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Pail Date Date
18/20	420 - - -	brown, wet - gley G1 greenish grey, plagioclase-quart-biotite weathered to illite, relict foliation, non-cohesive, dry to moist, dense. SAPROLITE. 18.00 - 19.00 ML sandt SILT. low PL, fine sand. dry - 2.5 Y 5/2 grevish brown.	ML 		418.4 18.00 417 4				Rock Drill: Roto Sonic
PIEDMONT.GDT 8/	- - - - - - 415	wet - gleu 1 4/1 very dark greenish grey, quartz-plagioclase-biotite, hornblende gneiss parent rock, non-cohesive, dry to moist, dense. SAPROLITE	TWR		19.00				
DGS_SURVEY UPDATED.GPJ	- - - - - - - - - - - - - - - - - - -	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		23.00	3	ROTO <u>4.50</u> SONIC 10.00		
STIGATION BORING LC	- - - - - - - - - - -	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		406.3 30.10 403.4				
ANT SCHERER CR6 INVE	- - - - - - 400	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 <u>8.20</u> SONIC 10.00		
	-	Log continued on next page			396.4	5	ROTO <u>9.00</u> SONIC 10.00		-
LOC DRI DRI DRI	G SCA ILLING ILLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Jimmy Hall	(	GA INS CHEC DATE:	SPECT KED BY 5/29/2	OR: ': Ra 0	H. Brissey achel P. Kir	kman, PG	GOLDER



PIEDMONT.GDT SURVEY UPDATED.GPJ PLANT SCHERER CR6 INVESTIGATION BORING LOGS RECORD

#### RECORD OF BOREHOLE PZ-58DRILL RIG: TS 150NORTHING: 1,123,299.43DATE STARTED: 3/16/20EASTING: 2,405,207.09DATE COMPLETED: 3/16/20GS ELEVATION: 489.3TOC ELEVATION: 492.21 ft

SHEET 1 of 2 DEPTH W.L.:39.60' ELEVATION W.L.: 452.09' DATE W.L.:3/31/20 TIME W.L.:10:05

		SOIL PROFILE				S	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
- 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: Threaed
5 -	 485 							Grout	WELL SCREEN Interval: 36' - 46' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK
- - - 10	- - - - - - - - - - - - - - - - - -							Riser	Interval: 33.5' - 46' Type: #1 Sand Quantity: 5 Bags FILTER PACK SEAL Interval: 30.5' - 33.5' Type: Pel Plug Quantity: 5gal Bucket
- - - 15	- - - - - - - - - - - - - - - - - - -	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. 13.50 - 20.00 SM, SILTY SAND with trace clay and gravels, yellow brown, non PL, W < PL, dry to moist, loose.	CL		477.8 11.50 475.8 13.50	1	ROTO <u>4.50</u> SONIC 6.00		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
- 20 - 20 - 20 - 20 - 20 - 20 - 20 - 20		20.00 - 21.00 ML, SILT with trace sand and clay, soft, moist, non PL, W < PL, increased mica content, red-brown.	SM		469.3 20.00 468.3 21.00	. 2	ROTO 10.00 SONIC 10.00		DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
	- - - - - - - - -	26 00 34 00	SM		463.3				-
	- - - - - - - - - - - - - - - - - -	SP, SAND, fine grain with trace to some silt, uniform graded, light to dark green to tan, compact.	SP		20.00	3	ROTO <u>9.20</u> SONIC 10.00	Bentonite	- - -
IERER CK6 INVESTIGATI	- - - - - - - - - - - - - -	34.00 - 36.00			455.3 34.00 453.3 36.00			Sand	
- 04 - 04	  450	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			4	ROTO <u>10.00</u> SONIC <sub>10.00</sub>		-
LO DR DR DR	G SCA ILLING ILLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Tom Ardito	, ( (	GA INS CHECI DATE:	SPECT (ED B) 5/29/2	OR: /: Ra	M. Boatma achel P. Ki	an, PG rkman, PG	GOLDER



#### RECORD OF BOREHOLE PZ-59D DRILL RIG: TSI CC Crawler DATE STARTED: 3/26/20 DATE COMPLETED: 3/27/20 DATE COMPLETED: 3/27/20

SHEET 1 of 2 DEPTH W.L.:7.50' ELEVATION W.L.: 378.13" DATE W.L.:4/7/2020 TIME W.L.:14:20

		-	SOIL PROFILE				S	AMPLES		
	DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	0	- - - 380	0.00 - 10.00 Hydro-vac for utility clearance Descrption 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.							WELL CASING Interval: 0' - 54' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 54' - 69'
	5	- - - 375								FILTER PACK Quantity: 5 bags
	 10  	- - - 370	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. 11.78 - 27.00 ML, sandy CLAYEY SILT, very weathered amphibolite interlayered with biotite gneiss with varying amounts of biotite precision to 52 / 42 of the some	SP		372.9 10.00 371.12 11.78				Interval: 49.7' - 52 Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 49.7' Type: Cement-Bentonite Quantity: 900lbs Cement, 60lbs Bentonite, 120gal Water
20	 15 - -	   365	relict foliation, moist, non-cohesive, very loose to dense. Saprolite				1	ROTO <u>9.00</u> SONIC 9.00		WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
PIEDMONT.GDT 8/18/	- 20 — -			ML				ROTO 8.00		
<b>KVEY UPDATED.GPJ</b>	_ 25 — _	-				355.9	2	SONIC 8.00		-
RING LOGS_SUF		— 355 —	27.00: Driller noted top of rock at 27 <sup>7</sup> 27.01 - 30.00 AMPHIBOLITE/HORNBLENDE GNEISS, quartz-plagioclase-biotite-hornblende with trace pyrite < 1mm diameter unweathered, fine to medium grained, well foliated	BR		352.9	3	ROTO <u>3.00</u> SONIC 3.00		
RER CR6 INVESTIGATION BOI	- - - 35	- 	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.	BR		30.00	4	ROTO <u>7.00</u> SONIC 9.00		
ECORD PLANT SCHE			38.00: Fracture/oxidized zone — — — — — — — — — — — — — — — — — — —	BR		<u>343.9</u> 39.00	5	ROTO <u>9.00</u> SONIC 10.00		
BOREHOLE R.	LOC DRI DRI	G SCA LLING LLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Chris Turner	( ( [	GA INS CHECI DATE:	SPECT KED BY 5/29/2	OR: /: Ra 0	S. George ichel P. Kii	, PG rkman, PG	GOLDER

#### RECORD OF BOREHOLE PZ-59D DRILL RIG: TSI CC Crawler DATE STARTED: 3/26/20 DATE COMPLETED: 3/27/20 DATE COMPLETED: 3/27/20

SHEET 2 of 2 DEPTH W.L.:7.50' ELEVATION W.L.: 378.13" DATE W.L.:4/7/2020 TIME W.L.:14:20

	7	SOIL PROFILE				S	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
40 -	 340	39.00 - 59.00 AMPHIBOLITE/HORNBLENDE GNEISS, moderate to strong foliation, pyrite-quartz-plagioclase-biotite-hornblende, greenish black with white, competent to slightly weathered. ( <i>Continued</i> ) 41.00: 41-42' Fracture/oxidized zones								WELL CASING Interval: 0' - 54' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded
45 -		44.00: 44-45" Fracture/oxidized zones				5	ROTO SONIC	<u>9.00</u> 10.00		Interval: 54' - 69' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3"
	-	46.60: fracture/oxidized zones								FILTER PACK Interval: 52' - 64' Type: #1 Sand Quantity: 5 bags
	_— 335 	48.00: 48-50' Fracture/oxidized zones								FILTER PACK SEAL Interval: 49.7' - 52
50 -		53.00: fracture/oxidized zones	BR		323.9	6	ROTO	<u>10.00</u> 10.00		Quantity: Sgal Bucket ANNULUS SEAL Interval: 0' - 49.7' Type: Cement-Bentonite Quantity: 900lbs Cement, 60lbs Bentonite, 120gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
ED.GPJ PIEDMONT.GDT 8/		<ul> <li>59.00: fracture/oxidized zones</li> <li>59.01 - 69.00</li> <li>BIOTITE GNEISS, moderate to well foliation, noticeably more competent than 49'-59' run, plagioclase-hornblende-quartz-biotite, perdominately fine-grained.</li> <li>61.50: minor oxidation staining at 61.5'</li> </ul>	BR			7	ROTO	<u>9.00</u> 10.00		
SURVEY UPDAT		66.00: 66-67' interlayers of hornblende-rich rock								
IG LOGS	_	68.00: "soft or fractured" at 68' (not recovered for verification) Boring completed at 69.00 ft			313.9					-
- 02 IIGATION BORIN	- - -								-	
9 INVES									-	•
KD PLANT SCHERER CR										
- 08 KECO	+								-	
DR DR	USCA	LE: 1 In = 5 π COMPANY: Cascade Drilling Chris Turner	( ( [	CHEC	5PECT KED BY 5/29/2	0R: /: Ra 0	S. Ge achel I	orge P. Kii	, PG kman, PG	GOLDER

#### RECORD OF BOREHOLE PZ-59S 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

SHEET 1 of 1 DEPTH W.L.:3.23' ELEVATION W.L.: 383.48' DATE W.L.:3/24/2020 TIME W.L.:14:30

		-	SOIL PROFILE				S	AMPLES		
DEPTH		ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
C			0.00 - 7.00 Hand auger for utility clearance.						Grout -	WELL CASING Interval: 0' - 14' Material: Sch 40 PVC Diameter: 2"
		380								Joint Type: Threaded WELL SCREEN Interval: 14' - 24' Material: U-Pack Screen
5						075.0			Riser –	Slot Size: 0.010" End Cap: 3" FILTER PACK
		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		375.8	1	ROTO <u>6.00</u> SONIC 2.00	Bentonite -	Type: #6 Sand Quantity: 3 bags FILTER PACK SEAL
10			8.75 - 11.75 SP, SAND, fine to medium grained, greenished grey, illite-hornblende/amphibolite-quartz, non-cohesive, wet, loose.	SP		0.75				Type: Pel-Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 7'
		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.			<u>371.05</u> 11.75			#6 Sand	Type: Cement-Bentonite Quantity: 46.2lbs Cement, 2lbs Bentonite, 10gal Water
15				ML			2	ROTO <u>6.00</u> SONIC 10.00		WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS
20		365							0.010" Slotted – – Screen –	Soil Drill: Roto Sonic Rock Drill: Roto Sonic
00001.GDT 8/18/		-	19.00 - 20.50 SP, SAND, medium to coarse grained, trace coarse gravel, greenish grey, homblende-plagioclase-quartz, non-cohesive, wet to moist, loose. 20.50 - 21.00 ML, sandy SILT, low PL, fine sand, light yellowish brown, relict	SP ML SP		363.8 19.00 362.3 361.8 21.00 360.8	3	ROTO <u>6.50</u> SONIC 5.00		
PDATED.GPJ PIE		360	foliation, quartz-plagicclase-biolte weathered to illite/biotite gneiss, non-cohesive, moist, loose. SAPROLITE. 21.00 - 22.00 SP, SAND, fine to medium grained, greenished grey, illite-hornblende/amphibolite-quartz, non-cohesive, wet, loose. 22.00 - 24.00 ML, sandy SILT, low PL, fine sand, light yellowish brown, relict foliation, quartz-placioclase-biolite weathered to illite/biotite	ML		22.00 358.8				
GS_SURVEY UI		355	gneiss, non-cohesive, moist, loose. SAPROLITE. Boring completed at 24.00 ft						-	
1 BORING LO									-	
ESTIGATION		350							-	
35 35									-	
ANT SCHER		345							-	
Ta dana 40									-	
D D T	DG S RILL RILL	SCAI _ING _ER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Jimmy Hall	( ( [	GA INS CHECI DATE:	SPECT (ED B) 5/29/2	OR: ′: Ra 0	H. Brissey achel P. Ki	, rkman, PG	GOLDER

#### RECORD OF BOREHOLE PZ-60D DRILL RIG: TSI CC Crawler DATE STARTED: 3/28/20 DATE COMPLETED: 3/29/20 DATE COMPLETED: 3/29/20

SHEET 1 of 3 DEPTH W.L.:1.3' ELEVATION W.L.: 387.78' DATE W.L.:3/30/2020 TIME W.L.:8:00

		-7	SOIL PROFILE				S	AMPLE	S			
	(ft) (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING DIAGRAM and I	WELL NOTES	WELL CONSTRUCTION DETAILS
	0 —	- 385 -	0.00 - 5.00 CL, SILTY CLAY, 25 YR 4/6 Red, deeply weathered biotite gneiss, cohesive, w>PL, moist, very soft, very fine mica flakes, residual soil	CL								WELL CASING Interval: 0' - 69.4' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded
	5	- - - 380 -	5.00 - 10.00			381.4 5.00				Grout –		WELL SCREEN Interval: 69.4' - 99.7' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 66.6' - 99.7' Type: #1 Sand Quantity: 8.5 Bags FILTER PACK SEAL
	- 10	- 375 	10.00 - 13.00 CL, SILTY CLAY, trace very fne to fine sand, 5YR 5/8 yellowish red, deeply weathered biotite gneiss, mottled, very fine mica flakes, cohesive, moist, w~PL, very soft to soft, med plasticity, residual soil 13.00 - 20.00	 CL		376.4 10.00 373.4 13.00						Type: Pel Plug Quantity: 5gal Bucket ANNULUS SEAL Interval: 0' - 66.6' Type: Cement-Bentonite Quantity: 1,050lbs Cement, 42lbs Bentonite, 140gal Water
	- 15 — -	- - 370 -	ML, CLAYEY SILT, some sand, vf to fine sand, faint relict foliation, yellowish red to red to light brown layer of hornblende gneiss, moist, cohesive, W <pl, firm<="" p="" plastic,="" slightly="" soft="" to=""></pl,>	ML			1	ROTO- SONIC .	<u>10.00</u> 10.00	Riser –		WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
D.GPJ PIEDMONT.GDT 8/18/20	- 20 — - -	  365 	20.00 - 30.00 — — — — — — — — — — — — — — — — — —			366.4 20.00						
OGS_SURVEY UPDATE	25 — - -	- 360 		ML			2	ROTO <u>.</u> SONIC <sup>-</sup>	<u>8.50</u> 10.00			
IVESTIGATION BORING L	- 30 — - -	- 355 	30.00 - 37.00			356.4 30.00						- - - -
CORD PLANT SCHERER CR6 IN		- 350  	37.00 - 40.00 Transitionally weathered rock, slightly weathered to weathered biotite gneiss	TWR		349.4 37.00 346.4	3	ROTO-	<u>10.00</u> 10.00			
SOREHOLE RE	LOC DRI DRI	S SCA LLING LLER:	Leg continued on next page LE: 1 in = 5 ft COMPANY: Cascade Drilling Chris Turner	( ( (	GA IN: CHEC DATE:	SPECT SPECT KED BY 5/29/2	OR: ': Ra 0	S. Ge achel F	orge P. Ki	, PG rkman, PG	Ç	GOLDER

#### RECORD OF BOREHOLE PZ-60D DRILL RIG: TSI CC Crawler DATE STARTED: 3/28/20 DATE COMPLETED: 3/29/20 DATE COMPLETED: 3/29/20

