GROUNDWATER MONITORING PLAN

PLANT McMANUS – INACTIVE ASH POND AP-1
5-YEAR PERMIT REVIEW
GLYNN COUNTY, GEORGIA
FOR

Georgia Power

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Approved

Solid Waste Management Program

Approved By: Mark Wescott P.G. Digitally signed by Mark Wescott P.G. Date: 2026.04.17 08:23:43 -04'00'

DECEMBER 2025 (REVISION 1)

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I. CERTIFICATION

I hereby certify that this Groundwater Monitoring Plan was prepared by, or under the direct supervision of, a "Qualified Groundwater Scientist," in accordance with the Rules of Solid Waste Management. According to 391-3-4-.01, a Qualified Groundwater Scientist is "a professional engineer or geologist registered to practice in Georgia who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields that enable individuals to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action." The design of the groundwater monitoring system was developed in compliance with the Georgia Environmental Protection Division (EPD) Rules of Solid Waste Management, Chapter 391-3-4.10(6).

Signature: _____

Steven Hodskins, P.E.

Date: December 10, 2025

Signature: _____

Trenton Myles Godwin, P.G.

Date: December 10, 2025

1. INTRODUCTION

Groundwater monitoring is required by the Georgia Environmental Protection Division (EPD) to detect and quantify potential changes in groundwater chemistry. This Groundwater Monitoring Plan (plan) describes the groundwater monitoring program for the Plant McManus former Ash Pond (AP-1). This plan meets the requirements of EPD rules and uses EPD's Manual for Ground Water Monitoring dated September 1991 as a guide. Groundwater monitoring well details are presented in **Appendix A**, and groundwater monitoring well locations are presented on Figure B-1 of **Appendix B**. Well construction details are provided in Table B-1 and B-2 of **Appendix B**.

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

In accordance with the United States Environmental Protection Agency (USEPA) Coal Combustion Rule (§257.90), which is incorporated by Georgia State CCR Rule by reference, a detection monitoring well network for AP-1 has been installed. The existing monitoring wells were installed following the guidelines presented herein. Additionally, this plan documents the methods for future monitoring well installation and/or replacement, and procedures for well abandonment. As required by 391-3-4.10(6)(g), a minor modification will be submitted to the EPD prior to the installation or decommissioning of monitoring wells. Well installation must be directed by a qualified groundwater scientist.

2. GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

Plant McManus (Site) is located along the Turtle River in Brunswick, Glynn County, Georgia. The Site was originally constructed on an island adjacent to the Turtle River. A road (Crispen Island Drive) and a railroad were constructed from the mainland to the island. The approximately 80-acre ash pond (AP-1) was constructed between the island and the mainland in the 1950s, with a northwestern dike and the southeastern dike formed by Crispen Island Drive. The northeastern extent of the ash pond is the mainland, and the southwestern extent is the island. AP-1 received ash from 1959 to 1972. Following 1972, AP-1 was used for low volume waste treatment and discharge. In 2016, Georgia Power began closure by removal of the inactive AP-1. Excavation activites completed in October 2019 and GA EPD acknowledged completion of CCR removal on January 10, 2020. The following section presents geologic and hydrologic conditions for the Site as described in the "*Hydrologic Assessment Report (Revision 4)*" (HAR), Resolute, 2020).

2.1 SITE GEOLOGY

The Brunswick area is underlain by three regional aquifer systems which extend to depths exceeding 1,100 feet. The uppermost regional aquifer is the surficial aquifer. In the Brunswick area, this aquifer extends to a depth of approximately 180 feet. Although the surficial aquifer is defined on a regional scale as extending to approximately 180 feet below ground surface (bgs), Clarke and others (1990) acknowledge that localized lower permeability units can create confined or semi-confined conditions within limited areas of the surficial aquifer (ATC Associates Inc., 1997).

Regionally, the surficial aquifer is composed of geologic formations overlying the Hawthorn Formation. These formations include the Satilla and Cypresshead Formations, and, where present, the Charlton or equivalent Raysor Formation. In the Brunswick area, the Satilla is described as extending to approximately 28 feet bgs and the Cypresshead to approximately 50 feet bgs. Underlying the Satilla and Cypresshead Formations are sands, gravels, and clays which have been described by Weems and Edwards (2001) as two pairs of alternating confining units and water-bearing zones of the Ebenezer Formation. These alternating units of the Ebenezer Formation are described as an uppermost confining unit extending from approximately 50 to 75 feet bgs, followed by a water-bearing zone from approximately 75 to 110 feet bgs, another confining unit from approximately 110 to 150 feet bgs, and then another water-bearing zone from approximately 150 to 185 feet bgs. These sediments were deposited in marginal to shallow marine beds which are overlain by marine terrace deposits. Fluvial or residual deposits overlay the terrace deposits (Miller, 1986; Clarke et al, 1990) (ATC Associates Inc., 1997).

The regional surficial aquifer is underlain by approximately 90 feet of lower-permeability portions (Miocene Unit A) of the Hawthorn Formation (Miocene Units A, B, & C). This stratum forms the upper confining bed for the Brunswick aquifer system. The Brunswick aquifer system is composed of two confined aquifers (the Upper Brunswick aquifer and the Lower Brunswick aquifer) that are separated and confined above and below by less permeable units of the Hawthorn Formation. Regionally, the Upper Brunswick aquifer extends from approximately 270 feet to 350 feet bgs, and the Lower

Brunswick aquifer extends from approximately 400 feet to 470 feet bgs (Clarke *et al,* 1990) (ATC Associates Inc., 1997).

Based on information collected during subsurface investigations, Plant McManus is underlain by very fine sands and clays from land surface (or beneath a shallow fill layer) to depths ranging from 33 to 43 feet bgs. Very fine sands are predominant, but discontinuous clay layers of varying thickness were encountered during drilling activities. The clay layers varied from less than one inch to approximately ten feet in thickness. These very fine sands and discontinuous clay layers are interpreted to be the Upper Satilla Formation (ATC Associates, Inc., 1997).

Underlying the Upper Satilla Formation are fine to medium sands with greater silt content, and apparently lower permeability, than the sands of the Upper Satilla. These siltier sands, which were interpreted to be the Lower Satilla Formation, were encountered at depths greater than 35 feet bgs during the Site investigation performed in the 1990s (ATC Associates Inc., 1997). These sands may also correspond to the Cypresshead Formation of Huddleston (1988). Sands and clays below the Cypresshead and above the confining unit of the Brunswick aquifer system have been described by Weems and Edwards (2001) as two pairs of alternating confining units and water-bearing zones of the Ebenezer Formation, extending from approximately 50 feet bgs to 185 feet bgs in the Brunswick area.

2.2 SITE HYDROGEOLOGY

The Brunswick aquifer system is composed of two confined aquifers (the Upper Brunswick aquifer and the Lower Brunswick aquifer) that are separated and confined above and below by less permeable units of the Hawthorn Formation. The regional surficial aquifer that contains the Upper and Lower Satilla Formations is underlain by approximately 90 feet of lower-permeability portions (Miocene Unit A) of the Hawthorn Formation (Miocene Units A, B, & C). This stratum forms the upper confining bed for the Brunswick Aquifer System. Visual and gamma logging of stratigraphic borings performed at the Site in 2019, confirmed the top of the Miocene Unit A confining layer is present at a depth of approximately 240 to 250 feet bgs.

Horizontal hydraulic conductivity tests (slug tests) were performed on eighteen groundwater monitoring wells and piezometers around the former AP-1. The hydrologic evaluation is discussed in detail in the HAR. Evaluation of these slug tests yielded a range of average hydraulic conductivity values (K values) from 8.67 x 10^{-5} centimeters per second (cm/s) to 2.90 x 10^{-3} cm/s, with a geometric mean of 7.39 x 10^{-4} cm/s and an overall average K value for the Site of 1.18 x 10^{-3} cm/s. The range of values is indicative of the variable nature of the interspersed sands and clays underlying the Site, with sandier areas in former tidal channels yielding higher K values, while the historically marshier areas or localized clay lenses result in lower K values. The effective porosity (percentage of interconnected pore space) of the surficial aquifer was conservatively estimated to be 35 percent, or 0.35. This estimate was based on the very fine sands observed in the borings and Shelby Tube test results.

2.3 HYDRAULIC GRADIENT AND GROUNDWATER FLOW VELOCITY

Groundwater flows from two directions toward the former AP-1. One groundwater flow component originates on the mainland, northeast of the facility, and flows southwest, while the other flow component originates on Crispen Island and flows north and northeast. Groundwater elevations in the monitoring wells on the mainland (MCM-02, -15, and -16) and on the island (MCM-08 and -11) have consistently exhibited higher groundwater elevations than the monitoring wells and piezometers installed along the dikes, with MCM-01 and -04 exhibiting intermediate elevations between the mainland and dike wells. The potentiometric surface of the surficial aquifer and the resultant groundwater flow direction in the vicinity of the former AP-1 is a reflection of the topography of the mainland, Crispen Island, and the tides in the marsh surrounding the area.

The hydraulic gradient and groundwater flow velocity calculations are presented in Table B-3 of **Appendix B**. The horizontal groundwater flow velocity at the former AP-1 was calculated using a derivation of Darcy's Law. Specifically,

$$V = \frac{K * i}{\eta_e}$$

Where:

V = Groundwater flow velocity $\left(\frac{feet}{day}\right)$
K = Average Hydraulic Conductivity $\left(\frac{feet}{day}\right)$
i = Horizontal hydraulic gradient $\left(\frac{feet}{day}\right)$
η_e = Effective porosity

Vertical hydraulic conductivity tests were performed at specified depths within the surficial aquifer by collecting Shelby tube samples and using flexible wall permeameter testing following American Society for Testing and Materials (ASTM) D 5084-10. Representative samples collected from the intervals screened in the compliance monitoring well network showed a range of vertical conductivities between 1.72 x 10^{-6} centimeters per second (cm/s) to 1.27 x 10^{-3} cm/s. Representative samples collected from slightly deeper intervals of the surficial aquifer (Lower Satilla, Cypresshead, or potentially the Ebenezer Formation) identified as a potential aquitard on gamma logs showed a range of vertical conductivities between 1.08 x 10^{-7} cm/s to 1.65 x 10^{-4} cm/s.

The average horizontal conductivity measured in the interval screened in the compliance well network is two orders of magnitude greater than the average vertical hydraulic conductivity measured in the Lower Satilla Formation, indicating the formation limits downward vertical flow at the Site.

Horizontal groundwater flow velocities were calculated for three well/piezometer pairs at high and low tide using groundwater elevations collected on March 18th and 20th, 2025. Groundwater flow velocities representing groundwater flowing from the mainland to former AP-1 (between MCM-02 and MCM-16) were the same at high tide and low tide [0.009 ft/day], whereas flow velocities representing groundwater flowing from the island to former AP-1 (between MCM-11 and MCM-12) varied between high tide [0.055 ft/day] and low tide [0.047 ft/day]. A groundwater flow outward from the pond was observed during the March 2025 event at both high and low tide. For March 2025, groundwater flow velocities were 3.26 feet per year (ft/year) from the mainland to former AP-1 (MCM-16 to -02) at high and low tide conditions. Groundwater flow velocities from the island to former AP-1 (MCM-11 to -12) were 20.02 ft/year at high tide and 17.31 ft/year at low tide. Groundwater potentiometric surface maps are presented in Figures B-2 and B-3 of **Appendix B**.

3. SELECTION OF WELL LOCATIONS

Groundwater monitoring wells are installed to monitor the uppermost occurrence of groundwater beneath the Site. Locations are selected based on disposal cell layouts and Site geologic and hydrogeologic considerations. GPC follows the recommendation as stated in Chapter 2 of the Manual for Groundwater Monitoring (1991) to determine well spacing based on site-specific conditions. A map depicting the monitoring well network for AP-1 is included in Appendix B, Monitoring System Details. Appendix B also includes a tabulated list of individual monitoring wells and piezometers in Tables B1 and B2, respectively, with well construction details such as location coordinates, top-of-casing elevation, well depths and screened intervals.

The groundwater detection monitoring well network locations were chosen to monitor upgradient and downgradient conditions at the Site based on groundwater flow direction determined by potentiometric evaluation. Wells are positioned to provide adequate coverage to detect potential impacts from the ash pond. Any change to the groundwater monitoring network will be made by a minor modification to the permit pursuant to subparagraph (3)(b)6 of Rule 391-3-4-.02.

4. MONITORING WELL DRILLING, CONSTRUCTION, ABANDONMENT & REPORTING

4.1 DRILLING

The detection monitoring well network associated with former AP-1 is already in place. The existing monitoring wells were installed in general accordance with the EPD *Manual for Groundwater Monitoring* (EPD, 1991) guidance document available at that time. The boring and well construction logs are provided in Appendix B. Additional monitoring wells for former AP-1 will be installed in accordance with USEPA Region 4 Science and Ecosystem Support Division (SESD) *Guidance for the Design and Installation of Monitoring Wells* (USEPA, SESDGUID-101-R2) or latest version as a general guide for best practices.

A variety of well drilling methods are available for the purpose of installing groundwater wells. Drilling methodology may include, but not be limited to: hollow stem augers, direct push, air rotary, mud rotary, or rotosonic techniques. The drilling method shall minimize the disturbance of subsurface materials and shall not cause impact to the groundwater. Borings will be advanced using an appropriate drilling technology capable of drilling and installing a well in site-specific geology. 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.

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

The drilling for any subsurface hydrologic investigation, installation or abandonment of groundwater monitoring wells will be performed by a driller that has, at the time of installation, a performance bond on file with the Water Well Standards Advisory Council. Appendix B includes the performance bonds applicable to the wells and piezometers listed in Table B-1 and B-2.

Monitoring wells will be installed 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 for best practices.

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

4.2 DESIGN AND CONSTRUCTION

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

WELL CASINGS AND SCREENS

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

WELL INTAKE DESIGN

The design and construction of the intake of the groundwater wells shall: (1) allow sufficient groundwater flow to the well for sampling; (2) minimize the passage of formation materials (turbidity) into the well; and (3) ensure sufficient structural integrity to prevent the collapse of the intake structure.

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

Pre-packed dual-wall well screens may be used for well construction. Pre-packed well screens combine a centralized inner well screen, a developed filter sand pack, and an outer conductor screen in one integrated unit composed of inert materials. Pre-packed well screens will be installed following general industry standards and using the latest version of the Region 4 U.S. Environmental Protection Agency Science and Ecosystem Support Division Operating Procedure for Design and Installation of Monitoring Wells as a general guide. If the dual-wall pre-packed-screened wells do not yield sufficient water or are excessively turbid after development, further steps will be taken to assure that the well screen is appropriately sized for the formation material. This may include performing sieve analysis of the formation material and determining well screen slot size based on the grain size distribution.

FILTER PACK AND ANNULAR SEAL

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

The materials used to seal the annular space must prevent hydraulic communication between strata and prevent migration from overlying areas into the well screen interval. A minimum of two feet of

fine sand or bentonite (chips, pellets, or slurry) will be placed immediately above the filter pack. Fine sand (approximately 35/65) will be used in areas of high TDS groundwater (e.g., dike wells). The seal will extend up to the base of any overlying confining zone or the top of the water-bearing zone to prevent cementitious grout from entering the water-bearing or screened zone.

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.

PROTECTIVE CASING AND WELL COMPLETION

After allowing the grout to settle, the well will be finished by installing a flush-mount or above-ground protective casing as appropriate, and building a surface cap. The use of flush-mount wells will generally be limited to paved surfaces unless Site operations warrant otherwise. The surface cap will extend from the top of the cementitious grout to ground surface, where it will become a concrete apron extending outward with a radius of at least 1.5 feet from the edge of the well casing and sloped to drain water away from the well. The location and elevation of each monitoring well and piezometer top-of-casing and ground surface will be surveyed by a Registered Land Surveyor.

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

Protective bollards will be installed around groundwater monitoring wells completed above the ground surface. Well construction in high traffic areas will generally be limited unless Site conditions warrant otherwise.

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

WELL DEVELOPMENT

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

or surges can be created by using surge blocks, bailers, or pumps. The wells will be developed using a pump capable of inducing the stress necessary to achieve the development goals. Well 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.

4.3 MAINTENANCE AND ABANDONMENT

The monitoring wells, piezometers and other measurement sampling and analytical devices will be operated and maintained so that they perform to the design specifications throughout the life of the monitoring program. Monitoring wells and piezometers will be inspected during each groundwater measuring or sampling event. The well pads will be observed for cracks and erosion. The outer castings will be observed for corrosion and functionality of the locks and hinges. The inner casting will be observed for cracks or other wear, measuring point mark, biological growth or chemical precipitation, and proper assembly of the dedicated pump, where applicable. Where deficiencies are observed and are immediately rectifiable, they will be properly corrected. When they are not immediately rectifiable, they will be noted in the field book so that the proper supplies and equipment may be obtained to implement the repair as soon as practical. In the event a monitoring well is dry (has a water level insufficient for sample collection) for two consecutive monitoring events, the well will be replaced as required by Georgia Rule 391-3-4-.10(6)(g), unless an alternate schedule is approved by the EPD.

Monitoring wells will be abandoned using industry-accepted practices, the Manual for Groundwater Monitoring (1991), and Georgia Water Well Standards Act (1985) as guides. The wells will be abandoned under the direction of a qualified groundwater scientist registered in Georgia. Neat Portland cement or bentonite will be used as appropriate to complete abandonment and seal the well borehole. Fine sand may be used for well abandonment material below the groundwater surface to limit pH disturbance and ion exchange. Piezometers or groundwater wells located within the footprint of AP-1 will be over-drilled prior to abandonment.

Prior to the abandonment or replacement of a monitoring well, a minor modification shall be submitted in accordance with subparagraph (3)(b)6 of Rule 391-3-4-.02.

4.4 DOCUMENTATION

Within 60 days of the construction, development, and survey or abandonment of each groundwater monitoring well completed under the direction of a qualified groundwater scientist, a well

installation/abandonment report will be submitted to the EPD. The installation/abandonment report will contain the information described below. When wells are installed, a Georgia-registered professional surveyor shall certify 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.

- Well Identification
- Name of drilling contractor and type of drill rig
- Documentation that the driller, at the time the monitoring wells were installed, had a bond on file with the Water Well Advisory Council
- Dates of drilling and initial well emplacement
- Drilling technique and type of drilling fluid, if used
- Well location within an accuracy of ±0.5 feet based upon survey from an acceptable survey point
- Borehole diameter and well casing diameter
- Well depth (±0.01 ft.)
- Lithologic logs
- Type of protective well cap and sump dimensions for each well
- Casing and screen joint type
- Screen length and slot size
- Screened interval in feet bgs and elevation
- Details of filter pack construction including material
- Filter pack emplacement method (narrative)
- Seal emplacement method and type/volume of sealant
- Surface seal and volumes/mix of annular seal material
- Well development date
- Well turbidity following development
- Narrative of well development method-specific well development procedure
- Documentation of ground surface elevation (±0.1 ft.)
- Documentation of top of casing elevation (±0.01 ft.)
- Schematic of the well with dimensions

In accordance with the Georgia Water Well Standards Act (O.C.G.A. § 12-5-120), at least once every five years, the owner of the property on which a monitoring well is constructed shall have the monitoring well(s) inspected by a qualified groundwater scientist, who shall direct appropriate remedial corrective work to be performed if the well does not conform to standards. Well inspection records and records of remedial corrective work are subject to review by EPD.

5. GROUNDWATER MONITORING PARAMETERS AND FREQUENCY

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

Table 1, Groundwater Monitoring Parameters and Frequency, presents the groundwater monitoring parameters and sampling frequency. A minimum of eight independent samples from 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. If required, assessment monitoring will be performed per Georgia Chapter 391-3-4-.10, 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 2**, Analytical Methods, the groundwater samples will be analyzed using methods specified in USEPA Manual SW-846, EPA 600/4-79-020, Standard Methods for the Examination of Water and Wastewater (SM18-20), USEPA Methods for the Chemical Analysis of Water and Wastes (MCAWW), ASTM, or other suitable analytical methods approved by the Georgia EPD. The method used will be able to reach a suitable practical quantification limit to detect natural background conditions at the facility. The groundwater samples will be analyzed by licensed and accredited laboratories through the National Environmental Laboratory Accreditation Conference (NELAC). Field instruments used to measure pH must be accurate and reproducible to within 0.1 Standard Units (S.U.).

TABLE 1
GROUNDWATER MONITORING PARAMETERS & SAMPLING FREQUENCY

MONITORING PARAMETER		GROUNDWATER MONITORING	
		Background	Semi-Annual Events
Field Parameters	Temperature	X	X
	pH	X	X
	ORP	X	X
	Turbidity	X	X
	Specific Conductance	X	X
	Dissolved Oxygen	X	X
Appendix III (Detection)	Boron	X	X
	Calcium	X	X
	Chloride	X	X
	Fluoride	X	X
	pH	X	X
	Sulfate	X	X
	Total Dissolved Solids	X	X
Appendix IV (Assessment)	Antimony	X	Assessment sampling frequency and parameter list determined in accordance with Georgia Chapter 391-3-4.10(6).
	Arsenic	X	
	Barium	X	
	Beryllium	X	
	Cadmium	X	
	Chromium	X	
	Cobalt	X	
	Fluoride	X	
	Lead	X	
	Lithium	X	
	Mercury	X	
	Molybdenum	X	
	Selenium	X	
	Thallium	X	
	Radium 226 & 228	X	

TABLE 2
ANALYTICAL METHODS

Parameters	EPA Method Number
Boron	6010D/6020B
Calcium	6010D/6020B
Chloride	300.0/300.1/9250/9251/9253/9056A
Fluoride	300.0/300.1/9214/9056A
pH	150.1field/90405C
Sulfate	9035/9036/9038/300.0/300.1/9056A
Total Dissolved Solids (TDS)	160/2540C
Antimony	EPA 7040/7041/6010B/6020B
Arsenic	EPA 7060A/7061A/6010B/6020B
Barium	EPA 7080A/7081/6010B/6020B
Beryllium	EPA 7090/7091/6010B/6020B
Cadmium	EPA 7130/7131A/6020B
Chromium	EPA 7190/7191/6010B/6020B
Cobalt	EPA 7200/7201/6010B/6020B
Fluoride	300.0/300.1/9214/9056A
Lead	EPA 7420/7421/6010B/6020B
Lithium	6010/6020B
Mercury	7470
Molybdenum	6010/6020B
Selenium	EPA 7740/7741A/6010B/6020B
Thallium	EPA 7840/7841/6010/6020B
Radium 226 and 228 combined	EPA 903/9320/9315

6. SAMPLE COLLECTION

During each sampling event, samples will be collected and handled in accordance with the procedures specified in **Appendix C**, Groundwater Sampling Procedures. Sampling procedures were developed using standard industry practice and USEPA Region 4 Field Branches Quality System and Technical Procedures as a guide. Low-flow sampling methodology will be utilized for sample collection. Specific groundwater sampling methodology, including both purging and sampling must include the type of sampling equipment used and must be given as narrative in the groundwater semi-annual sampling reports. Alternative industry accepted sampling techniques may be used when appropriate with prior EPD approval.

Water level measurements from groundwater monitoring wells will be measured using an electronic water level probe or measuring tape capable of measuring water levels with accuracy to 0.01 foot.

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 in general accordance with USEPA SESDPROC-205-R3 or the latest version of the document.

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

7. 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 persons involved in the chain of possession
- Dates and times of possession by each individual

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, including documentation of transfer times and dates between other employees or individuals on the COC.

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.

8. FIELD AND LABORATORY QUALITY ASSURANCE / QUALITY CONTROL

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

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

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

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

Field Instrument Calibration Program – 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 the groundwater monitoring reports. Instruments will be recalibrated as necessary (e.g., when calibration checks indicate significant variability), and all checks and recalibration steps will be documented on field calibration forms. Calibration of the instruments will also be checked if any readings during sampling activities are suspect. Replacement probes and meters will be obtained as a corrective action in the event that recalibration does not improve instrument function.

9. REPORTING RESULTS

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

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

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

3. Discussion of results.

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

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

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

7. Groundwater flow rate and direction calculations.

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

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

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

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

12. Laboratory Reports and associated data validation reports.

13. COC documentation.

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

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

16. Documentation of non-functioning wells.

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

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

19. Certification by a qualified groundwater scientist.

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

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

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

10. STATISTICAL ANALYSIS

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

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

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

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

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

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

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

FIGURE 1. STATISTICAL ANALYSIS PLAN OVERVIEW

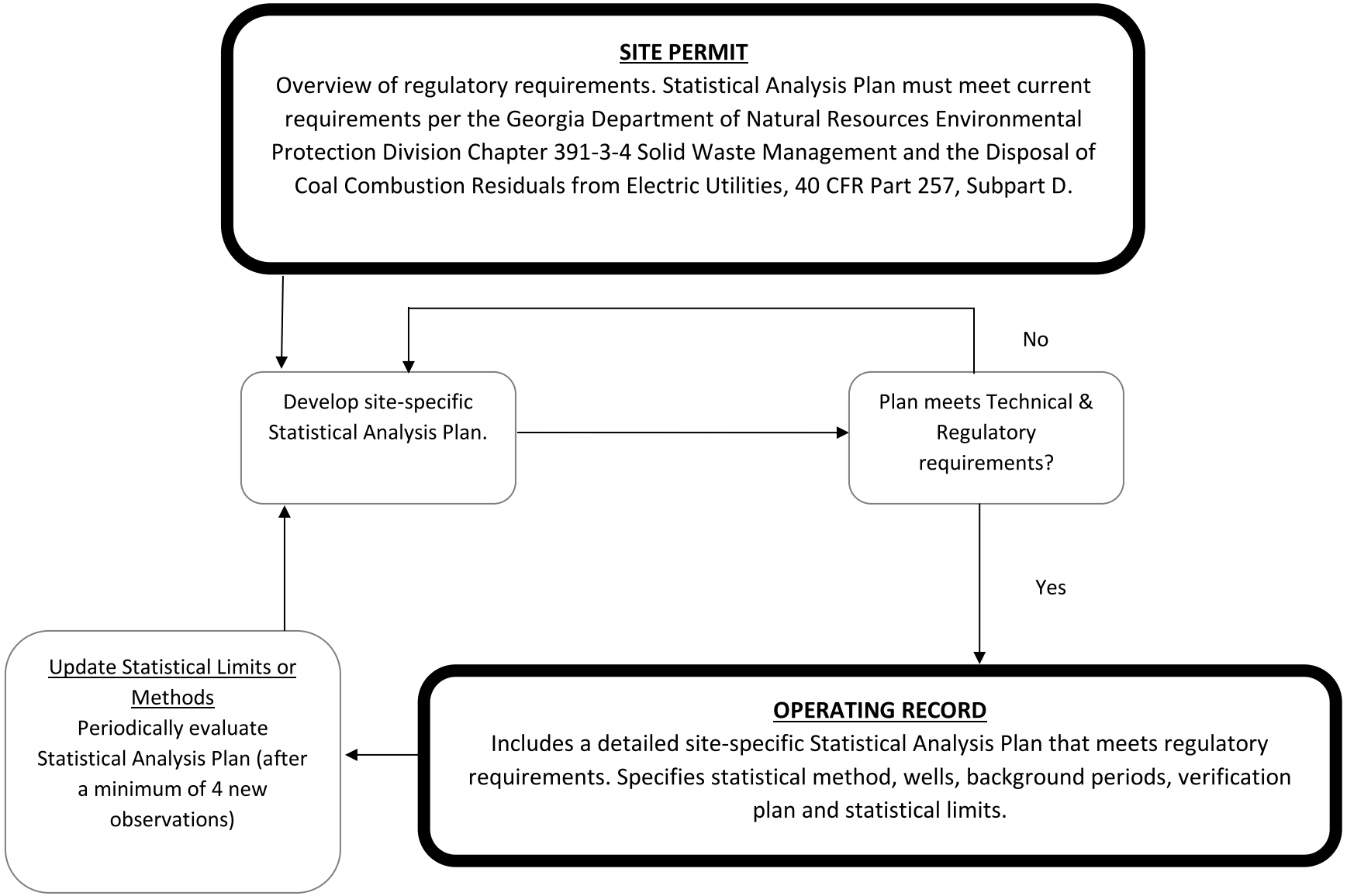
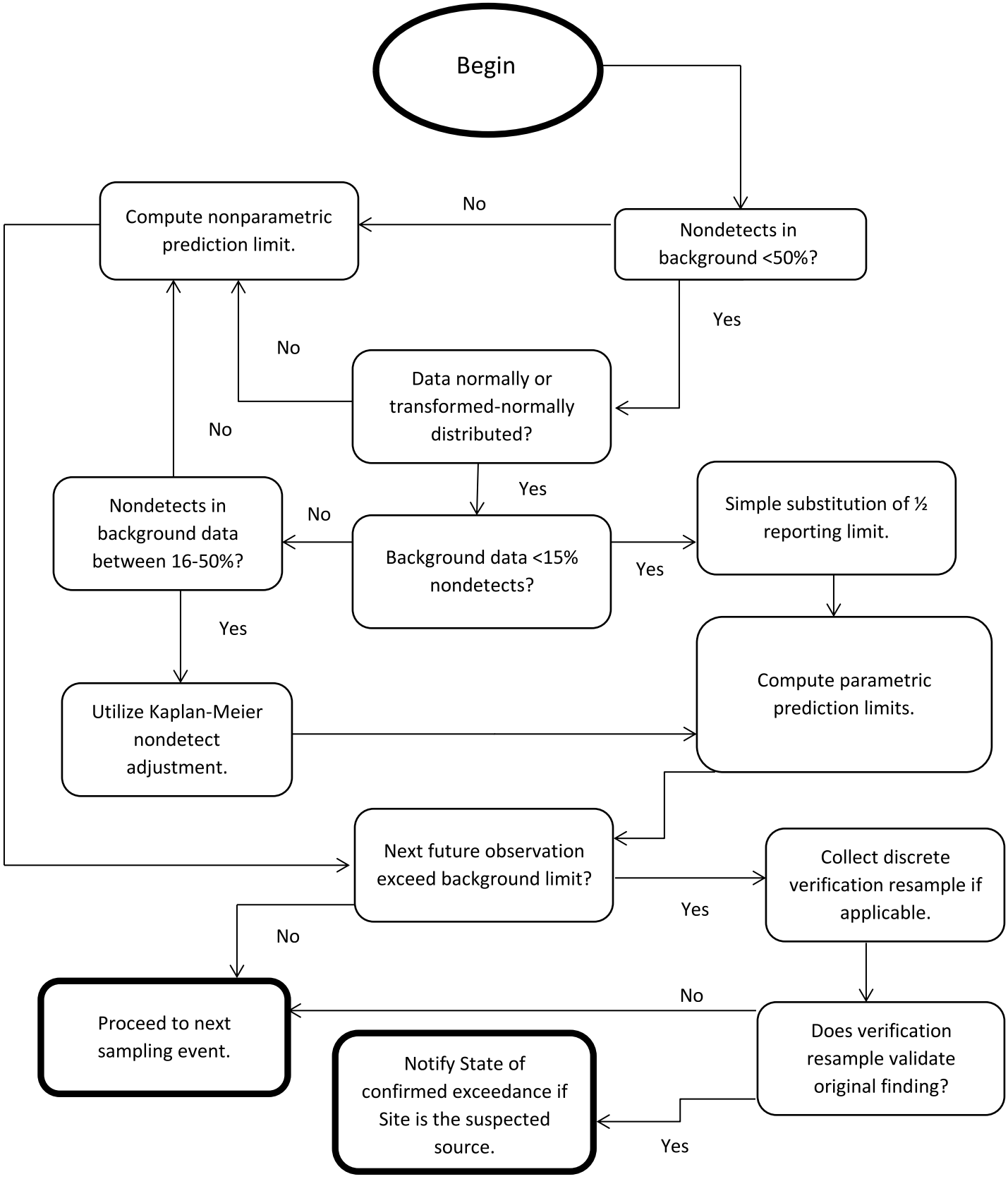