SHEET 2 of 3 DEPTH W.L.:1.3' ELEVATION W.L.: 387.78' DATE W.L.:3/30/2020 TIME W.L.:8:00

	7	SOIL PROFILE				s	AMPLES	3		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
40	- 345	40.00 - 45.50 Transitionally weathered rock, weathered to slightly weathered biotite gneiss at 40'-44'			40.00	05				WELL CASING Interval: 0' - 69.4' Material: Sch 40 PVC Diameter: 2"
-	-	brown quartz-plagioclase-hornblende-biotite, slightly weathered horneblende gneiss 44'-45.5', dry to moist, foliation in cobbled size	TWR			4	ROTO SONIC	<u>6.00</u> 6.00		- WELL SCREEN Interval: 69.4' - 99.7' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010"
	- 340	45.50 - 52.00 BIOTITE GNEISS interlayered with HORNBLENDE GNEISS, fine grained, well foliated, primarily biotite gneiss			340.9 45.50					End Cap: 3" <b>FILTER PACK</b> Interval: 66.6' - 99.7' Type: #1 Sand
-	-	Biotite slight oxidation zone at 46', trace <1mm-2mm red garnets throughout	BR			5	ROTO	6.00		Quantity: 8.5 Bags
50 -	- - -	Migmatitic texture at 51'-52'				5	SONIC	6.00		Type: Pel Plug Quantity: 5gal Bucket
-	- 335	52.00 - 60.50			334.4				9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	ANNULUS SEAL Interval: 0' - 66.6' Type: Cement-Bentonite Quantity: 1,050lbs Cement,
	-	BIOTITE GNEISS, well foliated, greenish black and white layers, fine grained plagioclase-quartz-hornblende-biotite								42lbs Bentonite, 140gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
- 55	- 330		BR			6	ROTO SONIC	<u>7.00</u> 8.00		DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
F 8/18/20	= - - -									-
ED.GPJ PIEDMONT.GD	- - - - - - - - - - - -	60.50 - 70.00 HORNBLENDE GNEISS, less quartz than above, fine grained, med griained biotite gneiss, greenish black and white, no fracture/oxidation observed, trace pyrite, plagioclase-quartz-hornblende-biotite			325.9 60.50			11.00	Bentonite –	
NG LOGS_SURVEY UPDAT	- - - - - - - - - - - - - - - - -		BR		216.4	7	ROTO- SONIC 1	0.00	Sand -	
	- - - - - - - -	70.00 - 80.00 BIOTITE GNEISS, fine to medium grained, greenish black to black and white, well foliated, migmatitic texture in some intervals with ptygmatic folds, plagioclase-quartz-honrblende-biotite, no oxidation zones observed			70.00					
CORD PLANT SCHERER CR6 II	- - - - - - - - - - - - - - - - - - -		BR		306.4	8	ROTO SONIC 1	0.00	0.010" Slotted – Screen	
	L G SCA ILLING ILLER:	Le: 1 in = 5 ft COMPANY: Cascade Drilling Chris Turner	( ( (	GA INS CHECI DATE:	SPECT KED B 5/29/2	OR: Y: Ra 20	S. Geo achel F	orge 9. Ki	, PG rkman, PG	GOLDER



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 DRILL RIG: TSI CC Crawler DATE STARTED: 3/31/20 DATE COMPLETED: 3/31/20 DATE COMPLETED: 3/31/20

SHEET 1 of 1 DEPTH W.L.:6.8' ELEVATION W.L.: 382.86' DATE W.L.:4/8/2020 TIME W.L.:10:25

		7	SOIL PROFILE				s	AMPLES	S		
DEPTH	(ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	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<="" td=""><td>CL</td><td></td><td>384.4</td><td></td><td></td><td></td><td>Grout -</td><td>WELL CASING Interval: 0' - 10' Material: Sch 40 PVC Diameter: 2"</td></pl,>	CL		384.4				Grout -	WELL CASING Interval: 0' - 10' Material: Sch 40 PVC Diameter: 2"
	-	-	2.00 - 4.00 CL, SILTY CLAY, 2.5 YR 4/6 red, deeply weathered biotite gneis, no structure observed, some mica flakes, very fine, cohesive, moist, plastic, w <pl, residuum<="" td=""><td>CL</td><td></td><td>2.00 382.4</td><td></td><td></td><td></td><td>Riser -</td><td>Joint Type: Theaded WELL SCREEN Interval: 10' - 20' Material: U-Pack Screen</td></pl,>	CL		2.00 382.4				Riser -	Joint Type: Theaded WELL SCREEN Interval: 10' - 20' Material: U-Pack Screen
	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<br="">5.50 - 10.00</pl,>	CL		4.00 <u>380.9</u> 5.50	1	ROTO- SONIC	<u>10.00</u> 10.00	Bontonito -	Diameter: 2" Slot Size: 0.010" End Cap: 3"
	_	- 380 -	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<="" td=""><td>ML</td><td></td><td></td><td></td><td></td><td></td><td></td><td>FILTER PACK Interval: 8' - 20' Type: #1 Sand Quantity: 3 Bags</td></pl,>	ML							FILTER PACK Interval: 8' - 20' Type: #1 Sand Quantity: 3 Bags
	-	-				376.4					FILTER PACK SEAL Interval: 5' - 8' Type: Pel Plug Quantity: 5gal Bucket
	-	- 375	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		10.00					ANNULUS SEAL Interval: 0' - 5' Type: Cement-Bentonite
	-	-	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 birth organice, par perchange to compute			373.9 12.50	_			Sand -	Utantity: 200ibs Cement, 14lbs Bentonite, 30gal Water WELL COMPLETION
	15 —	-	non-plastic, moist to wet				2	ROTO- SONIC	<u>10.00</u> 10.00		Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS
	_	- 370 -		ML							Soil Drill: Roto Sonic Rock Drill: Roto Sonic -
DT 8/18/20	-	-				366.4				0.010" Slotted – Screen	
DMONT.GE	20	- 365	Boring completed at 20.00 ft								-
.GPJ PIE	_	-								-	-
UPDATED	_ 25 —	-								_	-
SURVEY	-	- 360 -								-	
NG LOGS	_	-								-	
FION BOR	30	- 355								-	
IVESTIGA <sup>-</sup>	-	-								-	1
ER CR6 IN	- 35 —	-								_	
IT SCHER	-	- 350 -								-	-
ORD PLAN	-	-								-	1
			LE: 1 in = 5 ft	(	GA IN		OR:	S. Geo	orge	, PG	GOLDER
BORET	DRI	LER:	Chris Turner	[	DATE	: 5/29/2	20		. 111		

#### RECORD OF BOREHOLE PZ-61DRILL RIG: TSI CC Crawler<br/>DATE STARTED: 4/10/20<br/>DATE COMPLETED: 4/11/20NORTHING: 1,122,537.21<br/>EASTING: 2,408,531.43<br/>GS ELEVATION: 436.8<br/>TOC ELEVATION: 439.27 ft

SHEET 1 of 2 DEPTH W.L.:12.80' ELEVATION W.L.: 426.37' DATE W.L.:4/13/2020 TIME W.L.:14:10

		SOIL PROFILE				s	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0 —	_	0.00 - 10.00 Hydro-vac for utility clearance.							WELL CASING
_	— 435								Material: Sch 40 PVC Diameter: 2"
-	-								WELL SCREEN
	_							Cement –	Material: U-Pack Screen Diameter: 2" - Slot Size: 0.010" End Cap: 3"
_	- 430 -								FILTER PACK Interval: 37.25' - 49.45' Type: #1 Sand Quantity: 3.5 Bags
- 10	-	10.00 11.50			426.8			Riser –	FILTER PACK SEAL Interval: 33.8' - 37.25' Type: Pel Plug Quantity: 5gal Bucket
-	- 425 	CL, SILTY CLAY, yellowish red, deeply weathered biotite gneiss, slightly plastic, no structure, cohesive, moist, very soft, w~PL, <u>RESIDUUM</u>	CL		425.3 11.50	-			ANNULUS SEAL Interval: 0' - 33.8' Type: Cement-Bentonite Quantity: 900lbs Cement, 45lbs Bentonite, 120gal Water
15 —	_					1	ROTO 10.00		Pad: 4' x 4' Protective Casing: Aluminum
-	-		ML				50NIC 10.00		DRILLING METHODS Soil Drill: Roto Sonic
-	— 420 _								Rock Drill: Roto Sonic
3/18/20	_				447.0				-
20 –	-	19.50 - 20.00 SM, SILTY SAND, yellowish brown, fine to coarse sand, slightly to	SM		417.3 416.8 20.00				
PIEDMONT	- 	moderately weathered biotite gneiss, quartz rich, non-conesive,         non-plastic, wet, w <pl, compact<="" td="">         20.00 - 21.00         SM, SILTY SAND, fine to medium sand, yellowish brown, very         weathered biotite gneiss, cohesive, moist, loose to compact,</pl,>	 		<u>415.8</u> 21.00	-		-	-
D.GPJ	_	non-plastic, SAPROLITE ] 21.00 - 24.00 ML, sandy SILT, very fine to fine sand, very plae brown, dry,	<u> </u>		412.8				•
ヨロロロロ 25	-	Inon-cohesive, metagranitic, slight foliation, SAPROLITE 24.00 - 26.00 ML, SILT, weathered biotite gneiss, some relict foliation with clay lined slickenlines, moist, loose to compact, non-plastic, w <pl< p=""></pl<>	ML		410.8	2	ROTO <u>10.00</u> SONIC <sub>10.00</sub>		
- SURVE	— 410 _	ML, SILT, weathered amphibolite, olive grey, fine grained, slight to some relict foliation, moist, very stiff to hard, w <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>							
	_		ML						-
	-								
INVESTIGAT.	- 405 -	32.00 - 35.00 ML, SILT, Transitionally weathered rock, very pale brown, metagranitic, slightly foliated, medium grained, slightly weathered, dry	TWR		404.8			Bentonite – 🗰 🐖 –	-
35 – 35 –	-	35.00 - 38.00 ML, sandy CLAYEY SILT, very weathered biotite gneiss, greyish brown, well foliated, fine to medium grained, moist	 		401.8 35.00	3	ROTO <u>10.00</u> SONIC <sub>10.00</sub>	-	
PLANT SC	- 400	38.00 - 40.00			398.8 38.00	-			-
02000 40 -	-	weathered biotitie gneiss, bottom is unweathered to slightly weathered			396.8				1
	S SCA	LE: 1 in = 5 ft		GA INS	SPECT	OR:	S. George	, PG	GOLDEP
DRI	LLING LLER:	COMPANY: Cascade Drilling Chris Turner	( [	CHECI DATE:	KED BN 5/29/2	7: Ra 20	achel P. Ki	rkman, PG 🛛 💙	,



#### RECORD OF BOREHOLE PZ-62 DRILL RIG: TSI CC Crawler DATE STARTED: 4/9/20 DATE COMPLETED: 4/9/20 DATE COMPLETED: 4/9/20

SHEET 1 of 2 DEPTH W.L.:41.00' ELEVATION W.L.: 460.23' DATE W.L.:4/16/2020 TIME W.L.:14:00

		-7	SOIL PROFILE					S	AMPLES			
	н ц£	(ft)		ν.	HIC	(1)	ELEV.	E NO.	ш	0	MONITORING WELL	WELL CONSTRUCTION
	<u> </u>	ELEV	DESCRIPTION	nsc	GRAPI	ΓΟ	DEPTH	AMPLE	ТҮР	REC		DETAILS
	0 -	_	0.00 - 10.00 CL, SILTY CLAY, red, no structure, deeply weathered biotite gneiss, cohesive, soft, moist, w <pl, residuum<="" td=""><td></td><td></td><td></td><td>(ft)</td><td>S/</td><td></td><td></td><td></td><td>WELL CASING Interval: 0' - 42.25' Material: Sch 40 PVC Diameter: 2"</td></pl,>				(ft)	S/				WELL CASING Interval: 0' - 42.25' Material: Sch 40 PVC Diameter: 2"
	_	- 495 										WELL SCREEN     Interval: 42.25' - 52.25'     Material: U-Pack Screen     Diameter: 2"     Otel Sirve 0.40"
	5	_		CL							Grout – 📑 📑	Slot Size: 0.010           End Cap: 3"           FILTER PACK           Interval: 40' - 52.25'           Type: #1 Sand
	-	— 490 —					488.3				Riser –	Quantity: 3.5 Bags FILTER PACK SEAL Interval: 36.5' - 40' Type: Pel Plug Quantity: 5ral Bucket
	10 -	-	10.00 - 15.00 ML, SILT, very weathered biotite gneiss, yellowish brown, mica flakes, SAPROLITE	ML			10.00					ANNULUS SEAL Interval: 0' - 36.5' Type: Cement-Bentonite Quantity: 450lbs Cement, 30lbs Bentonite, 60gal
	- 15 —	- 485 - -	15.00 - 20.00				483.3 15.00	1	ROTO <u>{</u> SONIC 1	<u>3.00</u> 0.00		Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
0	-	-	ML, SILT to CLAYEY SILT, brown to yellowish brown, very weathered, biotite gneiss, dry to moist, loose, w <pl, relict<br="" trace="">foliation</pl,>	ML								DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
IT.GDT 8/18/2	- 20 -	480 	20.00 - 30.00				478.3 20.00					_
GPJ PIEDMON	-	- - 475	weathered with some amphibolite and trace quartz, brown, cohesive, moist, soft to firm, w <pl, saprolite<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td></pl,>									-
EY UPDATED.(	- 25 — -	-		ML				2	ROTO <u>8</u> SONIC 1	<u>3.00</u> 0.00		-
B LOGS_SURV	-	- 470										-
GATION BORING	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				468.3 30.00					-
CR6 INVESTIC		- 465 -					463.3	3	ROTO 1	0.00		-
PLANT SCHERER	-	- - - 460	33.00 - 40.00 ML, SILT and clayey SILT, weathered biotite gneiss, mica flakes, brown to greyish brown, mottled, some foliation present, SAPROLITE	ML			35.00	-	SUNIC 1	0.00	Bentonite –	-
CORD F	40 -	-		L			458.3					-
	LOG	SCA	Log continued on next page		GA	INS	SPECT(	DR: 3	S. Geo	orge	, PG	
BOREHC	DRII DRII	LLING	COMPANY: Cascade Drilling Chris Turner	( [	CHE DAT	ECł TE:	KED BY 5/29/2	′: Ra 0	chel P	. Ki	rkman, PG 🛛 💊	JULDER

RECORD OF BOREHOLE PZ-62 SHEET 2 of 2 NORTHING: 1,122,370.34 EASTING: 2,406,175.11 GS ELEVATION: 498.3 PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 52.00 ft DRILL RIG: TSI CC Crawler DATE STARTED: 4/9/20 DEPTH W.L.:41.00' ELEVATION W.L.: 460.23' DATE W.L.:4/16/2020 DATE COMPLETED: 4/9/20 LOCATION: Juliette, GA TOC ELEVATION: 501.32 ft TIME W.L.:14:00 SOIL PROFILE SAMPLES LEVATION (ft) DEPTH (ft) WELL CONSTRUCTION NO. GRAPHIC LOG ELEV. MONITORING WELL DIAGRAM and NOTES USCS ТҮРЕ SAMPLE REC DESCRIPTION DETAILS Ш DEPTH (ft) 40 40.00 40.00 - 46.00 WELL CASING 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 Interval: 0' - 42.25' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded Samd ROTO <u>7.00</u> SONIC 6.00 ML WELL SCREEN Interval: 42.25' - 52.25' 4 455 Material: U-Pack Screen Diameter: 2" Slot Size: 0.010" End Cap: 3" 45 452.3 46.00 46.00 - 50.00 FILTER PACK Interval: 40' - 52.25' Type: #1 Sand Wash out 0.010" Quantity: 3.5 Bags ROTO 0.00 SONIC 4.00 Slotted -5 450 Screen FILTER PACK SEAL Interval: 36.5' - 40' Type: Pel Plug Quantity: 5gal Bucket 448.3 50 ML, sandy SILT, very fine to fine sand, brownish grey to greyish brown, relict foliation, weathered biotite gneiss, very stiff, SAPROLITE 50.00 - 52.00 50.00 ANNULUS SEAL Interval: 0' - 36.5' Type: Cement-Bentonite Quantity: 450lbs Cement, ROTO <u>2.50</u> SONIC 2.00 ML 6 446.3 Boring completed at 52.00 ft 30lbs Bentonite, 60gal Water 445 WELL COMPLETION Pad: 4' x 4 Protective Casing: Aluminum 55 DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic 8/18/20 440 PIEDMONT.GDT 60 SURVEY UPDATED.GPJ 435 65 PLANT SCHERER CR6 INVESTIGATION BORING LOGS 430 70 425 75 420 RECORD 80 GA INSPECTOR: S. George, PG LOG SCALE: 1 in = 5 ft BOREHOLE 🕓 GOLDER CHECKED BY: Rachel P. Kirkman, PG DRILLING COMPANY: Cascade Drilling DATE: 5/29/20 DRILLER: Chris Turner

#### RECORD OF BOREHOLE PZ-63 DRILL RIG: TSI CC Crawler DATE STARTED: 4/12/20 DATE COMPLETED: 4/12/20 DATE COMPLETED: 4/12/20

SHEET 1 of 1 DEPTH W.L.:20.0' ELEVATION W.L.: 481.29' DATE W.L.:4/22/2020 TIME W.L.:15:10

		SOIL PROFILE				S	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0 -	1	0.00 - 10.00 Hydro-vac for utility clearance.				-		0.000 0.000 0000 0000 0000 0000 0000 0	WELL CASING Interval: 0' - 30'
									Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded
	+								WELL SCREEN Interval: 30' - 40'
5 -	_=- 495 							Grout –	<ul> <li>Material: U-Pack Screen Diameter: 2"</li> <li>Slot Size: 0.010" End Cap: 3"</li> </ul>
									FILTER PACK Interval: 28' - 40' Type: #1 Sand Quantity: 3.5 Bags
10 -	490				488.9			Riser –	<ul> <li>FILTER PACK SEAL</li> <li>Interval: 24.2' - 28'</li> <li>Type: Pel Plug</li> <li>Quantity: 5gal Bucket</li> </ul>
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, <br="" saprolite="">11.50 - 14.50</pl,>	SM		10.00 487.4 11.50				ANNULUS SEAL Interval: 0' - 24.2' Type: Cement-Bentonite Quantity: 750lbs Cement,
	+	ML, sandy CLAYEY SILT, fine sand, yellowish brown, very weathered biotite gneiss, no structure, moist, non-cohesive, loose, w <pl< td=""><td>ML</td><td></td><td></td><td></td><td></td><td></td><td>35lbs Bentonite, 87gal — Water</td></pl<>	ML						35lbs Bentonite, 87gal — Water
15 -	_ <del>_</del> 485	14.50 - 18.50			484.4 14.50	1	ROTO 10.00		WELL COMPLETION     Pad: 4' x 4'     Protective Casing: Aluminum
	-	CL, CLAY, white to very paie brown, non-plastic, dry, soft	CI				SONIC 10.00		DRILLING METHODS Soil Drill: Roto Sonic
	-								
5DT 8/18/20	480	18.50 - 20.00 SM, SILTY SAND, weathered biotite gneiss, greyish brown, trace relit foliation, fine grained, quartz-biotite-plagioclase, dry to moist, compact to dense. SAPROI ITE	 		480.4 18.50 478.9				-
EDMONT.G	-	20.00 - 22.00 ML, sandy CLAYEY SILT, brown, relict foliation, with clay lenses, weathered biotite gneiss, compac, moist, w <pl, saprolite<="" td=""><td>ML</td><td></td><td>476.9</td><td></td><td></td><td></td><td>-</td></pl,>	ML		476.9				-
GPJ PI	-	CL, SILTY CLAY, no structure, olive brown, cohesive, soft to firm,			475.9 23.00	2	ROTO <u>6.00</u> SONIC 6.00		-
25 -	_ <del>_</del> 475 	ML, sandy CLAYEY SILT, brown, relict foliation with clay lenses, weathered biotite gneiss, compact, moist, w <pl< td=""><td>ML</td><td></td><td>172 0</td><td></td><td></td><td>Bentonite –</td><td>-</td></pl<>	ML		172 0			Bentonite –	-
IRVEY		26.00 - 28.00 BIOTITE GNEISS unweathered, well foliated, medium to fine grained guartz-hormblende-blagioclase, dry	BR		26.00				_
rogs su	 470	28.00 - 30.00 Transitionally Weathered Rock interlayered saprolite and unweathered BIOTITIE GNEISS, well foliated, fine to medium	 BR		470.9 28.00	3	ROTO <u>4.00</u> SONIC 4.00		-
30 -	-	grained, moist, clay lenses throuhgout, moist to wet			468.9 30.00				_
IGATION		tractured throughout, puck shaped discs primarily 2" thick or less, oxidation staining throughout, quartz-hornblended-plagioclase							-
NVEST	465							Sand –	
1920 - 35 -	-		BR			4	ROTO 10.00 SONIC 10.00		_
CHERE	ł						10.00		-
ANTS	- 							0.010" Slotted –	
ORD PL	460				458.9			Screen	-
	<u>Т</u> с sсл	Boring completed at 40.00 ft				רא. שר	S George		'-1
		COMPANY: Cascade Drilling	(		(ED B)	/: Ra	achel P. Ki	rkman, PG	GOLDER
B DR	ULLER:	Unris Turner	[	JAIE:	5/29/2	U			

RECORD OF BOREHOLE PZ-64 DRILL RIG: TSI CC Crawler DATE STARTED: 4/8/20 DATE COMPLETED: 4/8/20 DATE COMPLETED: 4/8/20

SHEET 1 of 2 DEPTH W.L.:53.62' ELEVATION W.L.: 425.74' DATE W.L.:4/15/2020 TIME W.L.:17:30

		_	SOIL PROFILE				S	AMPLES		
DEPTH	(tt)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	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				WELL CASING Interval: 0' - 59' Material: Sch 40 PVC
	-	-	1.50 - 10.00 ML, CLAYEY SILT, light reddish brown to brown, deeply weathered biotite, w <pl, cohesive,<="" foliation,="" gneiss,="" relict="" some="" td=""><td></td><td></td><td>1.50</td><td></td><td></td><td></td><td>Diameter: 2" Joint Type: Threaded</td></pl,>			1.50				Diameter: 2" Joint Type: Threaded
	_	_	dry to moist, soft to firm, non-plastic							<ul> <li>WELL SCREEN</li> <li>Interval: 59' - 69'</li> <li>Material: U-Pack Screen</li> </ul>
	5 —	-					1	ROTO <u>6.00</u> SONIC 10.00	Grout –	Diameter: 2" Slot Size: 0.010" End Cap: 3"
	_	— 470 -								FILTER PACK Interval: 57' - 69' Type: #1 Sand
	-	-								Quantity: 4.5 Bags
	-	-				466			Riser –	<ul> <li>Interval: 53.3' - 57'</li> <li>Type: Pel Plug</li> <li>Quantity: 5gal Bucket</li> </ul>
	-	- 465	10.00 - 14.00 ML, SILT, brown, weathered biotite gneiss			10.00				ANNULUS SEAL Interval: 0' - 53.3'
	-	-		ML						Quantity: 600lbs Cement, 50lbs Bentonite, 80gal
	_	_	14.00 - 15.00			462		40.00		- WELL COMPLETION Pad: 4' x 4'
1	15 —	- 460	SP/SM, SAND and SILTY SAND, fine to medium sand, granitic,			461 15.00	2	ROTO 10.00 SONIC 10.00		Protective Casing: Aluminum DRILLING METHODS
	_	- 400	ML, SILT, cobble sized granitic pieces, tan, slightly foliated, plagioclase rich, soft, dry, w <pl, non-plastic<br="">17.00 - 20.00</pl,>			459 17.00				<ul> <li>Soil Drill: Roto Sonic</li> <li>Rock Drill: Roto Sonic</li> </ul>
18/20	-	-	ML/CL, interlayered SILT and CLAY lenses, brown, weathered biotite gneiss, dry to moist, cohesive, hard, w <pl, saprolite<="" td=""><td>ML</td><td></td><td></td><td></td><td></td><td></td><td>-</td></pl,>	ML						-
SDT 8/	- 20 -	-		L		456				-
MONT.0	-	- 455	SM, SILTY SAND, biotite gneiss, pale brown to bro, dry to wet, SAPROLITE			20.00				-
J PIED	_	_		SM			3	ROTO <u>6.00</u>		_
TED.GP	-	-						SUNIC 6.00		-
.NPDA	25 —	- 450		L		450				_
SURVEY	_	-	26.00 - 30.00 SM, SILTY SAND, Transitionally weathered rock, foliated, biotite rich, oxidation zones within transitionally weathered rock, medium			26.00				-
OGS_S	-	-	grained, brown, wet, SAPROLITE	TWR			4	ROTO <u>4.00</u> SONIC 4.00		-
DRING L	30 —	_		<u> </u>		446				-
TION BC	-	- 445	BIOTITE GNEISS, biotite is medium grained, oxidation, amphibolite gneiss is foliated and fine grained							-
STIGAT	_	_								-
36 INVE	-	-								-
RER CF	35 —	- 440		BR			5	SONIC 10.00		_
T SCHE	_	-								-
PLAN'	_	_								_
F F F F F F F F F F F F F F F F F F F	40 —	_	Log continued on next page			436				_
HOLE R			LE: 1 in = 5 ft COMPANY: Cascade Drilling	(			OR: ∕∙ R≤	S. George	, PG	GOLDER
BOREI	DRI	LER:	Chris Turner		DATE:	5/29/2	0			

#### RECORD OF BOREHOLE PZ-64DRILL RIG: TSI CC Crawler<br/>DATE STARTED: 4/8/20NORTHING: 1,123,724.36<br/>EASTING: 2,406,404.18<br/>GS ELEVATION: 476.0<br/>TOC ELEVATION: 479.52 ft

SHEET 2 of 2 DEPTH W.L.:53.62' ELEVATION W.L.: 425.74' DATE W.L.:4/15/2020 TIME W.L.:17:30

	7	SOIL PROFILE				S	AMPLES				
HTH (ff)	(ft)		S	HIC	ELEV.	NO.	ш	0		WELL	WELL CONSTRUCTION
	ELEV	DESCRIPTION	nsc	GRAP	DEPTH	AMPLE	ТҮР	REC	DIAGRAM and	NUTES	DETAILS
40 -	435	40.00 - 50.00 BIOTITE GNEISS, poor recovery, weathered and highly fractured			(ft) 40.00	SP					WELL CASING Interval: 0' - 59' Material: Sch 40 PVC
	+										Diameter: 2" Joint Type: Threaded
15	+						ROTO 1	.50			Interval: 59' - 69' Material: U-Pack Screen Diameter: 2" Slot Size: 0.010"
45 -	430		DK			0	SONIC 10	0.00			FILTER PACK
	† +										Type: #1 Sand Quantity: 4.5 Bags
50 -	+		L		426						Interval: 53.3' - 57' Type: Pel Plug Quantity: 5gal Bucket
	425	BIOTITE GNEISS, black with oxidation, quartz and biotite rich, weathered biotite, fine grained, foliated			50.00						ANNULUS SEAL Interval: 0' - 53.3' Type: Cement-Bentonite
	Ŧ		BR			7	ROTO <u>6</u> SONIC 6	<u>8.00</u> 8.00			Quantity: 600lbs Cement, 50lbs Bentonite, 80gal Water
55 -	+								Bentonite –	-	WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
	+ 420	56.00 - 60.00 BIOTITE GNEISS, slightly weathered to unweathered, well foliated fine grained			420 56.00					-	DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
'18/20	Ŧ		BR			8	ROTO <u>2</u> SONIC 4	2. <u>50</u> 1.00			
60 - 60 -	+	60.00 - 70.00			416 60.00				Sand –		
IEDMON	+ 415	Die The Oneloo, Ionaloa, moalan grainea, white and black									
ED.GPJ F	+										
ELECTION 65 -	410		BR			9	ROTO <u>8</u> SONIC 10	<u>8.50</u> 0.00			
SURVEY	+								0.010" Slotted – Screen		
C LOGS	+										
VIN BORIN	+ 405	Boring completed at 70.00 ft			406					<u>[]</u>	
STIGATIC	+									-	
R6 INVE	+									-	
O 75 -	400										
LANT SCI	+									-	-
CORD PI 80 -	+									-	
		LE: 1 in = 5 ft COMPANY: Cascade Drilling	. (	GA INS		└─── OR: (' R⊂	S. Geo	orge Ki	, PG rkman, PG	6	GOLDER
		Chris Turner	ĺ	DATE:	5/29/2	20				-	

#### RECORD OF BOREHOLE PZ-65 DRILL RIG: TSI CC Crawler DATE STARTED: 4/11/20 DATE COMPLETED: 4/11/20 DATE COMPLETED: 4/11/20

SHEET 1 of 1 DEPTH W.L.:15.46' ELEVATION W.L.: 416.89' DATE W.L.:4/16/2020 TIME W.L.:1515

		7	SOIL PROFILE					S	AMPLE	ES			
	(ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC	FOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WE	LL ES	WELL CONSTRUCTION DETAILS
	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						WELL CASING Interval: 0' - 20' Material: Sch 40 PVC Diameter: 2"
	5 -	- 425 	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	MI			2.00	1	ROTC	0 <u>7.00</u> 10.00	Grout –		Joint Type: Threaded WELL SCREEN Interval: 20' - 30' Material: U-Pack Screen Diameter: 2' Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 17.5" - 30' Type: #1 Sand Output: 2.5 Face
	- - 10	- 420									Riser –		FILTER PACK SEAL Interval: 14' - 17.5' Type: Pel Plug Quantity: 5gal Bucket
	-	- - 	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				<u>416.6</u> 13.00			0.50		-	ANNULUS SEAL Interval: 0' - 14' Type: Cement-Bentonite Quantity: 400lbs Cement, 24lbs Bentonite, 60gal Water WELL COMPLETION Pad: 4' x 4'
18/20	15 —	-	biotite-homblende-plagioclase, SAPROLITE	ML				2	SONIC	9.50 10.00	Bentonite –	-	Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
PIEDMONT.GDT 8/	20 -	- 410 	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 20.00				Sand –		
Y UPDATED.GPJ	25 —	- 405 	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				406.1 23.50	3	ROTO	<u>, 12.00</u> 10.00		-	
ORING LOGS_SURVE	- - 30	- - - 400	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 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 SM-ML			403.1 26.50 401.1 28.50 399.6				0.010" Slotted – Screen		
INVESTIGATION B	_	-	Boring completed at 30.00 ft									-	
T SCHERER CR6	35 — _ _	395 											
ECORD PLAN	- - 40	- 390										-	
BOREHOLE RE	LOG DRII DRII	G SCA LLING LLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Chris Turner	( [	GA I CHE DAT	INS ECF TE:	SPECT ( KED BY 5/29/2	OR: 1: Ra 0	S. Ge achel	eorge P. Ki	, PG rkman, PG	\$	GOLDER

#### RECORD OF BOREHOLE PZ-66DRILL RIG: TSI CC Crawler<br/>DATE STARTED: 4/1/20NORTHING: 1,124,664.10<br/>EASTING: 2,409,115.98<br/>GS ELEVATION: 418.4<br/>TOC ELEVATION: 421.24 ft