FIGURE 2. DECISION LOGIC FOR COMPUTING PREDICTION LIMITS



11. REFERENCES

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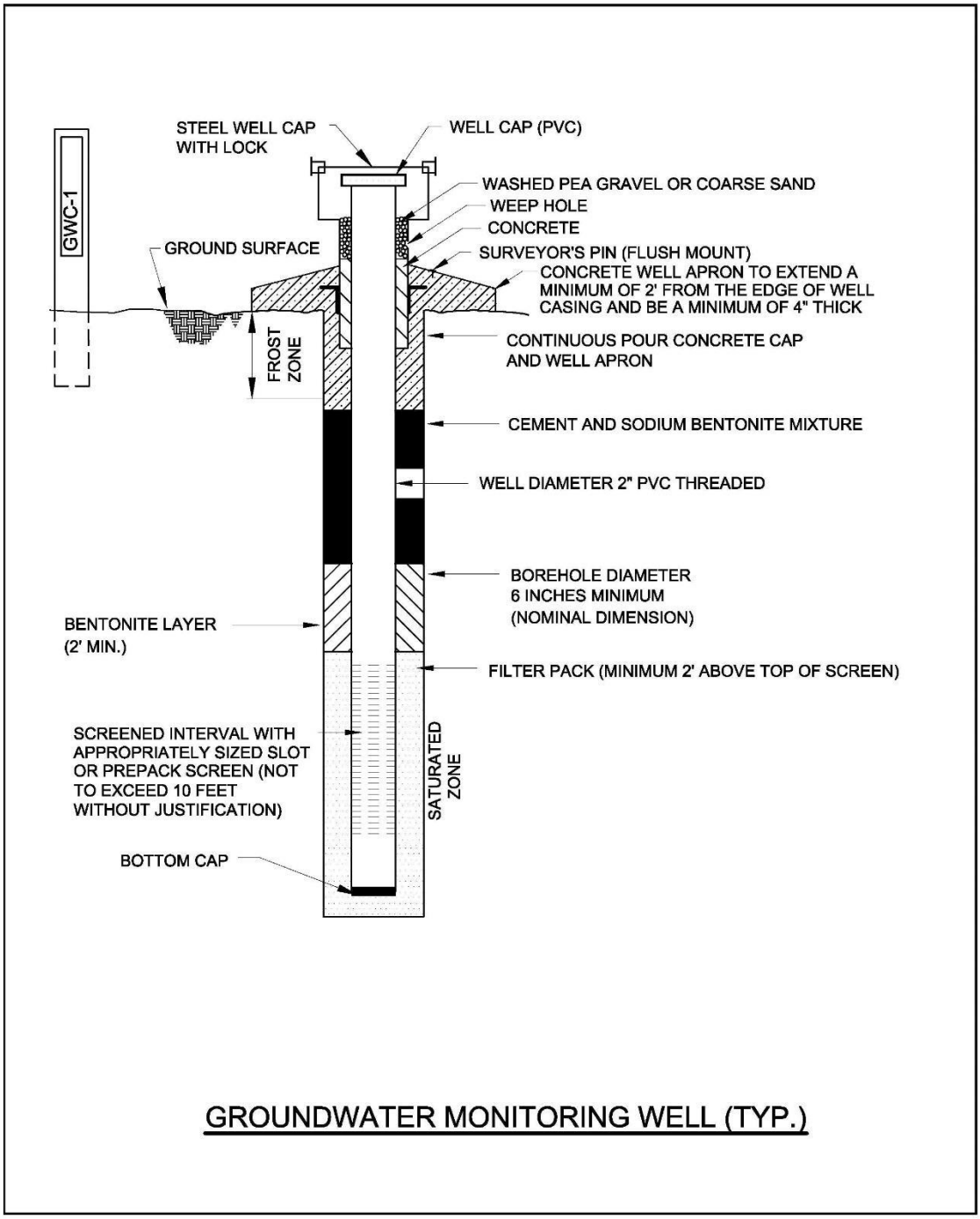
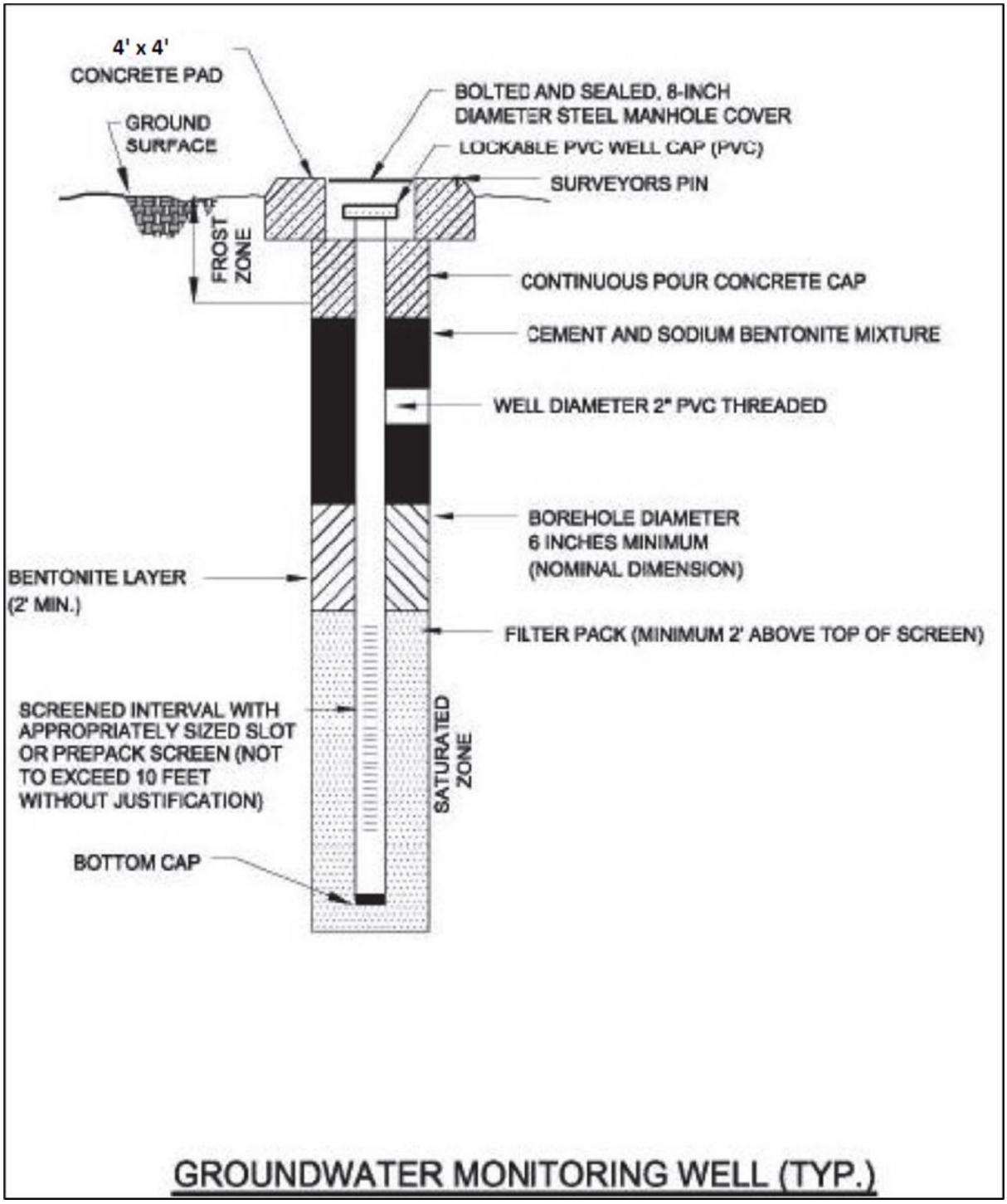
APPENDICES

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

A. GROUNDWATER MONITORING WELL DETAIL



GROUNDWATER MONITORING WELL (TYP.)