SHEET 1 of 2

DEPTH W.L.:31.83' ELEVATION W.L.: 389.30' DATE W.L.:4/7/2020 TIME W.L.:15:55

		-	SOIL PROFILE				S	AMPLES		
	DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	0	- - 415	0.00 - 5.00 CL, SILTY CLAY, red, deeply weatherd biotite gneiss, no structure, trace mica, cohesive, firm to stiff, dry to moist, w <pl< td=""><td>CL</td><td></td><td></td><td></td><td></td><td></td><td>WELL CASING Interval: 0' - 45' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 45' - 60' Material: U-Pack Screen Diameter: 2"</td></pl<>	CL						WELL CASING Interval: 0' - 45' Material: Sch 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 45' - 60' Material: U-Pack Screen Diameter: 2"
	5 —	- - 	5.00 - 10.00 ML, CLAYEY SILT, red, deeply weathered biotite gneiss, no structure, trace mica, cohesive, soft, dry to moist, w <pl< td=""><td></td><td></td><td>5.00</td><td>· 1</td><td>ROTO <u>8.50</u> SONIC 10.00</td><td>Cement - 2 2</td><td>Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 41.8' - 60' Type: #1 Sand Quantity: 5.5 Bags FILTER PACK SEAL Interval: 38' - 41 8'</td></pl<>			5.00	· 1	ROTO <u>8.50</u> SONIC 10.00	Cement - 2 2	Slot Size: 0.010" End Cap: 3" FILTER PACK Interval: 41.8' - 60' Type: #1 Sand Quantity: 5.5 Bags FILTER PACK SEAL Interval: 38' - 41 8'
	10	- - - 405	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< td=""><td></td><td></td><td>408.4</td><td></td><td>ROTO 6.50</td><td>- Riser - 2</td><td>ANNULUS SEAL Interval: 0' - 38' Type: Cement-Bentonite Quantity: 600lbs Cement, 46lbs Bentonite, 70gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</td></pl<>			408.4		ROTO 6.50	- Riser - 2	ANNULUS SEAL Interval: 0' - 38' Type: Cement-Bentonite Quantity: 600lbs Cement, 46lbs Bentonite, 70gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
JT.GDT 8/18/20	15 — - - 20 —	_ _ 400 		ML			2	SONIC 10.00		DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
IGS_SURVEY UPDATED.GPJ PIEDMON	- - 25 — - -	- 					3	ROTO <u>9.50</u> SONIC 10.00		
HERER CR6 INVESTIGATION BORING LO	- 30 — - - 35 —	- -  385  	30.00 - 39.00			388.4 30.00	4	ROTO 10.00 SONIC 10.00		
RECORD PLANT SCI	- - 40			SM		379.4			Bentonite	
BOREHOLE I	LOG DRI DRI	S SCA LLING LLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Chris Turner	( ( [	GA IN: CHEC DATE:	SPECT KED BY 5/29/2	0R: 1: Ra 0	S. George achel P. Ki	e, PG rkman, PG	GOLDER

**RECORD OF BOREHOLE PZ-66** SHEET 2 of 2 NORTHING: 1,124,664.10 EASTING: 2,409,115.98 GS ELEVATION: 418.4 PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 60.00 ft DRILL RIG: TSI CC Crawler DATE STARTED: 4/1/20 DEPTH W.L.:31.83' ELEVATION W.L.: 389.30' DATE W.L.:4/7/2020 DATE COMPLETED: 4/2/20 LOCATION: Juliette, GA TOC ELEVATION: 421.24 ft TIME W.L.:15:55 SOIL PROFILE SAMPLES LEVATION (ft) DEPTH (ft) WELL CONSTRUCTION NO. GRAPHIC LOG ELEV. MONITORING WELL DIAGRAM and NOTES USCS ТҮРЕ SAMPLE REC DESCRIPTION DETAILS Ш DEPTH (ft) 40 39 00 - 44 00 WELL CASING SM, SILTY SAND, gley, very dark greenish grey, very weathered hornblende gneiss, non ohesive, loose to compact, moist, to wet, SAPROLITE (*Continued*) Interval: 0' - 45' Material: Sch 40 PVC ROTO <u>4.00</u> SONIC 4.00 Diameter: 2" Joint Type: Threaded SM 5 WELL SCREEN - 375 Interval: 45' - 60' Material: U-Pack Screen 374.4 44.00 - 60.00 44.00 Diameter: 2" BIOTITE GNEISS, oxidation staining, well foliated, fine grained, greenish black to black with white foliations 44.50: Oxidation staining Slot Size: 0.010" End Cap: 3" 45 Sand -FILTER PACK Interval: 41.8' - 60' Type: #1 Sand ROTO <u>6.00</u> SONIC 6.00 6 Quantity: 5.5 Bags 370 FILTER PACK SEAL Interval: 38' - 41.8' Type: Pel Plug Quantity: 5gal Bucket 50 50.00: Oxidation staining ANNULUS SEAL Interval: 0' - 38' Type: Cement-Bentonite Quantity: 600lbs Cement, BR 46lbs Bentonite, 70gal Water - 365 WELL COMPLETION Pad: 4' x 4 ROTO <u>10.00</u> SONIC <sub>10.00</sub> Protective Casing: Aluminum 55 7 54.80: Oxidation staining 55.50: Oxidation staining DRILLING METHODS Soil Drill: Roto Sonic 0.010" Rock Drill: Roto Sonic Slotted Screen 8/18/20 58.00: Oxidation staining 360 358.4 PIEDMONT.GDT 60 60.00: Oxidation staining Boring completed at 60.00 ft SURVEY UPDATED.GPJ 355 65 PLANT SCHERER CR6 INVESTIGATION BORING LOGS 350 70 345 75 340 RECORD 80 GA INSPECTOR: S. George, PG LOG SCALE: 1 in = 5 ft BOREHOLE [ GOLDER CHECKED BY: Rachel P. Kirkman, PG DRILLING COMPANY: Cascade Drilling DATE: 5/29/20 DRILLER: Chris Turner

PR( PR( DRI LO(	DJECT DJECT LLED I CATIOI	: Plant Scherer NUMBER: 20139484 DEPTH: 266.00 ft N: Juliette, GA	= BC	REI	HOLE NOF EAS GS I TOC	E F RTHING ELEV ELEV	PZ-66D IG: 1,124,64 : 2,409,028 ATION: 42 VATION: 4	14.48 .45 4.4 27.60 ft	SHE DEP ELE DAT TIMI	EET 1 of 7 YTH W.L.:39.70 VATION W.L.: 387.90 'E W.L.:5/8/2020 E W.L.:12:15
	-7	SOIL PROFILE				s	AMPLES			
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING \ DIAGRAM and N	WELL IOTES	WELL CONSTRUCTION DETAILS
		0.00 - 6.00         Hand auger for utility clearance.         6.00 - 16.00         SM, SILTY SAND, brown dark brown and grey, some clay, loose, rich in muscovite and weathered biotite, soft dry         16.00 - 33.00         SM, SILTY SAND, tan, brown and grey, with clay, loose, weathered biotite, soft, dry, some weathered amphibolite         33.00 - 36.00         SM, SILTY SAND, grey dark brown, weathered biotite gneiss, rich in biotite-plagioclase-quartz, SAPROLITE         36.00 - 46.00         SM, SILTY SAND, greenish grey, transitionally weathered rock biotite gneiss, rich in biotite-plagioclase-quartz-homblende, soft, loose, moist	SM SM TWR		(ft) 418.4 6.00 408.4 16.00 391.4 33.00 388.4 36.00	<ul> <li>4</li> </ul>	ROTO <u>5.00</u> SONIC 10.00 SONIC 10.00 SONIC 10.00 SONIC 10.00 SONIC 10.00	Grout –		WELL CASING         Interval: 0'-69'         Material: SDR-21 PVC         Diameter: 6.25"         Joint Type: Threaded         WELL SCREEN         Interval: N/A         Biameter: N/A         Slot Size: N/A         End Cap: N/A         FILTER PACK         Interval: 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: Aluminu         DRILLING METHODS         Soil Drill: Roto Sonic         Rock Drill: Roto Sonic
40 —		Log continued on next page							131 18 <b>8</b> 81	1
LOG	SCA	LE: 1 in = 5 ft	(		SPECT	OR:	M. Boatm	an, PG		GOLDER
		COMPANY: Cascade Drilling	( Г		KED B1 5/29/2	r:Ra 20	achel P. K	irkman, PG		and the most the 1995 to 10

BOREHOLE RECORD PLANT SCHERER CR6 INVESTIGATION BORING LOGS\_SURVEY UPDATED.GPJ PIEDMONT.GDT 8/18/20

#### RECORD OF BOREHOLE PZ-66D DRILL RIG: TS 150 DATE STARTED: 4/26/20 DATE COMPLETED: 5/6/20 DATE COMPLETED: 5/6/20

SHEET 2 of 7 DEPTH W.L.:39.70 ELEVATION W.L.: 387.90 DATE W.L.:5/8/2020 TIME W.L.:12:15

		SOIL PROFILE				S	AMPLES		
DEPTH	ELEVATION	E	CSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
40		<ul> <li>36.00 - 46.00</li> <li>SM, SILTY SAND, greenish grey, transitionally weather biotite gneiss, rich in biotite-plagioclase-quartz-hornbler loose, moist (<i>Continued</i>)</li> <li>30</li> </ul>	red rock nde, soft, TWR			4	ROTO <u>10.00</u> SONIC 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
50		46.00 - 56.00 BIOTITE GNEISS, fine grained, well foliated, black, wh grey, rich in quartz-hornblende-plagioclase-biotite, very no obvious fractures	ite and hard, stiff, BR		378.4 46.00	5	ROTO <u>9.00</u> SONIC 10.00		FILTER PACK Interval: N/A Type: N/A Quantity: N/A FILTER PACK SEAL Interval: N/A Quantity: N/A Quantity: N/A ANNULUS SEAL Interval: 0'- 69' Type: Cement
55	- - - - - - - - - - - - - - - - - - -	70 56.00 - 69.00 BIOTITE GNEISS, black white grey, fine grained, well f small fractures, weathering discoloration observed at 50	 ioliated, 8'-59', rich		<u>368.4</u> 56.00				Quantity: 1504lbs Cement, 120gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
TED.GPJ PIEDMONT.GDT 8/18/20		in hornblende-plagioclase-biotite-quartz, hard, very der	BR			6	ROTO 10.00 SONIC 10.00		
IG LOGS_SURVEY UPDA		55 69.00 - 76.00			<u>355.4</u> 69.00	7	ROTO <u>3.00</u> SONIC <u>3.00</u>	Open Boring –	
26 INVESTIGATION BORIT		at 69'-70', moderately foliated, quartz-hornblende-plagioclase-biotite, hard, very dense	BR			8	ROTO <u>7.00</u> SONIC 7.00		
22 22 20RD PLANT SCHERER CF		76.00 - 86.00 BIOTITE GNEISS, black white grey, fine grained, well f rich in plagioclase-quartz-biotite, some fractures at 79 hard, very dense Some amphibolite from 79'-81' and 83'-84'	oliated, and 82', BR		348.4 76.00	9	ROTO 10.00 SONIC 10.00		
DI DI DI	DG SO RILLII RILLE	CALE: 1 in = 5 ft NG COMPANY: Cascade Drilling R: Logan Hall		GA INS CHECI DATE:	SPECT (ED B) 5/29/2	OR: (: Ra	M. Boatma achel P. Ki	n, PG rkman, PG	GOLDER

#### RECORD OF BOREHOLE PZ-66D DRILL RIG: TS 150 DATE STARTED: 4/26/20 DATE COMPLETED: 5/6/20 DATE COMPLETED: 5/6/20

SHEET 3 of 7 DEPTH W.L.:39.70 ELEVATION W.L.: 387.90 DATE W.L.:5/8/2020 TIME W.L.:12:15

	-	SOIL PROFILE				s	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
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' ( <i>Continued</i> )					ROTO 10.00		WELL CASING Interval: 0'-69' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded
- 85 -	_ 340 		ВК		338.4	9	SONIC 10.00		WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A
-		86.00 - 96.00 BIOTITE GNEISS, black white grey, moderately foliated, rich in plagioclase-biotite, some hornblende, very hard, little fractures			86.00				FILTER PACK Interval: N/A Type: N/A Quantity: N/A FILTER PACK SEAL Interval: N/A
90	- 335 - - - -		BR			10	ROTO <u>9.50</u> SONIC 10.00		Type: N/A Quantity: N/A ANNULUS SEAL Interval: 0'- 69' Type: Cement Quantity: 1504lbs Cement, 120gal Water
- 95 — -	- 330 	96.00 - 106.00			<u>328.4</u> 96.00				WELL COMPLETION         Pad: 4' × 4'         Protective Casing: Aluminum         DRILLING METHODS         Soil Drill: Roto Sonic         Rock Drill: Roto Sonic
PIEDMONT.GDT 8/18/20	- - 	BIO ITTLE GREISS 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			11	ROTO <u>10.00</u> SONIC 10.00	Open Boring 6" Diameter	-
	- 320 -				318.4				-
	- - - - - - - - - - - - - - - - - - -	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		106.00	12	ROTO <u>10.00</u> SONIC <sub>10.00</sub>		
	310	116 00 - 126 00			308.4				-
CORD PLANT SCHE	- 305	AMPHIBOLITE/HORNBLENDE 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			13	ROTO <u>9.60</u> SONIC 10.00		
LOC DRI DRI DRI	G SCA LLING LLER:	Log continued on next page LE: 1 in = 5 ft COMPANY: Cascade Drilling Logan Hall	( ( 	GA INS CHECI DATE:	SPECT KED BY 5/29/2	OR: /: Ra 20	M. Boatma achel P. Ki	an, PG irkman, PG	GOLDER

#### RECORD OF BOREHOLE PZ-66D DRILL RIG: TS 150 DATE STARTED: 4/26/20 DATE COMPLETED: 5/6/20 DATE COMPLETED: 5/6/20

SHEET 4 of 7 DEPTH W.L.:39.70 ELEVATION W.L.: 387.90 DATE W.L.:5/8/2020 TIME W.L.:12:15

		SOIL PROFILE				S	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
120 —	-	116.00 - 126.00 AMPHIBOLITE/HORNBLENDE 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' ( <i>Continued</i> )	BR			13	ROTO	<u>9.60</u>		WELL CASING Interval: 0'-69' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded WELL SCREEN
- 125 —	- 300 -				298.4			10.00	-	Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A
	- - - 295	126.00 - 136.00 AMPHIBOLITE/HORNBLENDE 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'			126.00					FILTER PACK Interval: N/A Type: N/A Quantity: N/A FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A
-	- - - - 290		BR			14	ROTO SONIC	<u>8.50</u> 10.00	-	ANNULUS SEAL Interval: 0'- 69' Type: Cement Quantity: 1504/bs Cement, 120gal Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
135 —		136.00 - 146.00			<u>288.4</u> 136.00				- - - - - - - - - - - - - - - - - - -	DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
	285  		BR			15	ROTO SONIC	<u>9.50</u> 10.00	Open Boring 6" Diameter	
	- 280 	146.00 - 156.00			278.4					
150 —	- 275 	HORNBLENDE/BIOTITE GNEISS, guartz, well foliated, slightly jointed, fresh to moderately weathered, rock becoming more felsic than mafic Fractures 146.6', 147.5', 148.5' 152'	BR			16	ROTO- SONIC	<u>10.00</u> 10.00		
155 —	- 270 -				268.4					
	- - 265	106.00 - 166.00 HORNBLENDE/BIOTITE GNEISS, guartz, 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		156.00	17	ROTO SONIC	<u>9.75</u> 10.00		
LOG DRI DRI	G SCA LLING LLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Logan Hall	· (	GA INS CHECI DATE:	SPECT (ED B) 5/29/2	OR: (: Ra 0	M. Bo achel I	atma P. Ki	an, PG rkman, PG	GOLDER

#### RECORD OF BOREHOLE PZ-66D DRILL RIG: TS 150 DATE STARTED: 4/26/20 DATE COMPLETED: 5/6/20 DATE COMPLETED: 5/6/20

#### SHEET 5 of 7 DEPTH W.L.:39.70 ELEVATION W.L.: 387.90 DATE W.L.:5/8/2020 TIME W.L.:12:15

		-	SOIL PROFILE				s	AMPLES		
DEPTH	(ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTE	WELL CONSTRUCTION S DETAILS
16	50 — - - - 55 —	_ - - - 260 -	156.00 - 166.00 HORNBLENDE/BIOTITE GNEISS, guartz, 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' ( <i>Continued</i> )	BR		258.4	17	ROTO <u>9.7</u> SONIC <sup>10.0</sup>	50	WELL CASING     Interval: 0'-69'     Material: SDR-21 PVC     Diameter: 6.25"     Joint Type: Threaded      WELL SCREEN     Interval: N/A     Diameter: N/A     Slot Size: N/A     End Cap: N/A
17	70	-	166.00 - 186.00 BIOTITE/HORNBLENDE GNEISS, fine to medium grained, fresh to slightly weathered, well foliated, poorly jointed			166.00	18	ROTO <u>10.0</u> SONIC <sub>10.0</sub>	<u>10</u> 0	<ul> <li>FILTER PACK         <ul> <li>Interval: N/A</li> <li>Type: N/A</li> <li>Quantity: N/A</li> </ul> </li> <li>FILTER PACK SEAL         <ul> <li>Interval: N/A</li> <li>Type: N/A</li> <li>Quantity: N/A</li> </ul> </li> <li>ANNULUS SEAL         <ul> <li>Interval: 0- 69'</li> <li>Type: Cement</li> <li>Quantity: 1504/bs Cement, 120gal Water</li> <li>WELL COMPLETION             <ul> <li>Pad: 4' x 4'</li> <li>Protective Casing: Aluminum</li> <li>DRILLING METHODS</li> <li>Soil Drill: Roto Sonic</li> </ul> </li> </ul></li></ul>
JPDATED.GPJ PIEDMONT.GDT 8/18/20		- - 245 - - - - - - 240 -		ВК		228.4	19	ROTO <u>10.0</u> SONIC <sub>10.0</sub>	Open Boring _ 6" Diameter <sup>_</sup> 0	Rock Drill: Roto Sonic  Roto Sonic  Roto
ER CR6 INVESTIGATION BORING LOGS_SURVEY U		- 235 - 235 	186.00 - 198.75 BIOTITE GNIESS, feldspar, quartz, biotite, black to light grey, fresh to moderately weathered, fine to medium grained, feldspar has weathered out, Fractures 194', 197.45'	BR		238.4 186.00	20	ROTO 10.0 SONIC 10.0	<u>10</u> 0	
HOLE RECORD PLANT SCHER	- - - - - - - - - - - - - - - - - - -	- - - 225 G SCA	Leg continued on next page LE: 1 in = 5 ft COMPANY: Cascade Drilling	BR (	GAINS	225.65 198.75 SPECT( KED B)	21 OR: /: Ra	ROTO <u>9.0</u> SONIC 10.0 M. Boatr achel P. I	nan, PG Kirkman, PG	GOLDER
BOR	DRII	LLER:	Logan Hall	[	DATE:	5/29/2	0			

#### RECORD OF BOREHOLE PZ-66D DRILL RIG: TS 150 DATE STARTED: 4/26/20 DATE COMPLETED: 5/6/20 DATE COMPLETED: 5/6/20

SHEET 6 of 7 DEPTH W.L.:39.70 ELEVATION W.L.: 387.90 DATE W.L.:5/8/2020 TIME W.L.:12:15

	_	SOIL PROFILE				s	AMPLES			
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING DIAGRAM and	WELL NOTES	WELL CONSTRUCTION DETAILS
200 -	- - - - - - - - - - - - - - - - - - -	198.75 - 206.00 AMPHIBOLITE/ BIOTITE GNEISS, fine grained, weakly foliated, poorly jointed ( <i>Continued</i> )	BR			21	ROTO <u>9.00</u> SONIC <sup>10.0</sup>	0		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 Stat Sira: N/A
205 -	- - - - - - - - - 215 - -	206.00 - 216.00 HORNBLENDE/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'	=		218.4 206.00	22	ROTO 10.0	 0	-	FiltER PACK Interval: N/A Type: N/A Quantity: N/A FiltER PACK Quantity: N/A FiltER PACK SEAL Interval: N/A Type: N/A Quantity: N/A ANNULUS SEAL Interval: 0, 691
215 -	- - - - - - - - - - - - - - - - - - -	216.00 - 236.00			<u>208.4</u> 216.00		10.0	D 		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
PIEDMONI.GDI 8/18/20	- - - - - - - - - - - - - - - - - - -	locally contained quartz, well foliated well jointed,				23	ROTO <u>8.7</u> SONIC 10.0	Open Boring _ 6" Diameter		
	- - - - - - - - - -		BR					_		-
	- - - - - - - - - - - - - - - - - - -					24	ROTO <u>10.0</u> SONIC <sub>10.0</sub>	<u>o</u> p		- - - -
JRD PLANI SCHEKEK CK0 =	190 	236.00 - 246.00 HORNBLENDE/BIOTITE GNEISS, fresh to slightly weathered, locally contained quartz, well foliated well jointed, gneiss becoming more migmatite, locally contains ptygmatic folds starting at 241'	BR		188.4 236.00	25	ROTO <u>9.00</u> SONIC 10.0	0		
240 - LO DR DR DR	G SCA	Log continued on next page LE: 1 in = 5 ft COMPANY: Cascade Drilling Logan Hall		GA INS CHECI DATE:	SPECT KED BY 5/29/2	OR: (: Ra	M. Boatn achel P. ł	 nan, PG (irkman, PG	ı II_	GOLDER

#### RECORD OF BOREHOLE PZ-66D DRILL RIG: TS 150 DATE STARTED: 4/26/20 DATE COMPLETED: 5/6/20 DATE COMPLETED: 5/6/20

SHEET 7 of 7 DEPTH W.L.:39.70 ELEVATION W.L.: 387.90 DATE W.L.:5/8/2020 TIME W.L.:12:15

	7	SOIL PROFILE				s	AMPLES		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	AMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
240 -		236.00 - 246.00 HORNBLENDE/BIOTITE GNEISS, fresh to slightly weathered, locally contained quartz, well foliated well jointed, gneiss becoming more migmatite, locally contains ptygmatic folds starting at 241' ( <i>Continued</i> )	BR		178.4	0 25	ROTO <u>9.00</u> SONIC 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
250 -		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		246.00	26	ROTO 10.00 SONIC 10.00	Open Boring 6" Diameter 	FILTER PACK Interval: N/A Yupe: 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
255 - 260 -	- - - - - - - - - - - - - - - - - - -	256.00 - 266.00 HORNBLENDE/BIOTITE GNEISS, fresh to slightly weathered, locally contained quartz, well foliated well jointed Fracture 257'	BR		168.4 256.00	27	ROTO <u>7.00</u> SONIC 10.00		DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
VESTIGATION BORING LOGS_SURVEY	- - - - - - - - - - - - - - - - - - -	Boring completed at 266.00 ft						- - - - - - - - - - - - -	
- 522 PLANT SCHERER CR6 IN - 987 - 988 - 9	- 150 								
LO DR DR DR	G SCA ILLING ILLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Logan Hall		GA INS CHECI DATE:	SPECT (ED B) 5/29/2	0R: /: Ra 0	M. Boatma achel P. Ki	an, PG rkman, PG	GOLDER

#### RECORD OF BOREHOLE PZ-67 DRILL RIG: TSI CC Crawler DATE STARTED: 4/1/20 DATE COMPLETED: 4/1/20 DATE COMPLETED: 4/1/20

SHEET 1 of 1 DEPTH W.L.:25.5' ELEVATION W.L.: 400.36' DATE W.L.:4/14/2020 TIME W.L.:11:30

	7	SOIL PROFILE				S	AMPLES		
(ff)	(ft)		S	₽,	ELEV.	Ň	шо	MONITORING WELL	WELL CONSTRUCTION
DE	ELEV	DESCRIPTION	nsc	GRAPH	DEPTH	AMPLE	REO		DETAILS
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			(ft)	/S			WELL CASING Interval: 0' - 29.75' Material: Sch 40 PVC Diameter: 2"
	- 420 								Joint Type: Threaded WELL SCREEN Interval: 29.75' - 39.75' Material: U-Pack Screen Diameter: 2" Set Size: 0.010"
5 -			CL					Grout - IX	Filt Size. 0:010           End Cap: 3"           FILTER PACK           Interval: 27.75' - 39.75'           Type: #1 Sand           Oversities 2.35 E Dece
10 -	- 415 				413.2				FILTER PACK SEAL Interval: 24.5' - 27.5' Type: Pel Plug Quantity: 5gal Bucket
	-	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<br="">to firm, moist, RESIDUUM</pi,>	ML		410.2			Riser –	ANNULUS SEAL Interval: 0' - 24.5' Type: Cement - Bentonite Quantity: 600lbs Cement, 40lbs Bentonite, 80gal
15 -		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<="" td="">         15.00       - 24.00</pl,>			408.2 15.00	- - 1	ROTO <u>7.00</u> SONIC 10.00		Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
0		ML, CLAYEY SILT, trace relict foliation, very weathered biotite gneiss, non-cohesive, loose, moist, w <pl, 20-24'<br="" most="" to="" wet="">RESIDUUM</pl,>							DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
- 05 8/18/2			ML						-
.GPJ PIEDMONT	  400				399.2				
25 - 25 - 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<="" td=""><td></td><td></td><td>24.00</td><td>2</td><td>ROTO <u>10.00</u> SONIC <sub>10.00</sub></td><td>Bentonite -</td><td></td></pl,>			24.00	2	ROTO <u>10.00</u> SONIC <sub>10.00</sub>	Bentonite -	
NG LOGS_SUF	- 		IVIL		393.2				-
IGATION BOR		30.00 - 38.00			30.00			Sand -	
HERER CR6 INVEST			ML			3	ROTO <u>10.00</u> SONIC <sub>10.00</sub>	0.010" Slotted –	
- 05	 385 	38.00 - 40.00 Transitionally weathered rock, saprolitic rock, BIOTITE GNEISS, interlayered with saprolite very weathered, slightly foliated	TWR		385.2 38.00 2 38.00 38.3.2 383.2	_			
DL LC	G SCA RILLING RILLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Chris Turner	, ( [	GA II CHE DATI	NSPECT CKED B E: 5/29/	OR: Y: Ra 20	S. George achel P. Ki	e, PG rkman, PG	GOLDER

# RECORD OF BOREHOLE PZ-67D DRILL RIG: TS 150 DATE STARTED: 4/15/20 DATE COMPLETED: 4/25/20 DATE COMPLETED: 4/25/20

SHEET 1 of 8 DEPTH W.L.:40.32 ELEVATION W.L.: 388.16 DATE W.L.:5/6/2020 TIME W.L.:10:24

		_	SOIL PROFILE				5	SAMPLES		
	DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC	DEPTH	AMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	0	_	0.00 - 6.00 SM, SILTY SAND with trace clay, low to non plastic, non-cohesive, w <pl, content<="" high="" loose="" mica="" soft,="" td=""><td></td><td></td><td></td><td>0</td><td></td><td></td><td>WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded</td></pl,>				0			WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded
	- - 5	- - 420		SM			1	ROTO <u>2.20</u> SONIC 6.00	Grout	WELL SCREEN Interval: N/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A
	-	-	6.00 - 16.00			6.00				FILTER PACK Interval: N/A Type: N/A Quantity: N/A FILTER PACK SEAL Interval: N/A
	10 — - -	415  -		ML			2	ROTO <u>5.25</u> SONIC 10.00		Type: N/A Quantity: N/A ANNULUS SEAL Interval: 0' - 83' Type: Cement-Bentonite Quantity: 1200lbs Cement, 45lbs Bentonite, 90gal Water
	- 15 — -	- 410 	16.00 - 26.00			408.7				WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Soil Drill: Roto Sonic
8/18/20	-	_	ML, SILT, with trace sand and clay, red brown, non to low plasticity, dry to moist, loose, w <pl, content,<br="" high="" mica="">RESIDUUM</pl,>			10.00				Rock Drill: Roto Sonic
SPJ PIEDMONT.GDT	20	405  		ML			3	ROTO <u>5.00</u> SONIC 10.00		-
Y UPDATED.G	- 25	- 400 				398.7				-
_OGS_SURVE	-	-	ML, SILT, with trace sand and clay, red brown to bronze, non to low plasticity, dry to moist, loose, w <pl, content,<br="" high="" mica="">RESIDUUM</pl,>	ML		26.00				
STIGATION BORING I		395  	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		395.2 29.50	4	ROTO <u>9.50</u> SONIC 10.00		-
ERER CR6 INVE	- 35 — _	- 390 	- 36.00 /2.00			388.7				-
RD PLANT SCHE	-	-	CL, CLAY, some very fine sand, low plasticity, dark green, wet to moist, very soft, w <pl< td=""><td>CL</td><td></td><td>30.00</td><td>5</td><td>ROTO <u>9.20</u> SONIC 10.00</td><td></td><td>-</td></pl<>	CL		30.00	5	ROTO <u>9.20</u> SONIC 10.00		-
RECO	40	- 385	Log continued on next page		¥////.	·//				
BOREHOLE	LOC DRI DRI	B SCA LLING LLER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Logan Hall	( ( 	ga in Cheo Date	NSPEC1 CKED B E: 5/29/	OR: Y: R 20	M. Boatma achel P. Ki	an, PG rkman, PG	GOLDER

# RECORD OF BOREHOLE PZ-67D DRILL RIG: TS 150 DATE STARTED: 4/15/20 DATE COMPLETED: 4/25/20 DATE COMPLETED: 4/25/20

SHEET 2 of 8 DEPTH W.L.:40.32 ELEVATION W.L.: 388.16 DATE W.L.:5/6/2020 TIME W.L.:10:24

		7	SOIL PROFILE				s	AMPLES		
DEPTH	(H)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
40	ו- כ  -  -	-	36.00 - 42.00 CL, CLAY, some very fine sand, low plasticity, dark green, wet to moist, very soft, w <pl (<i="">Continued)</pl>	CL		292.7				WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25"
	-	_	42.00 - 44.00 SM, SILTY SAND, with trace gravel, medium green to brown green non-plastic, w <pl, compact="" dense<="" td="" to=""><td>— — - SM</td><td></td><td>42.00</td><td>5</td><td>ROTO <u>9.20</u> SONIC 10.00</td><td></td><td>Joint Type: Threaded WELL SCREEN Interval: N/A</td></pl,>	— — - SM		42.00	5	ROTO <u>9.20</u> SONIC 10.00		Joint Type: Threaded WELL SCREEN Interval: N/A
45	- 5 [	- 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, low<br="" non="" to="">plasticity. loose-compact, biotife oneiss</pl,>	 SM		44.00	-			Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A
		-	46.00 - 49.00 CL, CLAY, with sand and trace gravel, medium green to dark green, moist to dry, w <pl, compact,="" non-cohesive,="" residuum<="" td=""><td>CL</td><td></td><td>46.00</td><td></td><td></td><td></td><td>FILTER PACK Interval: N/A Type: N/A Quantity: N/A</td></pl,>	CL		46.00				FILTER PACK Interval: N/A Type: N/A Quantity: N/A
50	- - 	- 375	49.00 - 53.50 ML, SILT, with trace fine gravel, light green, low plasticity, loose,			<u>375.7</u> 49.00	-			FILTER PACK SEAL Interval: N/A Type: N/A Quantity: N/A
	-	-	ury, w~r L,	ML			6	ROTO <u>9.50</u> SONIC 10.00		ANNULUS SEAL Interval: 0' - 83' Type: Cement-Bentonite Quantity: 1200lbs Cement, 45lbs Bentonite 90gal
54		- - - 370	53.50 - 56.00 SM, SILTY SAND, trace clay, fine to medium sand, low plasticity, dry to moist, w <pl, compact,="" residuum<="" td=""><td> </td><td></td><td>371.2 53.50</td><td>-</td><td></td><td></td><td>Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</td></pl,>	 		371.2 53.50	-			Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
0		-	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			368.7 56.00				DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
0NT.GDT 8/18/2	  - 	- 365 -	59.50: Fracture 59.80 - 61.10 large vein quartz zone	BR		363.6	7	ROTO <u>9.60</u>		-
.GPJ PIEDMC	-	-	61.40: Fracture					SUNIC 10.00		-
UPDATED	5-	- 360				358.7			6 1/4" Casing	
s_survey		-	66.00 - 76.00 AMPHIBOLITE,,white to green, medium grained, fresh to slightly weathered			66.00				
SORING LOGS	- - 	- 355	68.60: Fracture					10.00		-
ESTIGATION E		-		BR			8	SONIC 10.00		-
ZER CR6 INVI	5-1	- 350 -	75.00: Fracture			348.7				-
LANT SCHEF		-	76.00 - 86.00	BR		76.00	9	ROTO <u>7.00</u> SONIC 7.00		
B B B B B B B B B B B B B B B B B B B	- 	- 345	Log continued on next page			•				-
D D T	OG RIL RIL	SCAI	LE: 1 in = 5 ft COMPANY: Cascade Drilling Logan Hall	( ( [	GA IN CHEC DATE	SPECT KED B : 5/29/2	OR: Y: Ra 20	M. Boatm achel P. K	an, PG irkman, PG	GOLDER