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

B. MONITORING SYSTEM DETAILS

FIGURE B-1 GROUNDWATER MONITORING NETWORK MAP

FIGURE B-2 POTENTIOMETRIC SURFACE MAP, LOW TIDE – MARCH 2025

FIGURE B-3 POTENTIOMETRIC SURFACE MAP, HIGH TIDE – MARCH 2025

TABLE B-1 MONITORING WELL NETWORK SUMMARY

TABLE B-2 PIEZOMETER NETWORK SUMMARY

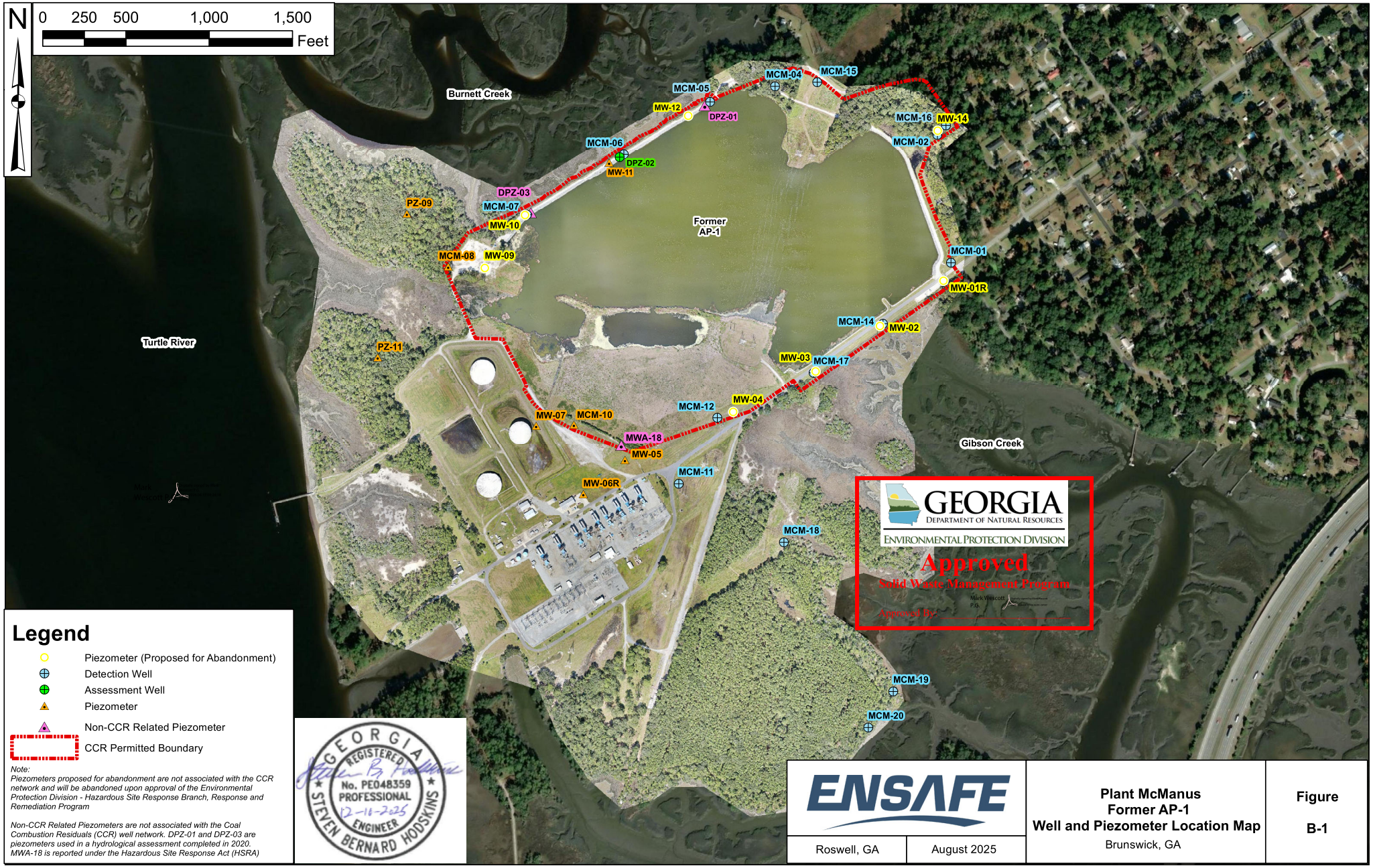
TABLE B-3 GROUNDWATER FLOW VELOCITY CALCULATIONS

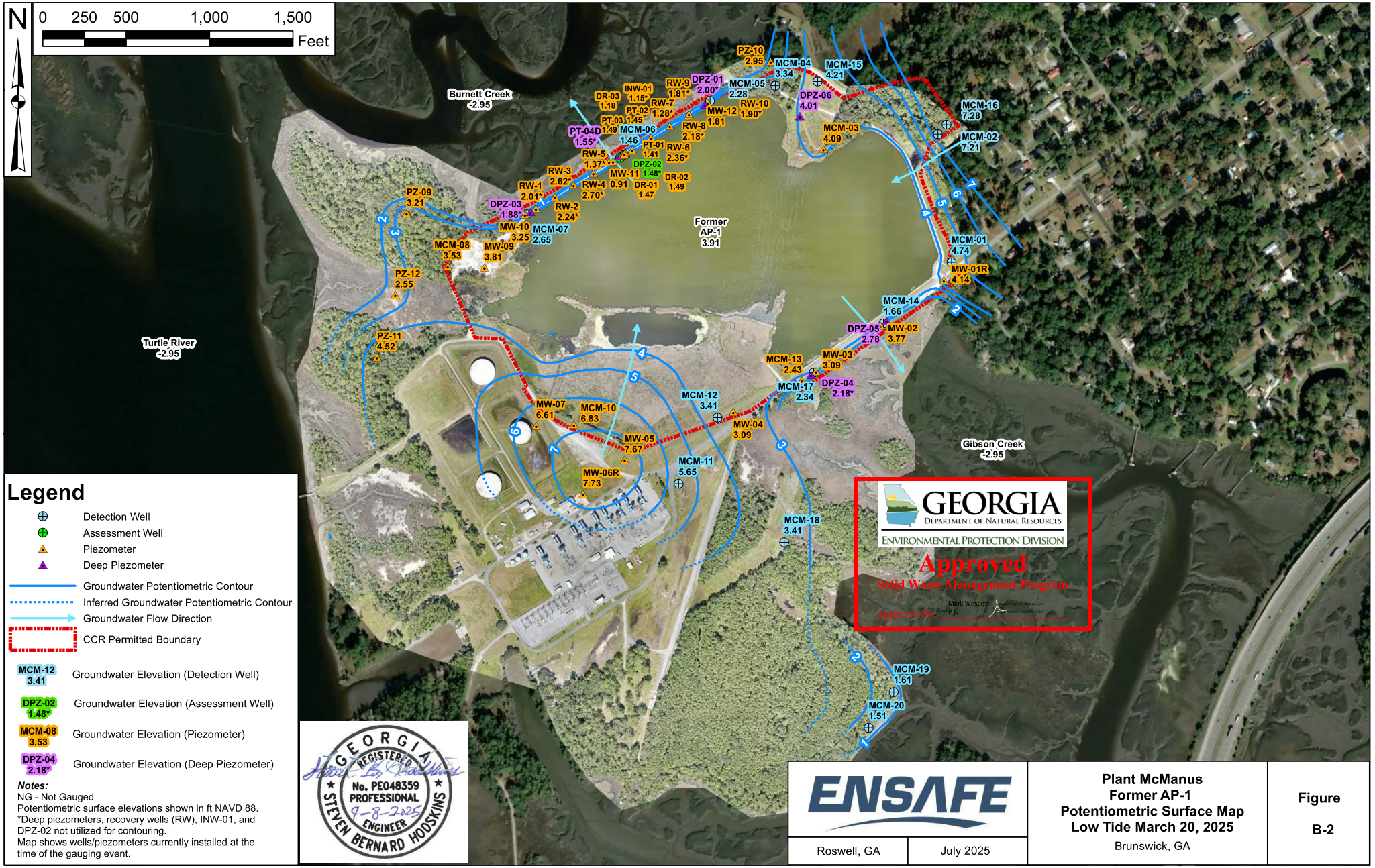
BORING AND WELL CONSTRUCTIONS LOGS

CERTIFIED WELL NETWORK SURVEY DATA

PERFORMANCE BOND FOR DRILLERS

FIGURES


N
0 250 500 1,000 1,500
Feet
Burnett Creek
Turtle River
Gibson Creek
Former AP-1
MCM-04
MCM-15
MCM-05
MW-12
DPZ-01
MCM-16
MW-14
MCM-02
MCM-06
DPZ-02
MW-11
DPZ-03
PZ-09
MCM-07
MW-10
MCM-08
MW-09
MCM-01
MW-01R
MCM-14
MW-02
PZ-11
MW-03
MCM-17
MW-04
MCM-12
MW-07
MCM-10
MWA-18
MW-05
MCM-11
MW-06R
MCM-18
MCM-19
MCM-20
GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved by:
Mark Wescott P.G.
Legend
Piezometer (Proposed for Abandonment)
Detection Well
Assessment Well
Piezometer
Non-CCR Related Piezometer
CCR Permitted Boundary
Note:
Piezometers proposed for abandonment are not associated with the CCR network and will be abandoned upon approval of the Environmental Protection Division - Hazardous Site Response Branch, Response and Remediation Program
Non-CCR Related Piezometers are not associated with the Coal Combustion Residuals (CCR) well network. DPZ-01 and DPZ-03 are piezometers used in a hydrological assessment completed in 2020. MWA-18 is reported under the Hazardous Site Response Act (HSRA)
GEORGIA
REGISTERED
No. PE048359
PROFESSIONAL
ENGINEER
STEVEN BERNARD HODSKINS
12-16-2025
ENSAFE
Roswell, GA
August 2025
Plant McManus
Former AP-1
Well and Piezometer Location Map
Brunswick, GA
Figure
B-1



Legend

- Detection Well
- Assessment Well
- Piezometer
- Deep Piezometer
- Groundwater Potentiometric Contour
- Inferred Groundwater Potentiometric Contour
- Groundwater Flow Direction
- CCR Permitted Boundary

MCM-12 3.41 — Groundwater Elevation (Detection Well)

DPZ-02 1.48* — Groundwater Elevation (Assessment Well)

MCM-08 3.53 — Groundwater Elevation (Piezometer)

DPZ-04 2.18* — Groundwater Elevation (Deep Piezometer)

Notes:
NG - Not Gauged
Potentiometric surface elevations shown in ft NAVD 88.
*Deep piezometers, recovery wells (RW), INW-01, and DPZ-02 not utilized for contouring.
Map shows wells/piezometers currently installed at the time of the gauging event.

GEORGIA
REGISTERED
No. PE048359
PROFESSIONAL
ENGINEER
STEVEN BERNARD HODSKINS
9-8-2025

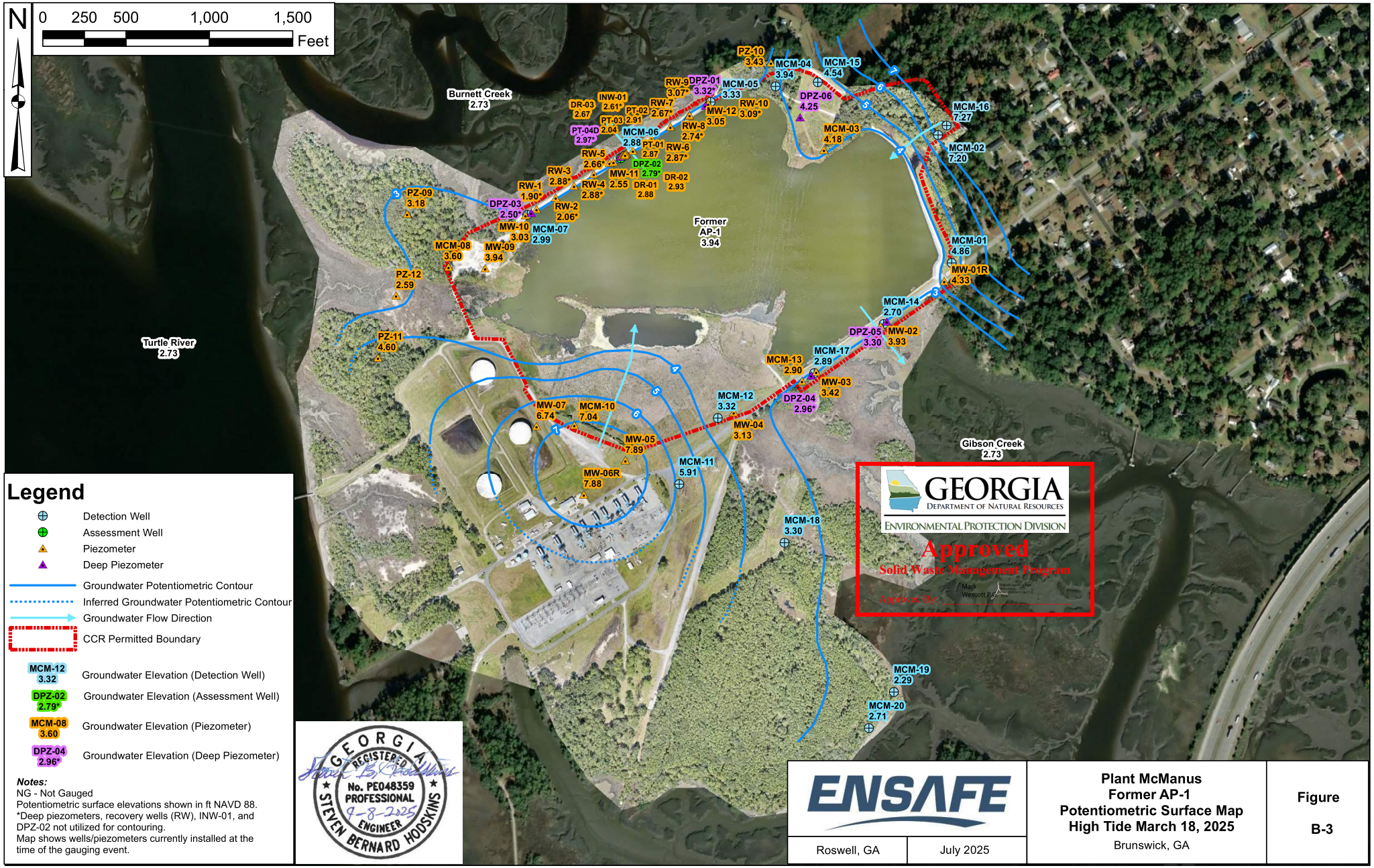
GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Mark Wescott P.E.

ENSAFE

Roswell, GA | July 2025

Plant McManus
Former AP-1
Potentiometric Surface Map
Low Tide March 20, 2025
Brunswick, GA

Figure
B-2



Legend

- Detection Well
- Assessment Well
- Piezometer
- Deep Piezometer
- Groundwater Potentiometric Contour
- Inferred Groundwater Potentiometric Contour
- Groundwater Flow Direction
- CCR Permitted Boundary

MCM-12 3.32 — Groundwater Elevation (Detection Well)

DPZ-02 2.79* — Groundwater Elevation (Assessment Well)

MCM-08 3.60 — Groundwater Elevation (Piezometer)

DPZ-04 2.96* — Groundwater Elevation (Deep Piezometer)

Notes:
NG - Not Gauged
Potentiometric surface elevations shown in ft NAVD 88.
*Deep piezometers, recovery wells (RW), INW-01, and DPZ-02 not utilized for contouring.
Map shows wells/piezometers currently installed at the time of the gauging event.

GEORGIA REGISTERED No. PE048359 PROFESSIONAL ENGINEER STEVEN BERNARD HODSKINS 9-8-2025

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Mark Wescott P.G.

ENSAFE

Roswell, GA | July 2025

Plant McManus
Former AP-1
Potentiometric Surface Map
High Tide March 18, 2025
Brunswick, GA

Figure
B-3

TABLES


GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By:
Mark
Wescott P.G.
Digitally signed by Mark Wescott P.G.
Date: 2026.04.17 08:29:06 -04'00'

Table B-1
Monitoring Well Network Summary
Georgia Power Company
Plant McManus - Former Ash Pond 1
Glynn County, GA

Well ID	Compliance Purpose	Location	Northing	Easting	Ground Surface Elevation (feet)	Top of Casing Elevation (feet)	Top of Screen Elevation (feet)	Bottom of Screen Elevation (feet)	Total Well Depth (feet below ground surface)	Groundwater Zone Screened	Installation Date
MCM-01	Detection	Upgradient	443727.31	852732.08	5.70	8.63	-7.93	-17.93	23.63	SP	07/07/2016
MCM-02	Detection	Upgradient	444496.53	852663.64	8.25	11.25	-5.22	-15.22	23.47	SP	07/06/2016
MCM-04	Detection	Downgradient	444804.73	851695.27	9.50	12.39	-5.18	-15.18	24.68	SP	06/30/2016
MCM-05	Detection	Downgradient	444716.63	851309.91	7.80	10.04	-7.25	-17.25	25.05	SW	07/09/2016
MCM-06	Detection	Downgradient	444407.22	850782.11	7.87	10.15	-6.27	-16.27	24.14	SP	07/08/2016
MCM-07	Detection	Downgradient	444059.38	850195.96	7.52	10.20	-2.76	-12.76	20.28	SP	07/08/2016
MCM-11	Detection	Upgradient	442429.80	851072.91	7.52	10.23	-3.34	-13.34	20.86	SP	07/12/2016
MCM-12	Detection	Downgradient	442821.17	851312.45	8.99	11.87	-6.12	-16.12	25.11	SP	07/12/2016
MCM-14	Detection	Downgradient	443358.82	852317.59	8.66	11.50	-6.23	-16.23	24.89	SP	07/09/2016
MCM-15	Detection	Upgradient	444825.53	851949.02	10.18	12.84	-4.53	-14.53	24.71	SP	06/30/2016
MCM-16	Detection	Upgradient	444551.32	852716.60	13.04	16.02	-1.72	-11.72	24.76	SP	07/06/2019
MCM-17	Detection	Downgradient	443074.41	851899.68	9.09	11.49	-5.62	-15.62	24.71	SC	09/29/2016
MCM-18	Detection	Upgradient	442067.07	851698.41	6.01	9.00	-8.76	-18.76	24.77	SP	10/30/2019
MCM-19	Detection	Upgradient	441157.82	852338.86	5.77	8.71	-9.53	-19.53	25.30	SP	10/30/2019
MCM-20	Detection	Upgradient	440944.40	852185.15	7.07	10.07	-2.98	-12.98	20.05	SP	10/30/2019
DPZ-02	Assessment	Downgradient	444391.02	850757.94	7.34	9.54	-28.84	-33.84	41.18	SP	03/10/2020

Notes:
Elevations shown are in datum NAVD88, which indicates feet (ft) in elevation referenced to the North American Vertical Datum 1988.
Georgia State Plane NAD83 East Zone referenced for horizontal datum.
Ground surface elevation measured at mag nail in the concrete pad.
Well screen elevations are calculated by subtracting the depths to top and bottom of the well screen from the ground surface elevation.
Groundwater screened zone uses USCS designations for soil type.