#### RECORD OF BOREHOLE PZ-67D DRILL RIG: TS 150 DATE STARTED: 4/15/20 DATE COMPLETED: 4/25/20 DATE COMPLET

SHEET 3 of 8 DEPTH W.L.:40.32 ELEVATION W.L.: 388.16 DATE W.L.:5/6/2020 TIME W.L.:10:24

		7	SOIL PROFILE	SAMPLES						
DEPTH	(tt)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
5	30 — — — 35 —	   340	76.00 - 86.00 AMPHIBOLITE, fresh rock, medium grained, white to green ( <i>Continued</i> ) 81.90: Fracture 84.70: Fracture	BR			9 10	ROTO <u>7.00</u> SONIC 7.00 ROTO <u>3.00</u> SONIC <u>3.00</u>		WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded WELL SCREEN Interval: N/A Diameter: N/A Diameter: N/A Stot Size: N/A
S	- - - 90 -	- - - - 335 - -	86.00 - 96.00 AMPHIBOLITE, fresh rock, medium grained, white to green, pyrite throughout	BR		338.7 86.00	11	ROTO <u>7.00</u> SONIC 10.00		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
9	95 —	- 330  	92.00: Rock becomes more gneissic 92.01: Fracture 94.20: Fracture 95.50: Fracture 96.00 - 106.00 AMPHIBOLITE, fresh rock, medium grained, white to green, pyrite throughout			<u>328.7</u> 96.00				AGIDS Bentonite, 90gal     Water      WELL COMPLETION     Pad: 4' x 4'     Protective Casing: Aluminum     DRILLING METHODS     Soil Drill: Roto Sonic     Rock Drill: Roto Sonic
ED.GPJ PIEDMONT.GDT 8/18/2	_ 00   	- 325 - - -	98.20: Fracture	BR			12	ROTO <u>10.00</u> SONIC <sub>10.00</sub>		
ESTIGATION BORING LOGS_SURVEY UPDAT		- 320 - - - - - 315 - - -	106.00 - 166.00 AMPHIBOLITE, black to white to dark green, fine to medium grained, poorly jointed, weakly foliated, fresh to slightly weathered 106.80: Fracture			<u>318.7</u> 106.00	13	ROTO 10.00 SONIC 10.00		
E RECORD PLANT SCHERER CR6 INVE		- 310 	Log continued on next page				14	ROTO <u>9.40</u> SONIC 10.00		
BOREHOLE	LOG SCALE.     FILE - 5 II.     GA INSPECTOR: M. Boatman, PG     S GOLDER       DRILLING COMPANY:     Cascade Drilling     CHECKED BY: Rachel P. Kirkman, PG     S GOLDER       DRILLER:     Logan Hall     DATE: 5/29/20     S GOLDER									

#### RECORD OF BOREHOLE PZ-67D DRILL RIG: TS 150 DATE STARTED: 4/15/20 DATE COMPLETED: 4/25/20 DATE COMPLET

SHEET 4 of 8 DEPTH W.L.:40.32 ELEVATION W.L.: 388.16 DATE W.L.:5/6/2020 TIME W.L.:10:24

		-7	SOIL PROFILE				s	AMPLES				
	EPTH (ft)	/ATION (ft)		ې بې	UHC DHC	ELEV.	NO.	ш,				WELL CONSTRUCTION
	DE	ELEV	DESCRIPTION	nsc	GRAP	DEPTH	AMPLE	T T		DIAGRAM and NOTES		DETAILS
	120 — - - 125 —	- - - - - - - - 300	106.00 - 166.00 AMPHIBOLITE, black to white to dark green, fine to medium grained, poorly jointed, weakly foliated, fresh to slightly weathered (Continued)			(11)	<u></u> 14	ROTO <u>9</u> SONIC 10	40 00		-	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
	- - 130 — - - 135 —	- - 295 - - - - - - - - - - - 290					15	ROTO <u>8</u> SONIC 10	50 00 00 00 00 00 00 00 00 00 00 00 00 0			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
JPDATED.GPJ PIEDMONT.GDT 8/18/20	- - 140 — - - - 145 —			BR			16	ROTO <u>8</u> SONIC 10	80 00			DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
RD PLANT SCHERER CR6 INVESTIGATION BORING LOGS_SURVEY	- - - 150 — - - 155 — - - - - - - - - - - - - - - - - - - -	- 275   270      	157.00: Fracture				17	ROTO 10 SONIC 10 ROTO 10 SONIC 10	.00 00			
RECOF	160 —	- 265	Log continued on next page									
IOLE	LOG	SCA	LE: 1 in = 5 ft			SPECT	OR:	M. Boat	man, PG			GOLDER
OREH	DRI	LLING	Logan Hall		DATE <sup>.</sup>	5/29/2	r:Ra 20	achel P.	rirkman, PG			
ы Ш	DATE. 9/29/20											

# RECORD OF BOREHOLE PZ-67D DRILL RIG: TS 150 DATE STARTED: 4/15/20 DATE COMPLETED: 4/25/20 DATE COMPLETED: 4/25/20

SHEET 5 of 8 DEPTH W.L.:40.32 ELEVATION W.L.: 388.16 DATE W.L.:5/6/2020 TIME W.L.:10:24

		SOIL PROFILE			S	AMPLES			
DEPTH (ft)	ELEVATION (ff)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
160 - - 165		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		2587	18	ROTO 10.00 SONIC 10.00		WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded WELL SCREEN Interval: IV/A Material: N/A Diameter: N/A Slot Size: N/A End Cap: N/A
- - - 170 - - - - - - - - - - - - - - - - - -	- - - - - - - - - - - - - - - - - - -	100.0.       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         171.20:       Fracture         172.20:       Fracture	BR		248.7	19	ROTO 10.00 SONIC 10.00		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: 1200bs Cement, 451bs 2100bs Cement, 451bs 200bs Cement, 451bs 201bs 200bs Cement, 451bs 201bs 201bs 201bs Water WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum DRILLING METHODS Sail Drill: Pato Sonic
UPDATED.GPJ PIEDMONT.GDT 8/18/20 	- - - - - - - - - - - - - - - - - - -	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 180.10: Fracture	BR		238.7	20	ROTO <u>8.50</u> SONIC 10.00	Open Boring 6" Diameter 	Rock Drill: Roto Sonic
D PLANT SCHERER CR6 INVESTIGATION BORING LOGS_SURVEY	- 235 - 235 	186.00 - 196.00         AMPHIBOLITE/HORNBLENDE GNEISS, fine to moderately grained, moderately to well foliated, poorly jointed, fresh to slightly weathered, locally contains pyrite and vein quartz.         187.00: Fracture         189.25: Fracture         189.50: Fracture         191.10: Fracture         194.00: Fracture         196.00 - 226.00         AMPHIBOLITE/HORNBLENDE GNEISS, fine to medium grained, fresh to slightly weathered, moderately foliated	BR BR		<u>228.7</u> 196.00	21	ROTO <u>8.80</u> SONIC 10.00 ROTO <u>9.50</u> SONIC 10.00		
200 – 200 – 200 – 200 – LOC DRI DRI	G SCA	Log continued on next page LE: 1 in = 5 ft COMPANY: Cascade Drilling Logan Hall		GA IN CHEC DATE	SPECT KED BY 5/29/2	OR: (: Ra	M. Boatma achel P. Ki	an, PG rkman, PG	GOLDER

#### RECORD OF BOREHOLE PZ-67D DRILL RIG: TS 150 DATE STARTED: 4/15/20 DATE COMPLETED: 4/25/20 DATE COMPLETED: 4/25/20

SHEET 6 of 8 DEPTH W.L.:40.32 ELEVATION W.L.: 388.16 DATE W.L.:5/6/2020 TIME W.L.:10:24

		-	SOIL PROFILE				S	AMPLES			
	DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	AMPLE NO.	TYPE REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
	200	- - - - - 220 -	196.00 - 226.00 AMPHIBOLITE/HORNBLENDE GNEISS, fine to medium grained, fresh to slightly weathered, moderately foliated ( <i>Continued</i> )			(17)	22	ROTO <u>9.50</u> SONIC <sup>10.00</sup>		WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25'' Joint Type: Threaded WELL SCREEN Interval: N/A Diameter: N/A Diameter: N/A Slot Size: N/A End Cap: N/A	
	- 210 — - 215 —	- - - 215 - - - - - - - - - 210		BR			23	3 ROTO <u>10.00</u> SONIC <sub>10.00</sub>		FILTER PACK Interval: N/A Ype: N/A Quantity: N/A FILTER PACK SEAL Interval: N/A Quantity: 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	
PDATED.GPJ PIEDMONT.GDT 8/18/20	- - 220 - - 225	- - - 205 - - - - - - - - - - 200	215.85: Fracture				24	ROTO <u>10.00</u> SONIC <sub>10.00</sub>	Open Boring 6" Diameter 	Soil Drill: Roto Sonic Rock Drill: Roto Sonic	
R CR6 INVESTIGATION BORING LOGS_SURVEY UF	 230 —  235 —	- , - , - 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	25	ROTO <u>10.00</u> SONIC <sub>10.00</sub>			
BOREHOLE RECORD PLANT SCHERE.	- - 240 – LOG DRI DRI	- - - - 185 SCAI LLING LLER:	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 Log continued on next page LE: 1 in = 5 ft COMPANY: Cascade Drilling Logan Hall	BR (	GA INSCHECT	188.7 236.00 SPECTO KED BY 5/29/2	26 OR: 1: Ra	ROTO <u>9.70</u> SONIC 10.00 M. Boatma achel P. Ki	an, PG rkman, PG	GOLDER	

#### RECORD OF BOREHOLE PZ-67D DRILL RIG: TS 150 DATE STARTED: 4/15/20 DATE COMPLETED: 4/25/20 DATE COMPLET

SHEET 7 of 8 DEPTH W.L.:40.32 ELEVATION W.L.: 388.16 DATE W.L.:5/6/2020 TIME W.L.:10:24

	7	SOIL PROFILE				s	SAMPLES				
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL DIAGRAM and NOTES		WELL CONSTRUCTION DETAILS
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> ) 244.40: Fracture	BR			26	ROTO SONIC	<u>9.70</u> 10.00			WELL CASING Interval: 0' - 83' Material: SDR-21 PVC Diameter: 6.25" Joint Type: Threaded WELL SCREEN Interval: N/A Diameter: N/A Slot Size: N/A
250 -	      	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 252.70: Fracture			178.7 246.00	27	ROTO SONIC	<u>9.60</u> 10.00		-	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' Potentiae Casing Aluminum
255 · 07/8		256.00: Fracture 258.10: Fracture									Protective Casing: Aluminum     DRILLING METHODS     Soil Drill: Roto Sonic     Rock Drill: Roto Sonic
TED.GPJ PIEDMONT.GDT 8/16	- 165 - 165 		BR			28	ROTO- SONIC	<u>10.00</u> 10.00	Open Boring _ 6" Diameter		-
RD PLANT SCHERER CR6 INVESTIGATION BORING LOGS_SURVEY UPDAT		265.80: Fracture 267.30: Fracture 273.90: Fracture	BR		<u>148.7</u> 276.00	29	ROTO- SONIC	<u>10.00</u> 10.00 <u>10.00</u> 10.00			
LO BOKEHOLE KECCI	G SCA	Log continued on next page LE: 1 in = 5 ft COMPANY: Cascade Drilling Logan Hall		GA INS CHECI DATE:	SPECT KED B 5/29/2	OR: Y: R: 20	M. Bo achel I	atma P. Ki	an, PG rkman, PG	[]. (	GOLDER


PROJECT: Plant Scherer PROJECT NUMBER: 20139484 DRILLED DEPTH: 20.00 ft LOCATION: Juliette, GA

# RECORD OF BOREHOLE PZ-68 DRILL RIG: TSI CC Crawler DATE STARTED: 4/15/20 DATE COMPLETED: 4/15/20 DATE COMPLETED: 4/15/20

SHEET 1 of 1

DEPTH W.L.:14.0' ELEVATION W.L.: 381.40' DATE W.L.:4/17/2020 TIME W.L.:16:00

		7	SOIL PROFILE				S	AMPLE	S		
DEPTH	hil	ELEVATION (ff)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
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		<u>391.1</u> 1.00					WELL CASING Interval: 0' - 10' Material: Sch 40 PVC Diameter: 2"
		- 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						Grout – 🙀 -	Joint Type: Threaded WELL SCREEN Interval: 10' - 20' Material: LPack Screen
5	_		5.00 - 9.50 ML, CLAYEY SILT, 7.5 YR 4/4 brown, deeply weathered biotite gneiss mica flakes on structure stiff moist slightly plastic			387.1 5.00	1	ROTO SONIC	<u>9.00</u> 10.00	Bentonite	Diameter: 2" Slot Size: 0.010" End Cap: 3"
		- 385	w <pl, residuum<="" td=""><td>ML</td><td></td><td></td><td></td><td></td><td></td><td>Riser 🗰</td><td>Interval: 7.2' - 20' Type: #1 Sand Quantity: 3.5 Bags</td></pl,>	ML						Riser 🗰	Interval: 7.2' - 20' Type: #1 Sand Quantity: 3.5 Bags
10			9.50 - 11.00	SP-SM		382.6 9.50					FILTER PACK SEAL Interval: 4' - 7.2' Type: Pel Plug Quantity: 5gal Bucket
		- 380	deeply weathered biotite gneiss, moist to wet, mica flakes, non-plastic, non-cohesive, loose/ 11.00 - 13.00 SM, clayey SILTY SAND, very weathered biotite, gneiss with clay 10.070 of units here to find the moist of the green skith clay	SM		381.1 11.00	2	ROTO	5.00		ANNULUS SEAL Interval: 0' - 4' Type: Cement - Bentonite Quantity: 50lbs Cement, 3lbs
			mottled, moist, lose, non-plastic, SAPROLITE 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, 1<="" td=""><td>ML SM</td><td></td><td>379.1 13.00 378.1 14.00</td><td></td><td>SONIC</td><td>5.00</td><td>Sand -</td><td>WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum</td></pl,>	ML SM		379.1 13.00 378.1 14.00		SONIC	5.00	Sand -	WELL COMPLETION Pad: 4' x 4' Protective Casing: Aluminum
15	-		I moist 14.00 - 15.00 SM, SILTY SAND, with clay, some foliation, 10 YR 6/3 pale brown, weathered biotite gneiss, dry			377.1 15.00					DRILLING METHODS Soil Drill: Roto Sonic Rock Drill: Roto Sonic
18/20		- 375	15.00 - 20.00 Transitionally weathered rock to unweathered BIOTITE GNEISS, slightly foliated, fine to medium grained, quartz plagioclase, biotite	TWR		24	3	ROTO SONIC	<u>2.00</u> 5.00	0.010" Slotted – Screen	-
/8 100.TV			Boring completed at 20.00 ft			372.1					
J PIEDMOI		- 370								-	
DATED.GP.										-	
JRVEY UPI		- 365								-	-
B LOGS SI										-	-
30 NINOR NC	-									-	-
/ESTIGATI		- 360								-	-
35 35										-	-
NT SCHER		- 355								-	-
CORD PLAI										-	
D D D	DG RIL RIL	SCAI LING LER:	LE: 1 in = 5 ft COMPANY: Cascade Drilling Chris Turner		GA IN CHEC DATE:	SPECT KED B 5/29/2	0R: /: Ra 0	S. Ge achel	orge P. Ki	, PG rkman, PG	GOLDER