Table B-2
Piezometer Network Summary
Georgia Power Company
Plant McManus - Former Ash Pond 1
Glynn County, GA

Well ID	Northing	Easting	Ground Surface Elevation (feet)	Top of Casing Elevation (feet)	Top of Screen Elevation (feet)	Bottom of Screen Elevation (feet)	Total Well Depth (feet below top of casing)	Groundwater Zone Screened	Installation Date
MW-05	442565.17	850741.75	10.53	13.29	0.69	-14.31	27.6	SP	09/11/1996
MW-06R	442413.05	850563.17	10.36	13.36	3.36	-6.64	20	SM	03/06/2018
MW-07	442815.97	850259.66	7.87	9.72	3.22	-11.78	21.5	SC	09/16/1996
MW-11	444358.91	850694.98	7.66	10.27	-6.93	-21.93	32.2	SP	09/10/1996
MCM-08	443758.80	849716.96	6.55	9.42	-1.84	-11.84	28.29	SP	07/11/2016
MCM-10	442791.88	850453.05	8.61	11.75	-1.25	-11.25	23.96	SC	07/11/2016
PZ-09	444082.13	849471.64	6.57	9.41	-4.56	-14.56	24.05	SP	10/31/2019
PZ-11	443222.86	849280.51	6.57	9.37	-4.63	-9.63	19.08	SC	11/22/2019

Notes:
Elevations shown are in datum NAVD88, which indicates feet (ft) in elevation referenced to the North American Vertical Datum 1988.
Georgia State Plane NAD83 East Zone referenced for horizontal datum.
Ground surface elevation measured at the mag nail in the concrete pad.
Well screen elevations are calculated by subtracting the depths to top and bottom of the well screen from the ground surface elevation.
Groundwater screened zone uses USCS designations for soil type.

Table B-3
Groundwater Flow Velocity Calculations
Georgia Power Company
Plant McManus - Ash Pond 1
Glynn County, US-GA

Gauging Event	Well Pair	Tidal Stage	Groundwater Elevations in Well Pairs (ft)		Change in Elevation (ft)	Distance Between Well 1 and Well 2 (ft)	Hydraulic Gradient (ft/ft)	Average Hydraulic Conductivity (K) (ft/day)	Estimated Effective Porosity (ne)	Calculated Groundwater Flow Velocity (ft/day)	Calculated Groundwater Flow Velocity (ft/year)
March 2025	MCM-11 to MCM-12	LT	5.65	3.41	2.24	458.76	0.0049	3.40	0.35	0.047	17.31
March 2025	MCM-11 to MCM-12	HT	5.91	3.32	2.59	458.76	0.0056	3.40	0.35	0.055	20.02
March 2025	MCM-16 to MCM-02	LT	7.28	7.21	0.07	76.17	0.0009	3.40	0.35	0.009	3.26
March 2025	MCM-16 to MCM-02	HT	7.27	7.20	0.07	76.17	0.0009	3.40	0.35	0.009	3.26

Notes:
ft – feet
HT - High Tide Measurement
LT - Low Tide Measurement
In-situ hydraulic conductivity (slug) tests in the bedrock at the Site ranged from 0.27 to 52.72 feet/day with an average of 3.40 feet/day
Effective porosity of 35% was selected for the alluvial coastal deposits of very fine to fine sands ranging from the surface to 33-43ft below ground surface identified suring subsurface investigations at the site
See figures for illustrated flow path
Groundwater flow velocity equation: V= (K* i)ne
where:
V = Groundwater flow velocity
K = Average hydraulic conductivity
i = Horizontal hydraulic gradient
ne = Estimated effective porosity

BORING AND WELL CONSTRUCTION LOGS

WELL NUMBER MCM-01

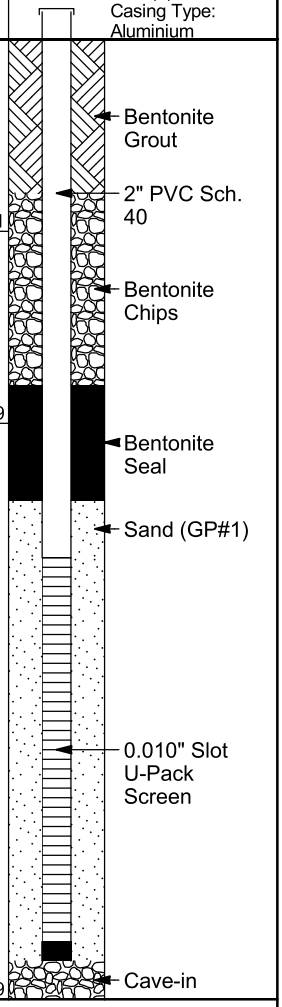
Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/7/16 **COMPLETED** 7/7/16
GROUND ELEVATION 5.1 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 1.80 ft / Elev 3.30 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0			Light brown to grayish brown very fine SAND (SP); wet at 1.5 ft
5.0			Grayish brown to light brown very fine SAND (SP); 4" root fragment at 8 ft
10.0			Dark gray very fine SAND (SP)
25.0			Bottom of borehole at 25.0 feet.

WELL DIAGRAM

Casing Top Elev: 8.63 (ft)
Casing Type: Aluminium



Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 5.70 ft NAVD 88.

WELL NUMBER MCM-02

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/6/16 **COMPLETED** 7/6/16
GROUND ELEVATION 8.2 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 2.71 ft / Elev 5.49 ft immediately before developing

DEPTH (ft)	MATERIAL DESCRIPTION		WELL DIAGRAM
0			Casing Top Elev: 11.25 (ft) Casing Type: Aluminium
	Dark brown clayey SILT (OL) with trace sand and occasional roots; moist	1.0 / 7.2	
	Brown gray slightly clayey very fine SAND (SP-SC); wet at 4 ft, saturated at 5 ft	7.0 / 1.2	Bentonite Grout; 2" PVC Sch. 40
5			
	Light gray very fine SAND (SP)	11.0 / -2.8	Bentonite Chips
10			
	Light gray very light green slightly clayey very fine SAND (SP-SC)	12.0 / -3.8	Bentonite Seal
	Gray brown very light green clayey very fine SAND (SC)	15.0 / -6.8	Sand (GP#1)
15			
	Very light green and brown very fine SAND (SP)	20.0 / -11.8	0.010" Slot U-Pack Screen
20			
	Very light green gray very fine SAND (SP)	25.0 / -16.8	Cave-in
25			

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 8.25 ft NAVD 88.

WELL NUMBER MCM-04

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 6/30/16 **COMPLETED** 6/30/16
GROUND ELEVATION 9.3 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 7.35 ft / Elev 1.95 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0				Casing Top Elev: 12.39 (ft) Casing Type: Aluminium
			Dark brown and light brown gray brown very fine SAND (SP) with trace roots	
1.0				8.3
			Light brown very fine SAND (SP)	Bentonite Grout
5				
6.5				2.8
			Gray dark orange clayey very fine SAND (SP-SC); moist	2" PVC Sch. 40
10				Bentonite Chips
10.0				-0.7
			Light brown gray very fine SAND (SP); wet at 10 ft, saturated at 13 ft	Bentonite Seal
				Sand (GP#1)
15				
15.0				-5.7
			Light gray orange very fine SAND (SP)	
20				0.010" Slot U-Pack Screen
25				
25.0				-15.7

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 9.50 ft NAVD 88.

WELL NUMBER MCM-05

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/9/16 **COMPLETED** 7/9/16
GROUND ELEVATION 7.6 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 7.16 ft / Elev 0.44 ft immediately before developing

DEPTH (ft)	MATERIAL DESCRIPTION		WELL DIAGRAM
0			Casing Top Elev: 10.04 (ft) Casing Type: Aluminium
	Brown SILT (OL) with occasional roots and gravel	6.6	
1.0	Orange brown and light brown layered very fine SAND (SP); moist at 2 ft		Bentonite Grout
5			2" PVC Sch. 40
7.5 ▼		0.1	
	Orange brown gray slightly silty very fine SAND (SP-SM); saturated at 10 ft		Bentonite Chips
10			
11.5		-3.9	Bentonite Seal
	Dark gray CLAY (CH)		
13.0		-5.4	Sand (GP#1)
	Gray slightly clayey fine SAND (SP-SC)		
15			
16.0		-8.4	
	Light gray very fine SAND (SP)		
20			0.010" Slot U-Pack Screen
20.0		-12.4	
	Light gray fine to coarse SAND (SW)		
25			
25.0		-17.4	

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 7.80 ft NAVD 88.

WELL NUMBER MCM-06

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/8/16 **COMPLETED** 7/8/16
GROUND ELEVATION 7.6 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 7.22 ft / Elev 0.38 ft immediately before developing

DEPTH (ft)	MATERIAL DESCRIPTION	
0	Brown SILT (OL) with occasional roots and gravel	1.5 / 6.1
5	Orange brown and light brown layered very fine SAND (SP); moist at 4 ft	5.0 / 2.6
10	Orange brown gray slightly silty very fine SAND (SP-SM); wet at 5 ft	10.0 / -2.4
10	Brown silty very fine SAND (SM)	12.0 / -4.4
15	Gray brown slightly silty fine SAND (SP-SM) with trace clay	15.0 / -7.4
20	Dark gray slightly clayey fine SAND (SP-SC)	20.0 / -12.4
25	Gray to dark gray fine to coarse SAND (SW)	25.0 / -17.4

WELL DIAGRAM
Casing Top Elev: 10.15 (ft)
Casing Type: Aluminium
Bentonite Grout
2" PVC Sch. 40
Bentonite Chips
Bentonite Seal
Sand (GP#1)
0.010" Slot U-Pack Screen
Cave-in

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 7.87 ft NAVD 88.

WELL NUMBER MCM-07

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/8/16 **COMPLETED** 7/8/16
GROUND ELEVATION 6.8 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 5.22 ft / Elev 1.58 ft immediately before developing

DEPTH (ft)	MATERIAL DESCRIPTION		WELL DIAGRAM
0			Casing Top Elev: 10.2 (ft) Casing Type: Aluminium
	Orange and gray very fine SAND (SP) with trace roots		
2.0		4.8	Bentonite Grout
	Dark brown gray silty clayey very fine SAND (SP-SC); moist at 3 ft, wet at 4 ft		2" PVC Sch. 40
5			
5.5		1.3	Bentonite Chips
6.5	Light brown very fine SAND (SP)	0.3	
	Gray very fine sandy CLAY (CL)		Bentonite Seal
10			Sand (GP#1)
12.5		-5.7	
	Gray brown slightly silty very fine SAND (SP)		
15			0.010" Slot U-Pack Screen
20.0		-13.2	
	Green gray slightly silty CLAY (CL)		
23.0		-16.2	Bentonite Chip Backfill
	Green gray fat CLAY (CH)		
25			
25.0		-18.2	

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 7.52 ft NAVD 88.

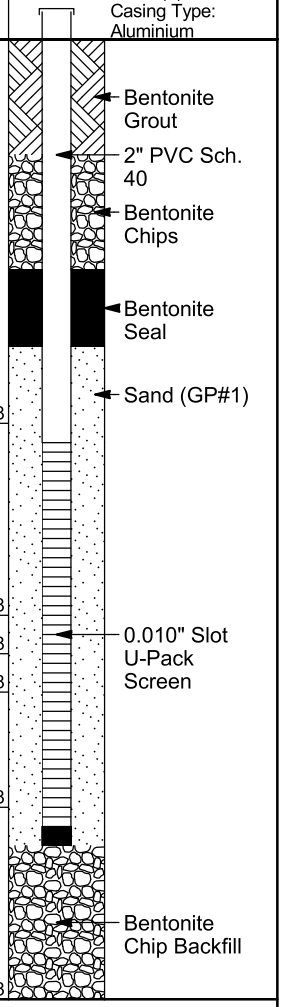
WELL NUMBER MCM-11

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/11/16 **COMPLETED** 7/12/16
GROUND ELEVATION 7.2 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 3.72 ft / Elev 3.48 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0			No recovery; air-vaccuum used to remove soils and ensure buried line clearance down to 10 ft
10			10.0 / -2.8
			Light brown orange fine SAND (SP); wet at 10 ft
15			15.0 / -7.8
			Light brown gray slightly clayey very fine SAND (SP-SC)
			16.0 / -8.8
			Orange very fine SAND (SP)
			17.0 / -9.8
20			Dark gray clayey very fine SAND (SC)
			20.0 / -12.8
			Gray green fat CLAY (CH)
25			25.0 / -17.8

WELL DIAGRAM
Casing Top Elev: 10.23 (ft)
Casing Type: Aluminium



Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 7.52 ft NAVD 88.

WELL NUMBER MCM-12

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/12/16 **COMPLETED** 7/12/16
GROUND ELEVATION 8.6 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 6.80 ft / Elev 1.80 ft immediately before developing

DEPTH (ft)	MATERIAL DESCRIPTION	
0	Brown orange slightly silty very fine SAND (SP-SM) with trace roots; moist	
6.0		2.6
	Dark gray green sandy CLAY (CL); wet at 6 ft	
8.5		0.1
	Dark brown clayey very fine SAND (SC)	
10.5		-1.9
	Dark brown green slightly sandy CLAY (CL)	
12.5		-3.9
	Gray green slightly clayey very fine SAND (SP-SC)	
15.0		-6.4
15.5	Gray green slightly sandy CLAY (CL)	-6.9
	Dark gray fine SAND (SP)	
17.0		-8.4
	Light gray slightly clayey very fine SAND (SP-SC)	
25.0		-16.4

WELL DIAGRAM
Casing Top Elev: 11.87 (ft)
Casing Type: Aluminium
Bentonite Grout
2" PVC Sch. 40
Bentonite Chips
Bentonite Seal
Sand (GP#1)
0.010" Slot U-Pack Screen

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 8.99 ft NAVD 88.

WELL NUMBER MCM-14

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/9/16 **COMPLETED** 7/9/16
GROUND ELEVATION 8.3 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 6.42 ft / Elev 1.88 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0				
			No recovery; air-vaccuum used to remove soils and ensure buried line clearance down to 10 ft	
10			10.0	-1.7
			Gray brown clayey very fine SAND (SC); wet at 10 ft	
			11.5	-3.2
			Dark brown slightly sandy CLAY (CL) with ~20% shell fragments	
15			15.0	-6.7
			Dark gray fine SAND (SP) with green clay seams	
			16.0	-7.7
			Brown gray fine SAND (SP)	
20			20.0	-11.7
			Gray very fine SAND (SP)	
25			25.0	-16.7

Bottom of borehole at 25.0 feet.

WELL DIAGRAM
Casing Top Elev: 11.5 (ft)
Casing Type: Aluminium
Bentonite Grout
2" PVC Sch. 40
Bentonite Chips
Bentonite Seal
Sand (GP#1)
0.010" Slot U-Pack Screen

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 8.66 ft NAVD 88.

WELL NUMBER MCM-15

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 6/30/16 **COMPLETED** 6/30/16
GROUND ELEVATION 9.9 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 7.65 ft / Elev 2.25 ft immediately before developing

DEPTH (ft)	MATERIAL DESCRIPTION	
0		
	Dark brown and light gray brown very fine SAND (SP) with trace roots	1.0 / 8.9
	Dark orange brown silty very fine SAND (SM)	
5		6.0 / 3.9
	Gray slightly clayey very fine SAND (SP-SC); wet at 7 ft	
10		12.5 / -2.6
	Gray dark orange very fine SAND with clay (SP-SC)	
15		
20		20.0 / -10.1
	Dark gray medium SAND (SP)	
25		25.0 / -15.1

WELL DIAGRAM
Casing Top Elev: 12.84 (ft)
Casing Type: Aluminium
Bentonite Grout
2" PVC Sch. 40
Bentonite Chips
Bentonite Seal
Sand (GP#1)
0.010" Slot U-Pack Screen

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 10.18 ft NAVD 88.

WELL NUMBER MCM-16

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/6/16 **COMPLETED** 7/6/16
GROUND ELEVATION 12.6 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 7.28 ft / Elev 5.32 ft immediately before developing

DEPTH (ft)	MATERIAL DESCRIPTION		WELL DIAGRAM
0			Casing Top Elev: 16.02 (ft) Casing Type: Aluminium
1.0	Dark brown gray sandy SILT (ML) with occasional roots; moist	11.6	
	Light brown and light gray very fine SAND (SP) with race roots; wet at 3 ft		Bentonite Grout
5.0		7.6	
	Brown and light brown and orange slightly clayey very fine SAND (SP-SC)		2" PVC Sch. 40
8.0		4.6	
	Gray orange clayey very fine SAND (SP-SC)		Bentonite Chips
11.5		1.1	
	Very light green gray very fine SAND (SP)		Bentonite Seal
			Sand (GP#1)
15.0		-2.4	
	Light gray orange very fine SAND (SP)		
20.0		-7.4	0.010" Slot U-Pack Screen
21.0	Light orange blue slightly clayey very fine SAND (SP-SC)	-8.4	
	Blue and orange and light gray very fine SAND (SP)		
25.0		-12.4	

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 13.04 ft NAVD 88.

WELL NUMBER MCM-17

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 9/29/16 **COMPLETED** 9/29/16
GROUND ELEVATION 8.9 ft NAVD 88 **HOLE SIZE** 3.25 inches
DRILLING CONTRACTOR Atlas-Geo Sampling Company
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Kevin Stephenson **CHECKED BY** Trent Godwin
AT END OF DRILLING ---
NOTES
AFTER DRILLING 6.95 ft / Elev 1.95 ft immediately before developing

DEPTH (ft)	MATERIAL DESCRIPTION	
0	Gray brown orange fine SAND (SP)	
7.0		1.9
8.0	Brown silty SAND (SM)	0.9
9.0	Gray clayey silty SAND (SC-SM)	-0.1
10	Gray fine SAND (SP); saturated at 10 ft	
14.0		-5.1
15	Gray clayey SAND (SC)	-6.1
16.0	Dark gray SAND (SP)	-7.1
18.0	Brown gray silty clayey fine SAND (SC-SM) with organic material	-9.1
20	Gray fine SAND (SP)	-11.1
22.8	Gray clayey fine SAND (SC)	-13.9
23.3	Gray CLAY (CL)	-14.4
24.0	Gray fine SAND (SP)	-15.1

Bottom of borehole at 24.0 feet.

WELL DIAGRAM
Casing Top Elev: 11.49 (ft)
Casing Type: Aluminium
Bentonite Chips
2" PVC Sch. 40
Bentonite Seal
0.010" Slot Pre-Pack Screen

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 9.09 ft NAVD 88.

WELL NUMBER MCM-18

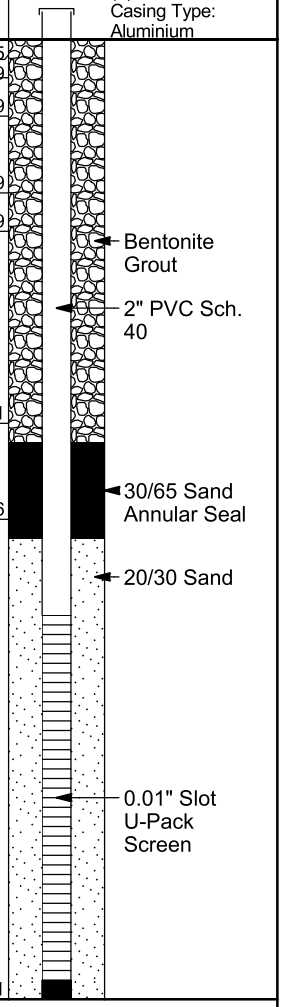
Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 10/30/19 **COMPLETED** 10/30/19
GROUND ELEVATION 5.9 ft NAVD 88 **HOLE SIZE** 12 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger (HSA)
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth
AT END OF DRILLING ---
NOTES
AFTER DRILLING 3.54 ft / Elev 2.36 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0		OL		0.4 (OL) Dark brown, organic detritus	5.5
		SP		1.0 (SP) Grey, very fine sand	4.9
		SP		2.0 (SP) Dark brown, very fine sand	3.9
		CL		(CL) Orange, grey, slightly sandy clay	
				4.0	1.9
5		SC		5.0 (SC) Grey, orange, clayey sand	0.9
		SP		(SP) Light grey, very fine sand with a clayey sand layer at 7.0-7.2 bgs. Saturated at 6.0' bgs	
10				10.0	-4.1
		SC		(SC) Dark grey, clayey sand- saturated	
				12.5	-6.6
15		SP		(SP) Dark grey, fine sand	
20					
25				25.0	-19.1

Bottom of borehole at 25.0 feet.

WELL DIAGRAM



Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 6.01 ft NAVD 88.

WELL NUMBER MCM-19

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 10/30/19 **COMPLETED** 10/30/19
GROUND ELEVATION 5.3 ft NAVD 88 **HOLE SIZE** 12 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger (HSA)
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth
AT END OF DRILLING ---
NOTES
AFTER DRILLING 2.53 ft / Elev 2.77 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0						Casing Top Elev: 8.71 (ft) Casing Type: Aluminium
		OL		(OL) Black organic detritus	4.3	
				1.0		
		SP		(SP) Light grey, fine sand.		
				3.0	2.3	
		CL		(CL) Grey, orange, sandy clay		
5						Bentonite Grout
						2" PVC Sch. 40
				8.5	-3.2	
		SC		(SC) Light grey, clayey sand		
10				10.0	-4.7	
		SM		(SM) Dark grey, slightly clayey, very fine sand		30/65 Sand Annular Seal
						20/30 Sand
15				15.0	-9.7	
		SP		(SP) Dark grey, very fine sand- saturated		
20						0.01" Slot U-Pack Screen
				22.0	-16.7	
		CL		22.8 (CL) Dark grey, sandy clay	-17.5	
		SP		(SP) Dark grey, very fine sand		
25				25.0	-19.7	

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 5.77 ft NAVD 88.

WELL NUMBER MCM-20

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 10/30/19 **COMPLETED** 10/30/19
GROUND ELEVATION 6.6 ft NAVD 88 **HOLE SIZE** 12 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger (HSA)
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth
AT END OF DRILLING ---
NOTES
AFTER DRILLING 5.18 ft / Elev 1.42 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0						Casing Top Elev: 10.07 (ft) Casing Type: Aluminium
		OL		0.5 (OL) Dark brown, organic detritus	6.1	
		SP		(SP) Grey, very fine sand		
				2.0	4.6	
		SP		3.0 (SP) Brown, very fine sand.	3.6	Bentonite Grout
		CL		(CL) Orange, grey, sandy clay		2" PVC Sch. 40
5						30/65 Sand Annular Seal
				8.8	-2.2	
		SP		(SP) Light grey, fine sand		20/30 Sand
10						
				12.6	-6.0	
		SP		(SP) Dark grey, very fine sand		
15						0.01" Slot U-Pack Screen
				18.8	-12.2	
		SC		19.5 (SC) Dark grey, slighly clayey sand	-12.9	
20		CL		(CL) Dark grey, sandy clay		
				23.0	-16.4	Cave-in
		SC		(SC) Dark grey, clayey sand		
25				25.0	-18.4	

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 7.07 ft NAVD 88.

Piezometers & Other Wells

WELL NUMBER MCM-03

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

Piezometer was abandoned on October 15, 2025

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/1/16 **COMPLETED** 7/6/16
GROUND ELEVATION 6.8 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 5.22 ft / Elev 1.58 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0				
			0.5 Dark brown very fine SAND (SP) with trace roots	6.3
			Gray brown very fine SAND (SP); moist at 1.75 ft	
5			5.0	1.8
			Brown gray slightly clayey very fine SAND (SP-SC); wet at 5.5 ft, saturated at 6.5 ft	
10			10.0	-3.2
			Light gray slightly clayey very fine SAND (SP-SC)	
			12.0	-5.2
			Gray very fine SAND (SP)	
15			15.0	-8.2
			Light gray slightly clayey very fine SAND (SP-SC)	
			17.0	-10.2
			Gray very fine SAND (SP)	
20				
25			25.0	-18.2

WELL DIAGRAM
Casing Top Elev: 9.97 (ft)
Casing Type: Aluminium
Bentonite Grout
2" PVC Sch. 40
Bentonite Chips
Bentonite Seal
Sand (GP#1)
0.010" Slot U-Pack Screen

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 7.10 ft NAVD 88.

WELL NUMBER MCM-08

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/11/16 **COMPLETED** 7/11/16
GROUND ELEVATION 6.5 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 4.47 ft / Elev 2.03 ft immediately before developing

DEPTH (ft)	MATERIAL DESCRIPTION		
0			
	Light brown and dark gray very fine SAND (SP) with trace roots	1.0	5.5
	Light brown and light gray slightly clayey SAND (SP-SC); moist at 1 ft	1.5	5.0
	Brown green sandy fat CLAY (CH); wet at 2.5 ft	2.5	4.0
	Light brown green slightly clayey SAND (SP-SC)		
5			
		7.5	-1.0
	Gray brown slightly silty very fine SAND (SP)		
10			
		11.5	-5.0
	Green gray slightly clayey very fine SAND (SP)		
15			
		16.0	-9.5
	Dark gray slightly clayey fine SAND (SP-SC)		
20		20.0	-13.5
	No recovery; driller suspsected SAND (SP)		
25		25.0	-18.5

Bottom of borehole at 25.0 feet.

WELL DIAGRAM
Casing Top Elev: 9.42 (ft)
Casing Type: Aluminium
Bentonite Grout
2" PVC Sch. 40
Bentonite Chips
Bentonite Seal
Sand (GP#1)
0.010" Slot U-Pack Screen

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 6.55 ft NAVD 88.

Resolute Environmental & Water Resources Consulting, LLC
1001 Weatherstone Parkway Suite 410
Woodstock, GA 30188
Telephone: 678.398.9942
Fax: 888.881.8219

BORING NUMBER MCM-9

Piezometer was abandoned on December 2, 2019

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 07/10/16 **COMPLETED** 07/10/16
GROUND ELEVATION 6.47 ft MSL **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 4.07 ft / Elev 2.40 ft immediately before developing

DEPTH (ft)	MATERIAL DESCRIPTION	
0		
	Light brown, dark gray, and light gray very fine SAND (SP)	1.0 / 5.5
	Very dark brown to orange stily very fine SAND (SP-SM); moist at 4 ft	
5		5.5 / 1.0
	Dark orange red gray fat CLAY (CH); wet at 5 ft	
		9.0 / -2.5
10	Light gray slightly clayey very fine SAND (SP-SC)	10.0 / -3.5
	Brown orange gray clayey SAND (SC)	
15		15.0 / -8.5
	Dark gray orange clayey very fine SAND (SC)	16.0 / -9.5
	Dark gray clayey very fine SAND (SC) with silt	
20		22.0 / -15.5
	Dark gray orange clayey fine SAND (SC) with trace shell fragments	
25		25.0 / -18.5

Bottom of borehole at 25.0 feet.

WELL DIAGRAM

Casing Top Elev: 9.77 (ft)
Casing Type: Steel

- Bentonite Grout
- 2" PVC Sch. 40
- Bentonite Chips
- Bentonite Seal
- Sand (GP#1)
- 0.010" Slot U-Pack Screen

WELL NUMBER MCM-10

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/11/16 **COMPLETED** 7/11/16
GROUND ELEVATION 8.0 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 3.79 ft / Elev 4.21 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0				
			0.5 Orange brown silty very fine SAND (SM) with trace vegetation	7.5
			1.5 Gray orange slightly clayey fine SAND (SP-SC)	6.5
			Gray green dark brown sandy fat CLAY (CH); moist at 3 ft	
5				
			7.5	0.5
			Light gray orange brown slightly clayey fine SAND (SP-SC); wet at 10 ft	
10				
15			15.0	-7.0
			16.0 Light gray clayey very fine SAND (SC)	-8.0
			Dark gray slightly clayey very fine SAND (SP-SC)	
20				
			21.0	-13.0
			22.0 Dark gray clayey very fine SAND (SC)	-14.0
			Light gray sandy CLAY (CL)	
25			25.0	-17.0

WELL DIAGRAM

Casing Top Elev: 11.75 (ft)
Casing Type: Aluminium

- Bentonite Grout
- 2" PVC Sch. 40
- Bentonite Chips
- Bentonite Seal
- Sand (GP#1)
- 0.010" Slot U-Pack Screen
- Bentonite Chip Backfill

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 8.61 ft NAVD 88.