PR PR DR LO	OJECT: OJECT ILLED E CATION	F Plant Scherer DRILL RI NUMBER: 1542702 DEPTH: 65.80 ft DATE ST I: Juliette, GA DATE CC	G: CM Mou ARTED	OR E 550 unted D: 11, TED:	<b>RD</b> 0X (9 I Rig /6/18 11/	OF 98977) 5 10/15	BO Track	REI	HOLE L NORTHIN EASTING GS ELEV TOC ELEV	-PZ IG: 1,1 : 2,398 ATION VATIO	<b>-01</b> 17,001 3,513.1 1: 550. N: 553	SHI 9 ELE 0 DA 3.29 ft TIM	EET 1 of 2 PTH W.L.: 53.78' EVATION W.L.: TE W.L.: 11/11/15 IE W.L.: 11:30
	7	SOIL PROFILE							SAMPLES				
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC	LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
- 0	- 550	0.00 - 2.50 CLAYEY SILT; red/brown clay, trace to little sand, firm to stiff, dry, W <pl< td=""><td>МН</td><td></td><td></td><td>547.5</td><td></td><td></td><td></td><td></td><td></td><td></td><td>WELL CASING Interval: -3'-54' Material: Schedule 40 PVC Diameter: 6" Loitt Turge: Threaded</td></pl<>	МН			547.5							WELL CASING Interval: -3'-54' Material: Schedule 40 PVC Diameter: 6" Loitt Turge: Threaded
-	- 545	2.50 - 5.00 reddish brown/beige mottled clay with trace fine sand, some mica, stiff to very stiff, dry to moist, W <pl< td=""><td></td><td></td><td></td><td>2.50 545</td><td>1</td><td>8</td><td>4-5-7</td><td>12</td><td><u>1.20</u> 1.50</td><td></td><td>WELL SCREEN     Interval: 54'-64'     Material: Schedule 40 PVC     Diameter: 2'</td></pl<>				2.50 545	1	8	4-5-7	12	<u>1.20</u> 1.50		WELL SCREEN     Interval: 54'-64'     Material: Schedule 40 PVC     Diameter: 2'
-	- 545	5.00 - 8.50 more clay noted, reddish brown clay with trace fine sand and mica				5.00	2	8	6-12-17	29	<u>1.50</u> 1.50		- FILTER PACK
-	-	8.50 - 13.50 not mottled			╢	541.5 8.50	3	Q	4-10-13	23	<u>1.50</u> 1.50		- Type: #1 sand - FILTER PACK SEAL Interval: 45.1'-47.7'
10	- 540 -						4	g	5-10-13	23	<u>1.50</u> 1.50		<ul> <li>Type: 3/8" Bentonite Pellets</li> <li>ANNULUS SEAL Interval: 0'-45.1'</li> <li>Type: Portland Type I/Type</li> </ul>
-	-	13.50 - 14.50 reddish brown clay with trace fine sand and mica				536.5 13.50 535.5 14.50	-						<ul> <li>II/Gel Mix</li> <li>WELL COMPLETION</li> <li>Pad: 4'x4'x4"</li> <li>Protective Casing: Steel</li> </ul>
-	- 535	14.50 - 17.00 SILTY SAND; deeply weathered granitic gneiss, some quartz, partially weathered rock, white sand and silt, compact, dry, WcPl	SM			533 17.00	5	DO	2-7-5	12	<u>1.00</u> 1.50		DRILLING METHODS Soil Drill: 3.25" HSA/HQ Rotary Rock Drill: 3.25" HSA/HQ
-	-	17:00 - 20:00 SILT; light brown silt with trace fine sand, some mica, non-plastic, soft, dry to moist, W <pl< td=""><td>ML</td><td></td><td></td><td>530</td><td></td><td></td><td></td><td></td><td></td><td></td><td>_ Rotary _</td></pl<>	ML			530							_ Rotary _
-		20.00 - 25.00 light beige/white silver silt, lots of mica, non-plastic, trace fine sand, soft, dry, W <pl< td=""><td></td><td></td><td></td><td>20.00</td><td>6</td><td>DO</td><td>3-3-4</td><td>7</td><td><u>1.20</u> 1.50</td><td>Portland Type // Type – II/ Gel mix</td><td>-</td></pl<>				20.00	6	DO	3-3-4	7	<u>1.20</u> 1.50	Portland Type // Type – II/ Gel mix	-
- 25 —	- 	25.00 - 30.00				525 25.00		0			1.10		-
-	-	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< td=""><td></td><td></td><td></td><td></td><td>/</td><td>ă</td><td>3-4-4</td><td>8</td><td>1.50</td><td></td><td>- - -</td></pl<>					/	ă	3-4-4	8	1.50		- - -
- 30 -	- 520	30.00 - 33.00 light to medium brown silt, trace to little				520 30.00	8	0	4-8-7	15	1.30		-
-	-	sand, non-plastic, silt appears to be made of biotite gneiss interlayered with quartz veins, soft, dry to moist, W <pl 33.00 - 40.00</pl 			1.1	517 33.00					1.50		-
- 35 —	- 	SILTY SAND; light to medium brown silt with trace fine sand, greenish weathering, non-plastic, soft, moist, W <pl< td=""><td></td><td></td><td></td><td>00.00</td><td></td><td>0</td><td>368</td><td>14</td><td>1.40</td><td></td><td>-</td></pl<>				00.00		0	368	14	1.40		-
			SM						3-0-0	14	1.50		-
40		40.00 - 53.00 brown/white/green fine to coarse sand, non to low plasticity, dry to moist, soft, W <pl< td=""><td></td><td></td><td></td><td>510 40.00</td><td>10</td><td>OG</td><td>6-27-42</td><td>69</td><td><u>1.50</u> 1.50</td><td></td><td></td></pl<>				510 40.00	10	OG	6-27-42	69	<u>1.50</u> 1.50		
- 45	- 505	Log continued on part page											-
LOC	G SCA	LE: 1 in = 5.5 ft	1	_			G	A INS		Mich	ael B	oatman	
DRI DRI	LLING	COMPANY: Southern Company S DJ Wideman	ervice	s			С П	HECł ATF	KED BY: Ra 2/1/16	achel	P. Ki	rkman, P.G.	GOLDER

PR PR DR LO	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 STARTED: 11/6/15 DATE COMPLETED: 11/10/15       NORTHING: 1,117,001.58 EASTING: 2,398,513.19 ELEVATION: 550.0 												
		SOIL PROFILE			SAMPLES								
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC	MONITORING PIEZOMET DIAGRAM and	WELL/ TER NOTES	WELL CONSTRUCTION DETAILS
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>)</pl 				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
- 50 — -						12	DO	14-21-29	50	<u>1.40</u> 1.50			WELL SCREEN Interval: 54'-64' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC
- - 55 —		53.00 - 58.00 PARTIALLY WEATHERED ROCK; biotite gneiss with quartz and hornblende	PWR		497 53.00	13	0	50/3	, 50	0.20	#1 sand —		Interval: 47.7'-65.8' Type: #1 sand FILTER PACK SEAL Interval: 45.1'-47.7' Type: 3/8" Bentonite Pellets ANNULUS SEAL
-	_	58.00 - 65.80			492 58.00								Interval: 0'-45.1' Type: Portland Type I/Type II/Gel Mix
- 60 — -		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%;				14	CORE			<u>1.00</u> 1.50	0.010" slot _ screen		WELL COMPLETION           Pad: 4'x4'x4"           Protective Casing: Steel           DRILLING METHODS           Soil Drill: 3.25" HSA/HQ
-	-	REC=98% Core Run (64.8'-65.8'): RQD=82%; REC=90%	BR			15	CORE			<u>4.90</u> 5.00			Rock Drill: 3.25" HSA/HQ Rotary
65 — -	- 485 -	Boring completed at 65.80 ft			484.2	16	CORE			<u>0.90</u> 1.00			-
-	-											-	-
- 07 - 107 - 07 - 07 - 07	- 480 											-	-
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- 000 - 000	- - 460												
LOC DRI DRI DRI	G SCA LLING LLER:	LE: 1 in = 5.5 ft COMPANY: Southern Company S DJ Wideman	ervice	S		G. Cl D.	A INS HECH ATE:	SPECTOR: KED BY: Ra 2/1/16	Micha Achel	ael Bo P. Ki	oatman rkman, P.G.		GOLDER



PIEDMONT.GDT SURVEY UPDATED.GPJ SCHERER BORING LOGS (2) RECORD BOREHOLE

DATE: 2/1/16



PR PR DR LO	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 STARTED: 11/17/15 DATE COMPLETED: 11/18/15       NORTHING: 1,117,883.86 LOSTING: 2,398,657.00 DEPTH W.L.: 6.48 											
		SOIL PROFILE						SAMPLES				
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
-	- - 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 2.50 - 4.00</pl 	СН		<u>509.7</u> 2.50	1	0	4 6 10	16	1.40		WELL CASING Interval: -3'-25' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded -
-		red brown mottled clay with trace fine sand, dry to moist, W <pl< td=""><td></td><td></td><td>508.2</td><td>1</td><td>ă</td><td>4-6-10</td><td>16</td><td>1.50</td><td>00000 000000 00000 00000 00000 00000</td><td>- Interval: 25'-35'</td></pl<>			508.2	1	ă	4-6-10	16	1.50	00000 000000 00000 00000 00000 00000	- Interval: 25'-35'
5		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< p=""></pl<>			4.00	2	8	5-10-12	22	<u>1.50</u> 1.50		Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" – End Cap: Schedule 40 PVC – FILTER PACK
-	- 505 - -		MH			3	g	5-7-9	16	<u>1.50</u> 1.50	Portland Type I/ Type –	Interval: 20'-35' Type: #1 sand *Heaving sands during well construction
10	-					4	8	3-5-8	13	<u>1.50</u> 1.50		FILTER PACK SEAL Interval: 17.7'-20' Type: 3/8" Bentonite Pellets
-	500	13.00 18.00			499.2							Interval: 0'-17.7' Type: Portland Type I/Type
- 15 —		CLAYEY SAND; light green to beige sand, fine to coarse, trace clay and gravel, non to low plasticity, compact, soft, very moist, W <pl< td=""><td>SC</td><td></td><td>10.00</td><td>5</td><td>0</td><td>2-1-2</td><td>3</td><td>1.50</td><td></td><td>II/Gel Mix     WELL COMPLETION     Pad: 4'x4'x4"     Protective Casing: Steel</td></pl<>	SC		10.00	5	0	2-1-2	3	1.50		II/Gel Mix     WELL COMPLETION     Pad: 4'x4'x4"     Protective Casing: Steel
	-									1.50		DRILLING METHODS
-	- 495	18.00 - 20.00			494.2 18.00						3/8"	Rotary Rock Drill: 3.25" HSA/HQ
- 20 -	-	CLAYEY SILT; beige to brown spotted clay, moderate to high plasticity, soft to firm, moist, W=PL 20.00 - 25.00	MH		<u>492.2</u> 20.00	6	0	1-2-1	3	1.50	Bentonite – chips	_ Rotary 
-	- 490 	beige to brown spotted clay, moderate to high plasticity, soft to firm, moist, W=PL								1.50		-
- 25	   485	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			487.2 25.00	7	8	1-2-2	4	<u>1.50</u> 1.50	#1 sand –	-
-	-				404.0						0.010" slot	-
30		30.30 - 35.00 SAPROLITE: white/black/brown sand and			481.9 30.30	8	ß	1-2-2	4	0.90	screen	-
-	480 	clay, low to non-plastic, deeply weathered granitic biotite gneiss, soft, wet	SC									-
35 -		Boring completed at 35.00 ft			477.2	9	8	1-2-3	5	<u>1.50</u> 1.50		-
	475											-
40											-	
-	470											-
-												-
45 – LOC DRI DRI	G SCA ILLING ILLER:	LE: 1 in = 5.5 ft COMPANY: Southern Company S DJ Wideman	ervice	s	<u> </u>	G C D	A INS HECł ATE:	SPECTOR: (ED BY: Ra 2/1/16	Mich achel	ael Bo P. Ki	- patman rkman, P.G.	GOLDER

/EY UPDATED.GPJ PIEDMONT.GDT 9/4/20 NGS (2) SUR RORFHOLF RECORD SCI

PROJECT: PROJECT DRILLED E LOCATION	PROJECT: Plant Scherer       DRILL RIG: CME 550X (98977) Track       NORTHING: 1,115,962.59       DEPTH W.L.: 15.09'         PROJECT NUMBER: 1542702       DRILL RIG: CME 550X (98977) Track       NORTHING: 1,115,962.59       DEPTH W.L.: 15.09'         DRILLED DEPTH: 40.00 ft       DATE STARTED: 11/18/15       GS ELEVATION: 458.1       DATE W.L.: 11/19/15         DCATION: Juliette, GA       DATE COMPLETED: 11/19/15       TOC ELEVATION: 461.24 ft       TIME W.L.: 14:20										
	SOIL PROFILE						SAMPLES				
DEPTH (ft) (ft) (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC	MONITORING WELL PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	0.00 - 2.50 SILTY CLAY; reddish brown clay, firm to stiff, low plasticity, moist, W <pl< td=""><td>CL</td><td></td><td>455.6</td><td></td><td></td><td></td><td></td><td></td><td></td><td>WELL CASING Interval: -3'-18' Material: Schedule 40 PVC Diameter: 6"</td></pl<>	CL		455.6							WELL CASING Interval: -3'-18' Material: Schedule 40 PVC Diameter: 6"
455 	2.50 - 6.00 reddish brown clay, firm to stiff, low plasticity, moist, W <pl< td=""><td></td><td></td><td>2.50</td><td>1</td><td>8</td><td>4-5-8</td><td>13</td><td><u>1.50</u> 1.50</td><td></td><td>Joint Type: Threaded URLL SCREEN Interval: 18'-28' Material: Schedule 40 PVC</td></pl<>			2.50	1	8	4-5-8	13	<u>1.50</u> 1.50		Joint Type: Threaded URLL SCREEN Interval: 18'-28' Material: Schedule 40 PVC
5	6.00 - 7.50	СН		452.1 6.00	2	8	2-5-7	12	<u>1.30</u> 1.50	Portland Type I/ Type – II/ Gel mix	Diameter: 2'     Slot Size: 0.010"     End Cap: Schedule 40 PVC
	medium sand, low plasticity, stiff, moist, W <pl< td=""><td></td><td></td><td>450.6 7.50</td><td></td><td>0</td><td></td><td></td><td>1.20</td><td></td><td><ul> <li>FILTER PACK</li> <li>Interval: 16.5'-31.9'</li> <li>Type: #1 sand</li> </ul></td></pl<>			450.6 7.50		0			1.20		<ul> <li>FILTER PACK</li> <li>Interval: 16.5'-31.9'</li> <li>Type: #1 sand</li> </ul>
10	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< td=""><td></td><td></td><td>448.1</td><td>3</td><td></td><td>5-7-8</td><td>15</td><td>1.50</td><td></td><td>FILTER PACK SEAL Interval: 12.5'-16.5' Type: 3/8" Bentonite Pellets</td></pl<>			448.1	3		5-7-8	15	1.50		FILTER PACK SEAL Interval: 12.5'-16.5' Type: 3/8" Bentonite Pellets
	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< td=""><td>sc</td><td></td><td>10.00</td><td>4</td><td>8</td><td>7-9-10</td><td>19</td><td><u>1.50</u> 1.50</td><td></td><td>ANNULUS SEAL Interval: 0'-12.5' Type: Portland Type I/Type</td></pl<>	sc		10.00	4	8	7-9-10	19	<u>1.50</u> 1.50		ANNULUS SEAL Interval: 0'-12.5' Type: Portland Type I/Type
445 	Shelby Tube Collected: 10'-12' 13.00 - 18.00 red/brown/black/silver silt with some clay and trace coarse sand, non-plastic, mica,			445.1 13.00	-					3/8" Bentonite –	H/Gel Mix     WELL COMPLETION     Pad: 4'x4'x4"     Destruction Cognition Statel
15 —_ 	extremely moist, saturated but not wet, possible water around 17'				5	ß	4-9-9	18	<u>1.50</u> 1.50		
 440 	18.00 - 25.00 SILTLY SAND; red/brown/black/silver silt with some clay and trace coarse sand, non to low plasticity, soft, moist to wet. W>PL			440.1	-						Rotary Rock Drill: 3.25" HSA/HQ Rotary
		SM			6	8	2-2-2	4	<u>1.50</u> 1.50		
435 										0.010" slot screen #1 sand	
25 —	25.00 - 30.00 SAPROLITE; top 4 inches fine grain granitic texture, sand, trace silt, non-plastic, loose,			433.1	7	8	2-3-4	7	<u>1.50</u> 1.50		
430 	sort, W>PL; bottom 10 inches saprointe, fine to medium grain biotite gneiss, sand, silt, fine to coarse, soft, compact, W>PL										
30	30.00 - 35.00 interlayered fine grain granitic sand with trace silt and fine to medium grain biotite			428.1 30.00	8	Q	1-4-3	7	<u>1.20</u> 1.50		
 425	gneiss saprolite with fine to coarse sand and silt										-
35	35.00 - 40.00 intertayered sequence: fine grain granitic sand with trace eit and fine to medium grain			423.1 35.00	9	8	3-5-11	15	<u>1.20</u> 1.50	3/8" Bentonite –	-
	biotite gneiss saprolite with fine to coarse sand and silt, moist to wet, W>PL									chips	-
 40	Boring completed at 40.00 ft			418.1					0.90		-
					10	ă	11-17-20	37	1.50		
45											-
LOG SCAI DRILLING	LE: 1 in = 5.5 ft COMPANY: Southern Company So	ervice	s	1	G C	A INS	SPECTOR: KED BY: Ra	Mich achel	ael B P. Ki	ı oatman rkman, P.G.	\$

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

PR PR DR LO	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 STARTED: 10/28/15 DATE COMPLETED: 11/5/15       NORTHING: 1,115,328.95 MORTHING: 2,399,698.53       DEPTH W.L.: 45.10' ELEVATION: 521.5												
	z	SOIL PROFILE	1					SAMPLES	1	1			
DEPTH (ft)	ELEVATIC (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES		WELL CONSTRUCTION DETAILS
-	- 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							- \ -	WELL CASING Interval: -3.5'-43.1' Material: Schedule 40 PVC Diameter: 6"
-	-	2.50 - 5.00 red silt and clay, contains mica, low plasticity, compact, dry, W>PL			2.50	1	8	3-5-8	13	<u>1.30</u> 1.50		\	WELL SCREEN Interval: 42.1'-52.1'
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			516.5 5.00	2	8	4-8-11	19	<u>1.10</u> 1.50		_	Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC
-		8.00 - 10.00 SILTY CLAY; red/brown clay with some silt, contains mice. low plasticity, loose to firm	CL		513.5 8.00	3	Q	5-5-5	10	<u>1.20</u> 1.50		- I - I	FILTER PACK Interval: 37.5'-53.1' Type: #1 sand FILTER PACK SEAL
10	- 510	dry to moist 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			511.5 10.00	4	8	2-4-5	9	<u>0.90</u> 1.50			Interval: 34.9'-37.5' Type: 3/8" Bentonite Pelltes ANNULUS SEAL Interval: 0'-34.9' Type: Portland Type I/Type
-	-											\	II/Gel Mix WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Steel
15	- 505					5	8	2-3-4	7	<u>0.90</u> 1.50	Portland Type I/ Type –		DRILLING METHODS Soil Drill: 3.25" HSA/HQ Rotary Rock Drill: 3.25" HSA/HQ
	- - - - - - - - - - - - - - - - - - -	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	SM		503.3 18.20	6	ß	3-4-3	7	<u>0.90</u> 1.50	II/ Gel mix		Rotary
- - 25 –		23.00 - 33.20 SILT; orange/brown silt with trace fine sand, weathered amphibolite, non-plastic, soft to firm, dry to moist			498.5 23.00							-	
			M			7	8	5-6-6	12	<u>1.50</u> 1.50		_	
- 100 - 100	-											_	
	- 490					8	8	5-6-10	16	<u>1.30</u> 1.50		_	
35 -		33.20 - 35.00 SILTY SAND; white sand, fine to coarse, non-plastic, weathered quartz/biotite/feldspar pegmatite, loose, dry,	SM		488.3 33.20 486.5 35.00	-				1.40		-	
<u>65 (2)_SURV</u>	485 	35.00 - 40.00 white sand, fine to coarse with trace silt, non-plastic, weathered quartz/biotite/feldspar pegmatite, loose, moist to wet				9	8	19-33-20	>50	1.50	3/8" Bentonite – chips	_	
	- - - - - - 480	40.00 - 45.00 green salt and pepper texture, sand, some silt, fine to coarse, some mica, iron staining evident, compact, non-plastic, moist to wet			<u>481.5</u> 40.00	10	OQ	32-50/3	>50	<u>0.80</u> 0.80			
- 12 - 45 - 45		Log continued on next page			476.5	-						_	
	G SCA ILLING ILLER:	LE: 1 in = 5.5 ft cOMPANY: Southern Company S DJ Wideman	ervice	s		G/ CI D/	A INS HECI ATE:	SPECTOR: KED BY: Ra 2/1/16	Mich achel	ael Bo P. Ki	oatman rkman, P.G.		GOLDER

E RECORD SCHERER BORING LOGS (2) SURVEY UPDATED.GPJ PIEDMONT.GDT 9/4/20



PR PR DR LO	PROJECT: Plant Scherer       DRILL RIG: CME 550X (98977) Track       NORTHING: 1,115,328.95       DEPTH W.L.: 45.10'         PROJECT NUMBER: 1542702       DRILL RIG: CME 550X (98977) Track       NORTHING: 1,115,328.95       DEPTH W.L.: 45.10'         DRILLED DEPTH: 103.40 ft       DATE STARTED: 10/28/15       GS ELEVATION: 521.5       DATE W.L.: 11/5/15         LOCATION: Juliette, GA       DATE COMPLETED: 11/5/15       TOC ELEVATION: 524.51 ft       TIME W.L.: 10:40											
	7	SOIL PROFILE						SAMPLES				
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
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	#1 sand	WELL CASING Interval: -3.5'-43.1' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded
- 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	12	DO	5-8-10	18	<u>1.50</u> 1.50		WELL SCREEN       Interval: 42.1'-52.1'       Material: Schedule 40 PVC       Diameter: 2'       Slot Size: 0.010"       End Cap: Schedule 40 PVC <b>FILTER PACK</b> Interval: 37.5'-53.1'       Type: #1 sand
- 55 — -	- - - - - - - - - - - - - - - - - - -	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,			467.6 53.90	13	Og	3-15-15	30	<u>1.50</u> 1.50	3/8" - Bentonite - chips -	FILTER PACK SEAL Interval: 34.9'-37.5' Type: 3/8" Bentonite Pelltes ANNULUS SEAL Interval: 0'-34.9' Type: Portland Type I/Type
- - 60 —	- - - -		ML							1 50	-	WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Steel
-		63.00 - 68.00			458.5	14	ă	7-9-15	24	1.50	-	Soil Drill: 3.25" HSA/HQ Rotary Rock Drill: 3.25" HSA/HQ Rotary
- 65 — -		SILTY SAND; white/black/green silty sand, fine to coarse, trace silt, non-plastic, compact, moist, W <pl Auger Refusal at 68 feet Core Run (67.3'-73.5'): RQD=56%; PEC-740</pl 	SM			15	8	10-17-25	42	<u>1.50</u> 1.50	-	-
-	- 455 - -	68.00 - 103.00 BEDROCK; deeply weathered gneiss			453.5						-	-
70 – 	- - 					16	CORE			<u>4.80</u> 6.20		-
	- - - - - 445	76.60: Core Run (76.6'-81.2'): no recovery									-	-
			BR			17	CORE			<u>0.00</u> 4.60	-	-
	- 440 	81.20: Core Run (81.2'-85.7'): no recovery				18	CORE			<u>0.00</u> 4.50	-	- - -
	- 435 - 435 	85.70: Core Run (85.7'-93'): no recovery				19	CORE			<u>0.00</u> 7.30	-	
		Log continued on next page				C			Mich	ael R	l Datman	·
DRILLER: DJ Wideman						CI Di	HECH ATE:	(ED BY: Ra 2/1/16	achel	P. Ki	rkman, P.G.	GOLDER



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: Katu 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 in 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



Steph M. M

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.





Kaun Ebrandt

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 Moy, 2015.



William L. Kell, Assistant Secretary

THIS POWER OF ATTORNEY MAY NOT BE USED TO EXECUTE ANY BOND WITH AN INCEPTION DATE AFTER December 22, 2016.



CONT	INU	IAT	ION
CERT	IFIC	AT	E

#### 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 s	aid 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-DAT-YEAR)
	SAFECO Insurance Company of America
	By nl-a l(hido Sty
	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, <u>Brooke A. Sharp; Christine Doczy; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle; William G. Moody</u>

all of the city of <u>Atlanta</u>, state of <u>GA</u> 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 .



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.

day of

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this \_\_\_\_\_



Davenport, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit,

CONT	INU	IAT	ION
CERT	IFIC	AT	E

#### 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 s	aid 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-DAT-YEAR)
	SAFECO Insurance Company of America
	By nl-a l(hido Sty
	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, <u>Brooke A. Sharp; Christine Doczy; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle; William G. Moody</u>

all of the city of <u>Atlanta</u>, state of <u>GA</u> 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 .



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.

day of

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this \_\_\_\_\_



Davenport, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit,

#### GENERAL PURPOSE RIDER

To be attached to and form part of Bond Number <u>09157828</u> effective <u>June 30, 2015</u> issued by the <u>Fidelity and Deposit Company of Maryland</u> in the amount of <u>Twenty Thousand</u> <u>and No/100 (\$20,000.00)</u>, on behalf of <u>Craig Penton dba Terracon Consultants, Inc.</u> as Principal, and in favor of <u>Director of the Environmental Protection Division</u>, <u>Department of</u> <u>Natural Resources</u>, <u>State of Georgia</u> 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

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

6 6/4/14 Sent to Craig Penton Story adams FOR YOUR RECORDS

EMPLOYEES, OFFICERS AND PARTNERS, as Principal, and <u>Fidelity and Deposit Company of Maryland</u> 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 <u>June 4, 2014</u> 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 <u>4th</u> day of, <u>June</u> <u>2014</u>.

(L.S.) HTLE.

SURETY BY: \_\_\_\_\_\_\_\_Christy M. McCart, Attorney-in-Fact GEORGIA REGISTERED AGENT \_\_\_\_\_\_N/A \_\_\_\_\_\_SEAL:

Revised December 2012

Georgia Water Well Contractor Application



## CONTINUATION CERTIFICATE

Atlantic Specialty In	, Surety upon									
a certain Bond No.	800031223									
dated effective	ine 30, 2017 (MONTH-DAY-YEAR)									
on behalf of	lichael 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									
<b>PROVIDED:</b> 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.									
	2233 112th Ave NE Bellevue, WA 98004 Address of Agent	8								
	(425) 709-3600 Telephone Number of Agent									

S-0157/GE 8/08



### **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

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.



Paul J. Brehm, Senior Vice President

Notary Public

Bv

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.

day of May 2019 Signed and sealed. Dated RPORAZ SEAL This Power of Attorney expires 1986 October 1, 2019

VIY

Christopher V. Jerry, Secretary

APPENDIX A

Certified Well

Survey Report

### **Plant Scherer**

## **1st data set: North Property Wells**

Page 1 of 1 Issued 6/29/20

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										Issued 7/17/20
NETWORK	PVC CASING	PVC CASING	CONTROL NAIL	CONTROL NAIL	CONTROL NAIL	PVC CASING	PVC CASING	TOP OF PVC	GROUND	COMMENTS
WELL ID	LATITUDE	LONGITUDE	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	CASING ELEV.	ELEVATION	
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.

Reissued 8/10/20 to list Network Well ID

Issued 7/17/20.

Plant Scherer 2nd data set: AP1 wells/piezometers										Issued 7/17/20
NETWORK	PVC CASING	PVC CASING	CONTROL NAIL	CONTROL NAIL	CONTROL NAIL	PVC CASING	PVC CASING	TOP OF PVC	GROUND	COMMENTS
WELL ID	LATITUDE	LONGITUDE	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	CASING ELEV.	ELEVATION	COMINENTS
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	



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Reissued 8/10/20 to list Network Well ID

#### **3rd data set: LF Wells Plant Scherer** Issued 7/29/20 Page 1 of 2 NETWORK **PVC CASING PVC CASING** CONTROL NAIL CONTROL NAIL CONTROL NAIL **PVC CASING PVC CASING** TOP OF PVC GROUND COMMENTS WELL ID LATITUDE LONGITUDE NORTHING EASTING ELEVATION NORTHING EASTING CASING ELEV. **ELEVATION** 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 ° 407.36\* 1119613.99 2411202.86 410.44 407.1 No nail No nail \*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 2410167.75 386.18 382.8 392.87 388.9 **GWC-10** 33.07392850 -83.79634992 1118307.27 2410019.38 389.49 1118306.77 2410018.28 GWC-11 33.07487138 -83.79712763 1118649.69 2409779.78 399.21 2409778.84 402.33 398.8 1118648.98 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 1120210.57 445.84 442.8 2409946.73 **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 2411195.38 426.30 423.0 422.58 419.7 GWA-21 33.08044495 -83.79813647 No nail No nail 419.81\* 1120675.73 2409462.70 \*Pad elev (no nail) **GWA-22** 33.08123199 -83.79809884 1120961.49 2409475.41 442.01 1120962.12 2409473.22 444.50 442.0 1119878.12 GWC-29 33.07825289 -83.80057699 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 33.07576062 -83.79946406 392.78 390.0 GWC-31 1118969.72 2409060.85 390.13 1118970.00 2409062.02 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 1117239.70 429.80 427.2 427.38 2409636.56 GWC-38 33.06975458 -83.79795117 1116787.37 2409532.78 416.23 1116786.45 2409533.11 418.68 416.0 -83.80076113 2408672.39 454.2 **GWA-39** 33.07026066 1116968.30 454.59 1116967.57 2408671.68 457.62



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Reissued 8/10/20 to list Network Well ID

Issued 7/29/20.

### Plant Scherer

#### **3rd data set: LF Wells**

NETWORK	PVC CASING	PVC CASING	CONTROL NAIL	CONTROL NAIL	CONTROL NAIL	PVC CASING	PVC CASING	TOP OF PVC	GROUND	COMMENTS
WELL ID	LATITUDE	LONGITUDE	NORTHING	EASTING	ELEVATION	NORTHING	EASTING	CASING ELEV.	ELEVATION	CONTRACTS
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

## Plant Scherer

## 4th data set: Stream Gauges

Page 1 of 1 Issued 7/31/20

OBSERVED WELL ID	GAUGE LATITUDE	GAUGE LONGITUDE	GAUGE GAUGE LONGITUDE NORTHING		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



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</li>
- ≤ 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.
- 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 N/A Yes No 1) Location/Identification **A** Is the well visible and accessible? **B** Is the well properly identified with correct well ID? Is the well in a high traffic area and does the well С 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 Is the protective casing free from apparent damage and able to Α be secured? **B** Is the casing free of degradation or deterioration? C Does the casing have a functioning weep hole? Is the annular space between the casings clear of debris and D 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 inot 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 arppove 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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