WELL NUMBER MCM-13

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

Piezometer was abandoned on October 14, 2025

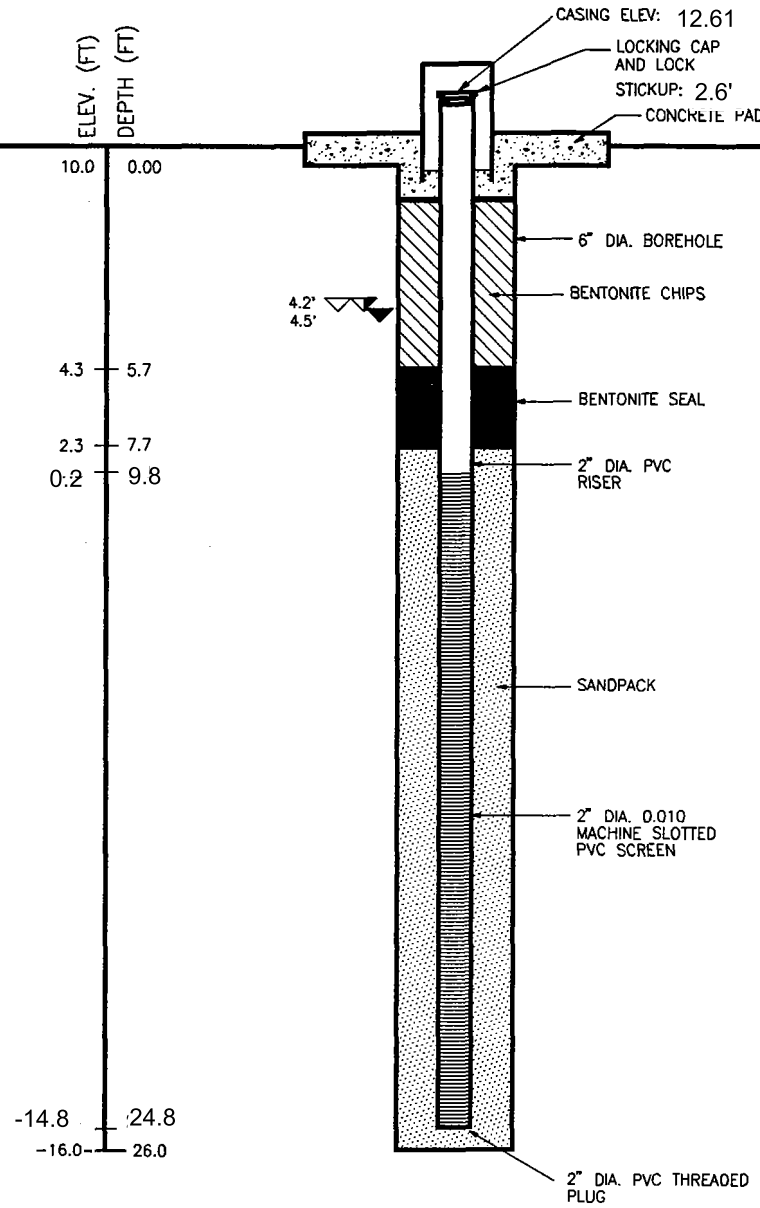
CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 7/9/16 **COMPLETED** 7/9/16
GROUND ELEVATION 9.4 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Keith Ziobron
AT END OF DRILLING ---
NOTES
AFTER DRILLING 15.13 ft / Elev -5.73 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0					Casing Top Elev: 12.56 (ft) Casing Type: Aluminium
			No recovery; air-vaccuum used to remove soils and ensure buried line clearance down to 10 ft		Bentonite Grout
5					2" PVC Sch. 40
					Bentonite Chips
10			10.0	-0.6	
			Brown orange gray clayey very fine SAND (SC)		Bentonite Seal
					Sand (GP#1)
15			15.0 ▼	-5.6	
			Green gray silty very fine SAND (SM)		
			18.5	-9.1	0.010" Slot U-Pack Screen
20			Gray fine to coarse SAND (SW)		
			20.0	-10.6	
			Light gray slightly clayey fine SAND (SP-SC)		
			23.0	-13.6	
			Dark gray coarse SAND (SP)		
25			25.0	-15.6	Cave-in

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag mail in the concrete pad at 9.79 ft NAVD 88.

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW– 1R DATE DRILLED 1998



ELEV. (FT)	DEPTH (FT)	DESCRIPTION
10.0	0.00	
	0.0	LIGHT BROWN TO GRAYISH BROWN VERY FINE SAND (SP)
4.3	5.7	
2.3	7.7	BLACK ORGANIC MATTER AT APPROXIMATELY 5 FEET
0.2	9.8	
	8.6	DARK GREY VERY SANDY CLAY (CL)
	9.5	PALE YELLOW BROWN TO VERY LIGHT GREY VERY FINE SAND (SP). GREEN–GREY CLAY SEAMS FROM 11.5 FEET TO 15 FEET
	15.6	
	16.0	GREEN–GREY VERY SANDY CLAY (CL)
		VERY LIGHT GREY VERY FINE SAND (SP)
		DARK GREY
		MEDIUM GREY
-14.8	24.8	
-16.0	26.0	
	36.0	

Lithology and well schematic from original MW-1 log 9/9//96

LEGEND

▽ – GROUNDWATER NOTED DURING DRILLING
▽ – GROUNDWATER IN WELL AT LOW TIDE
▼ – GROUNDWATER IN WELL AT HIGH TIDE

SCALE: VERTICAL: 1" = 5'
HORIZONTAL: NOT TO SCALE

ATC ASSOCIATES INC.
1300 Williams Drive
Marietta, Georgia 30066
(770)427-9456

REFERENCE:

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD

MONITORING WELL MW-1 DATE DRILLED 3/[illegible]/1998

DEPTH (FT)	DESCRIPTION
36.0	VERY LIGHT GREY VERY FINE SAND (SP) MEDIUM GREY
37.6	DARK GREY FINE SAND (SP-SC), WITH DARK GREEN-GREY CLAYEY SAND/SANDY CLAY SEAMS
40.0	DARK GREY FINE SAND (SP), WITH LITTLE MEDIUM SAND AND TRACE BLACK MINERALS
43.0	DARK GREY SILTY FINE SAND (SP-SC), WITH LITTLE TO SOME SEA SHELL FRAGMENTS. SHELLS INCREASING IN SIZE AND PERCENTAGE WITH DEPTH. SILT PERCENTAGE INCREASING WITH DEPTH.
54.0	BORING TERMINATED

LEGEND

SCALE: VERTICAL: 1" = 5'
HORIZONTAL: NOT TO SCALE

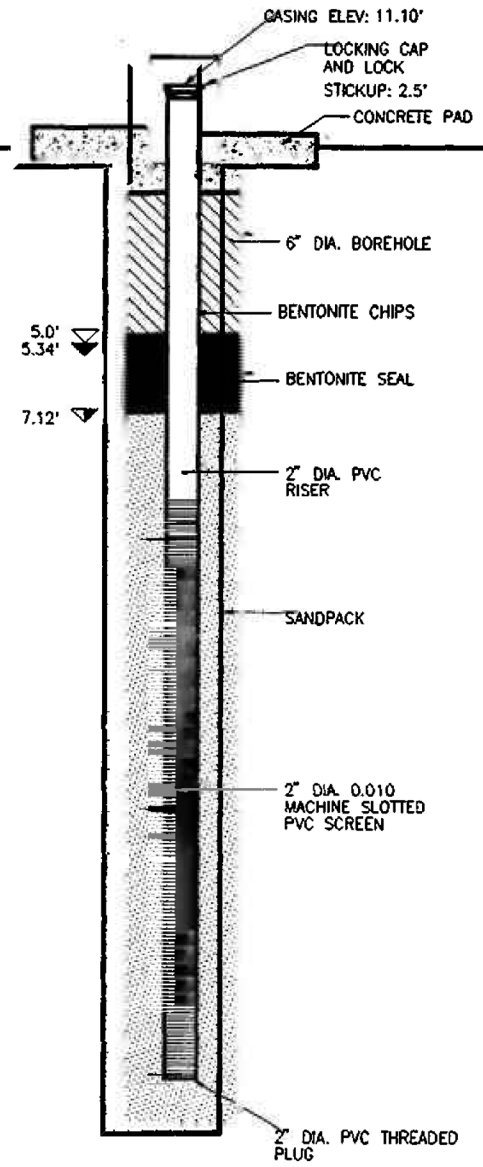
ATC ASSOCIATES INC.
1300 Williams Drive
Marietta, Georgia 30066
(770)427-9456

REFERENCE: 2/20/97 (750-212N) ARC

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW-2 DATE DRILLED 9/11/96



ELEV. (FT)	DEPTH (FT)	DESCRIPTION
8.6	0.00	
	0.0	FILL: BROWN, LIGHT BROWNISH GREY, ORANGE-BROWN AND YELLOW ORANGE LAYERED VERY FINE SAND (SP)
	3.6	
	3.9	VERY DARK BLAC GREEN SILTY CLAY (CL)
3.6	5.0	LIGHT BROWN GREY VERY FINE SAND (SP)
	5.0	BLACK AND BROWN SLIGHTLY SILTY CLAY (CH),*
	5.6	GREY BROWN CLAYEY VERY FINE SAND (SP-SC)
1.6	7.0	6.2 MEDIUM GREY TO LIGHT GREY VERY FINE SAND (SP)
-0.7	9.3	
	12.5	DARK BROWN SLIGHTLY SANDY TO GREEN-GREY CLAY (CH)
	15.0	MEDIUM GREY VERY FINE SAND (SP)
-15.7	24.3	
-16.9	25.5	26.0 MEDIUM DARK GREY WITH GREEN-GREY CLAY SEAMS

BORING TERMINATED

* WITH FINE ROOTS

LEGEND

- ▽ – GROUNDWATER NOTED DURING DRILLING
- ▼ – GROUNDWATER IN WELL AT LOW TIDE
- ▼ – GROUNDWATER IN WELL AT HIGH TIDE

VERTICAL: 1" = 5'
SCALE: HORIZONTAL: NOT TO SCALE

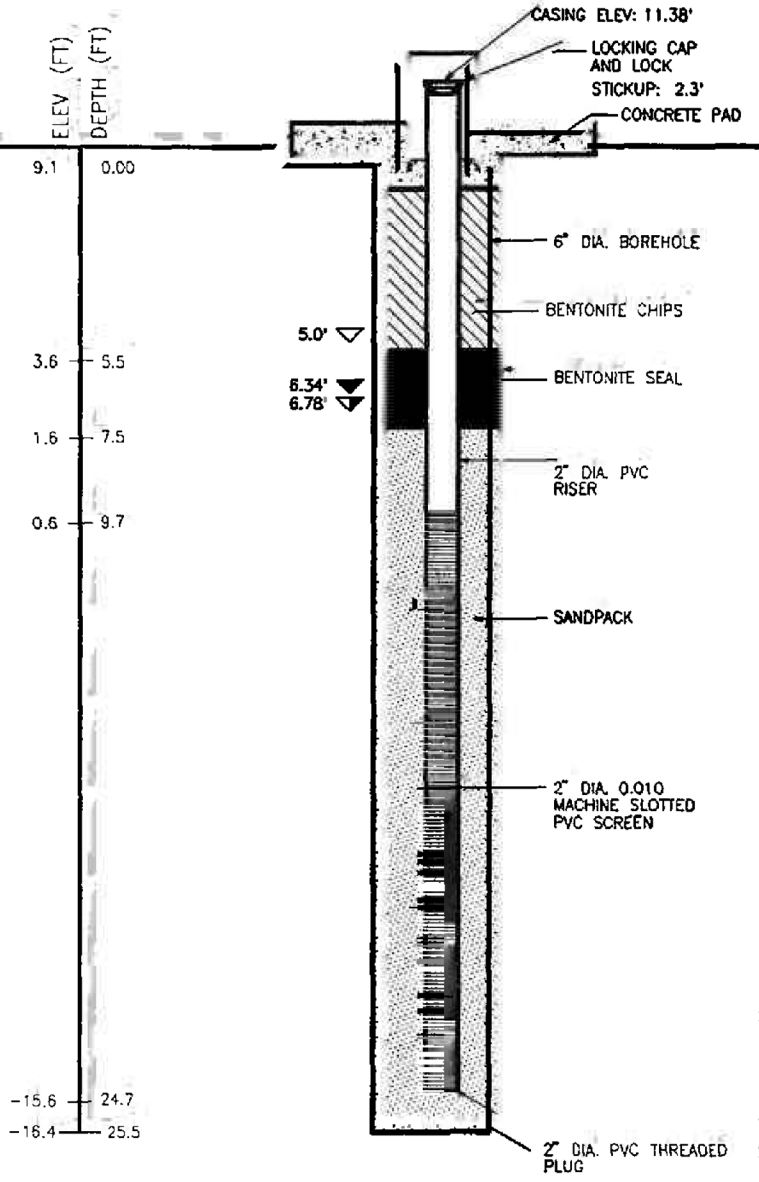
ATC ASSOCIATES INC.
1300 Williams Drive
Marietta, Georgia 30066
(770)427-9456

REFERENCE: 2/26/97 (796-212M) ARC

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW-3 DATE DRILLED 9/11/96



ELEV (FT)	DEPTH (FT)	DEPTH (FT)	DESCRIPTION
9.1	0.00	0.0	FILL: ORANGE-BROWN, BROWN, AND LIGHT GREY-BROWN LAYERED VERY FINE SAND (SP)
3.6	5.5	5.0	LIGHT GREY TO GREEN-GREY SLIGHTLY CLAYEY VERY FINE SAND (SP)
1.6	7.5	12.5	GREEN-GREY CLAYEY VERY FINE SAND (SC)
0.6	9.7	17.5	GREEN-GREY VERY FINE SAND (SP) WITH CLAY (CH) SEAMS
		22.5	GREEN-GREY MEDIUM SAND (SP), WITH COARSE-SAND SIZE SHELLS AND FRAGMENTS
-15.6	24.7	25.0	GREEN-GREY VERY FINE SAND (SP), WITH CLAY (CH) SEAMS
-16.4	25.5	26.0	BORING TERMINATED

LEGEND

- ▽ – GROUNDWATER NOTED DURING DRILLING
- ▼ – GROUNDWATER IN WELL AT LOW TIDE
- ▼ – GROUNDWATER IN WELL AT HIGH TIDE

VERTICAL: 1" = 5'
SCALE: HORIZONTAL: NOT TO SCALE

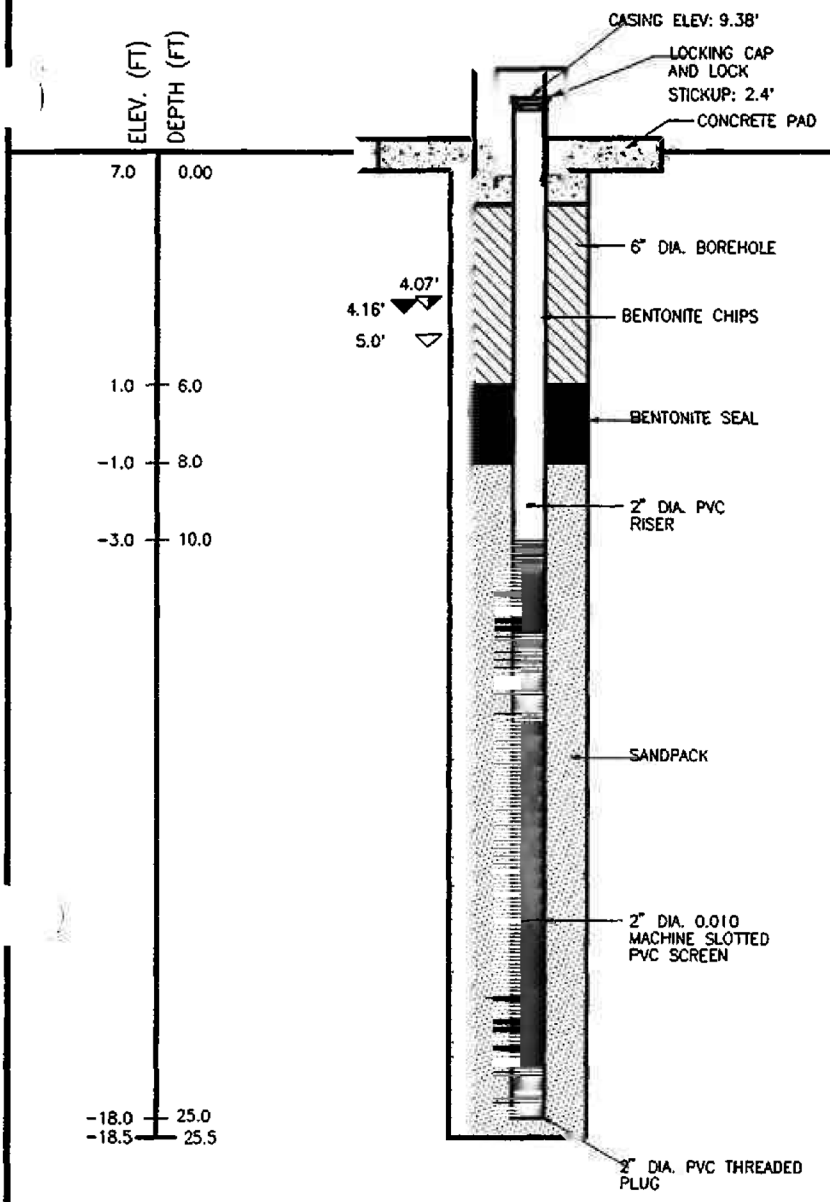
ATC ASSOCIATES INC.
1300 Williams Drive
Marietta, Georgia 30066
(770)427-9456

REFERENCE: 2/26/97 (796-212M) ARC

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW-4 DATE DRILLED 9/11/96



DEPTH (FT)	DESCRIPTION
0.0	FILL: DARK BROWN TO LIGHT GREY FINE SAND (SP)
4	FILL: VERY DARK BROWN VERY SANDY SILT (ML)
2.3	LIGHT GREY, ORANGE-BROWN, AND YELLOW-ORANGE MOTTLED SILTY VERY FINE SAND (SP-SM)
7.0	LIGHT GREY VERY FINE SAND (SP), WITH GREEN-GREY CLAY (CH) LAYERS
	MEDIUM GREY; WOOD FRAGMENTS
17.5	DARK GREEN-GREY CLAYEY VERY FINE SAND (SP-SC)
22.5	DARK GREY FINE TO MEDIUM SAND (SP), WITH GREEN-GREY CLAY (CH) SEAMS
24.8	DARK GREEN-GREY CLAYEY VERY FINE SAND (SC)
26.0	BORING TERMINATED

LEGEND

- GROUNDWATER NOTED DURING DRILLING
- GROUNDWATER IN WELL AT LOW TIDE
- GROUNDWATER IN WELL AT HIGH TIDE

VERTICAL: 1" = 5'
SCALE: HORIZONTAL: NOT TO SCALE

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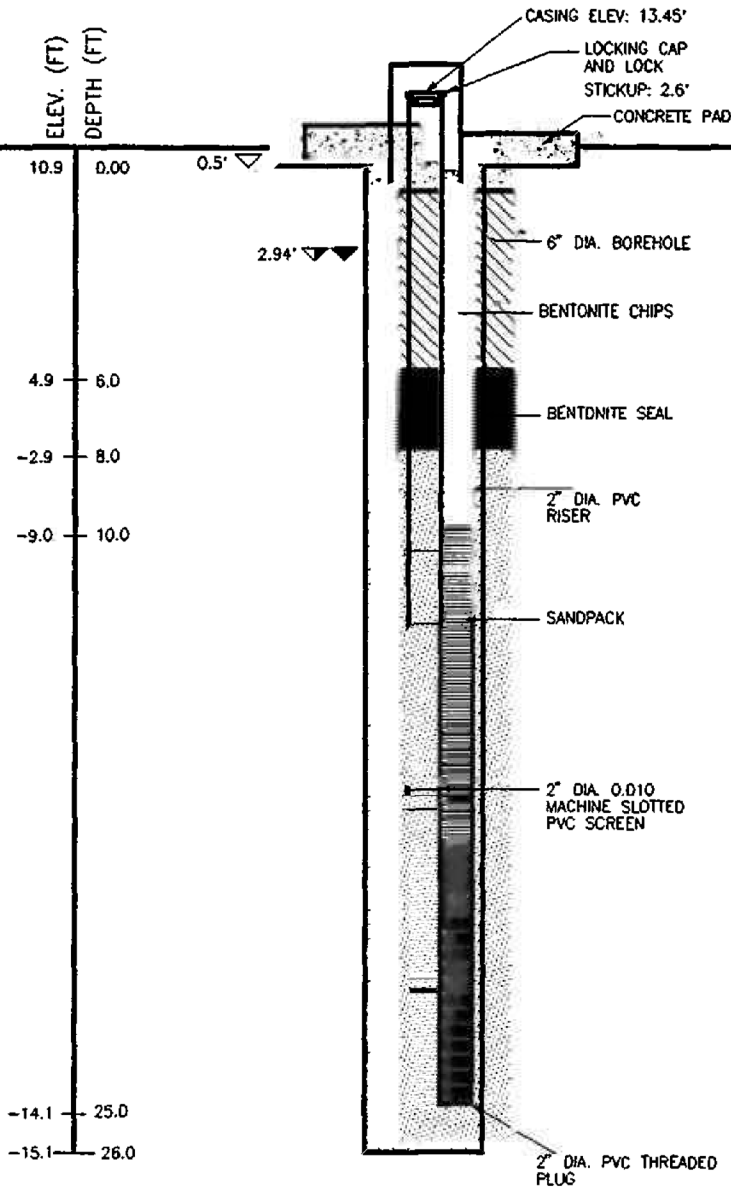
Marietta, Georgia 30066
(770)427-9456

REFERENCE: 2/26/97 (796-212M) ARC

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW-5 DATE DRILLED 9/11/96



DEPTH (FT)	DESCRIPTION
0.0	FILL: DARK-BROWN, LIGHT BROWN, ORANGE-YELLOW SILTY VERY FINE SAND (SP-SM), WITH COARSE GRAVEL AT 0.5'
2.4	MEDIUM GREY-BROWN, LIGHT GREY-GREEN, AND ORANGE BROWN MOTTLED SILTY VERY FINE SAND (SM)
7.5	DARK GREY VERY FINE SAND (SP), WITH FINE TO MEDIUM GRAVEL
9.1	MEDIUM GREY BROWN VERY FINE SAND (SP), WITH VERY LIGHT GREEN-GREY CLAYEY SAND SEAMS
14.0	MEDIUM DARK GREY VERY CLAYEY VERY FINE SAND (SC), WITH GREEN-GREY CLAY SEAMS
17.5	DARK GREEN-GREY VERY FINE SAND (SP)
22.5	DARK GREEN-GREY CLAYEY VERY FINE SAND (SC) WITH CLAY (CH) SEAMS
26.0	BORING TERMINATED

LEGEND

- ▽ – GROUNDWATER NOTED DURING DRILLING
- ▽ – GROUNDWATER IN WELL AT LOW TIDE
- ▼ – GROUNDWATER IN WELL AT HIGH TIDE

VERTICAL: 1" = 5'
SCALE: HORIZONTAL: NOT TO SCALE

ATC ASSOCIATES INC.
1300 Williams Drive
Marietta, Georgia 30066
(770)427-9456

REFERENCE: 2/26/97 (796-212M) ARC

PROJECT

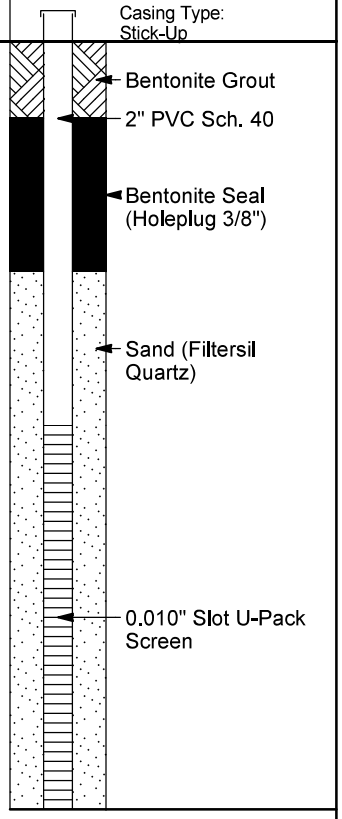
GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

Resolute Environmental & Water Resources Consulting, LLC
1001 Weatherstone Parkway Suite 410
Woodstock, GA 30188
Telephone: 678.398.9942
Fax: 888.881.8219

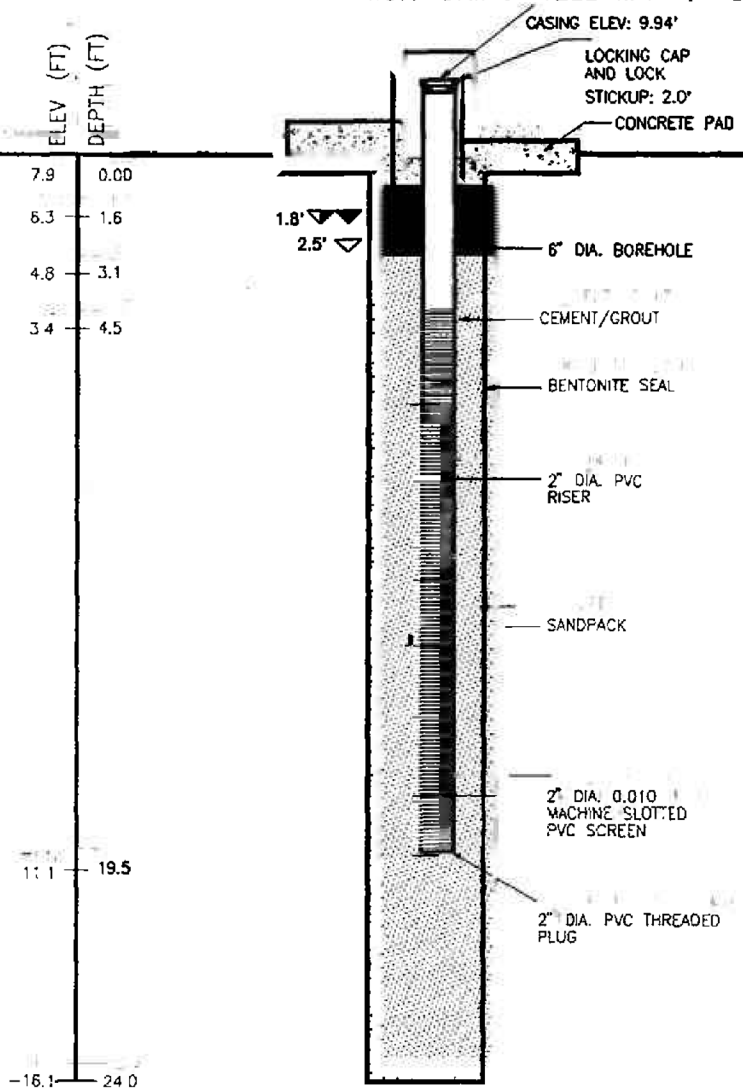
BORING NUMBER MW-6R

CLIENT Georgia Power Company
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 03/06/18 **COMPLETED** 03/06/18
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Atlas-Geo Sampling Company
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger (HSA)
AT TIME OF DRILLING ---
LOGGED BY Michael Patinkin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING 4.30 ft immediately before developing

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Dark brown silty SAND with gravel (SM)
2.0		Dark brown silty SAND (SM); moist at 4 ft
5		Dark gray silty SAND (SM); wet at 6 ft
10		Dark gray silty SAND with clay (SC-SM); saturated at 10 ft
15		Dark gray silty SAND with clay (SC-SM)
20		
20.0		Bottom of borehole at 20.0 feet.



MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW-7 DATE DRILLED 9/16/96



DEPTH (FT)	DESCRIPTION
0.0	FILL: DARK GREY, ORANGE-BROWN, LIGHT GREY AND BLACK SILTY VERY FINE SAND(SM), WITH COAL FRAGMENTS
1.4	MEDIUM LIGHT GREY SILTY VERY FINE SAND (SP-SM)
2.2	MEDIUM LIGHT GREY, ORANGE-BROWN, AND YELLOW-ORANGE SANDY CLAY (CL)
7.5	GRADING INTO CLAYEY SAND
	MEDIUM LIGHT GREY, ORANGE-BROWN CLAYEY SAND (SC)
12.5	MEDIUM DARK GREY SLIGHTLY CLAYEY VERY FINE SAND (SP), WITH DARK GREEN-GREY CLAY (CH) SEAMS
17.5	DARK GREEN-GREY CLAY (CH), WITH THIN CLAYEY SAND SEAMS
26.0	BORING TERMINATED

LEGEND

- ▽ – GROUNDWATER NOTED DURING DRILLING
- ▼ – GROUNDWATER IN WELL AT LOW TIDE
- ▼ – GROUNDWATER IN WELL AT HIGH TIDE

SCALE: VERTICAL: 1" = 5'
HORIZONTAL: NOT TO SCALE

ATC ASSOCIATES INC.
1300 Williams Drive
Marietta, Georgia 30066
(770)427-9456

REFERENCE: 2/26/97 (796-212M) ARC

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW-8 DATE DRILLED 9/10/96

Piezometer was abandoned in January 2020

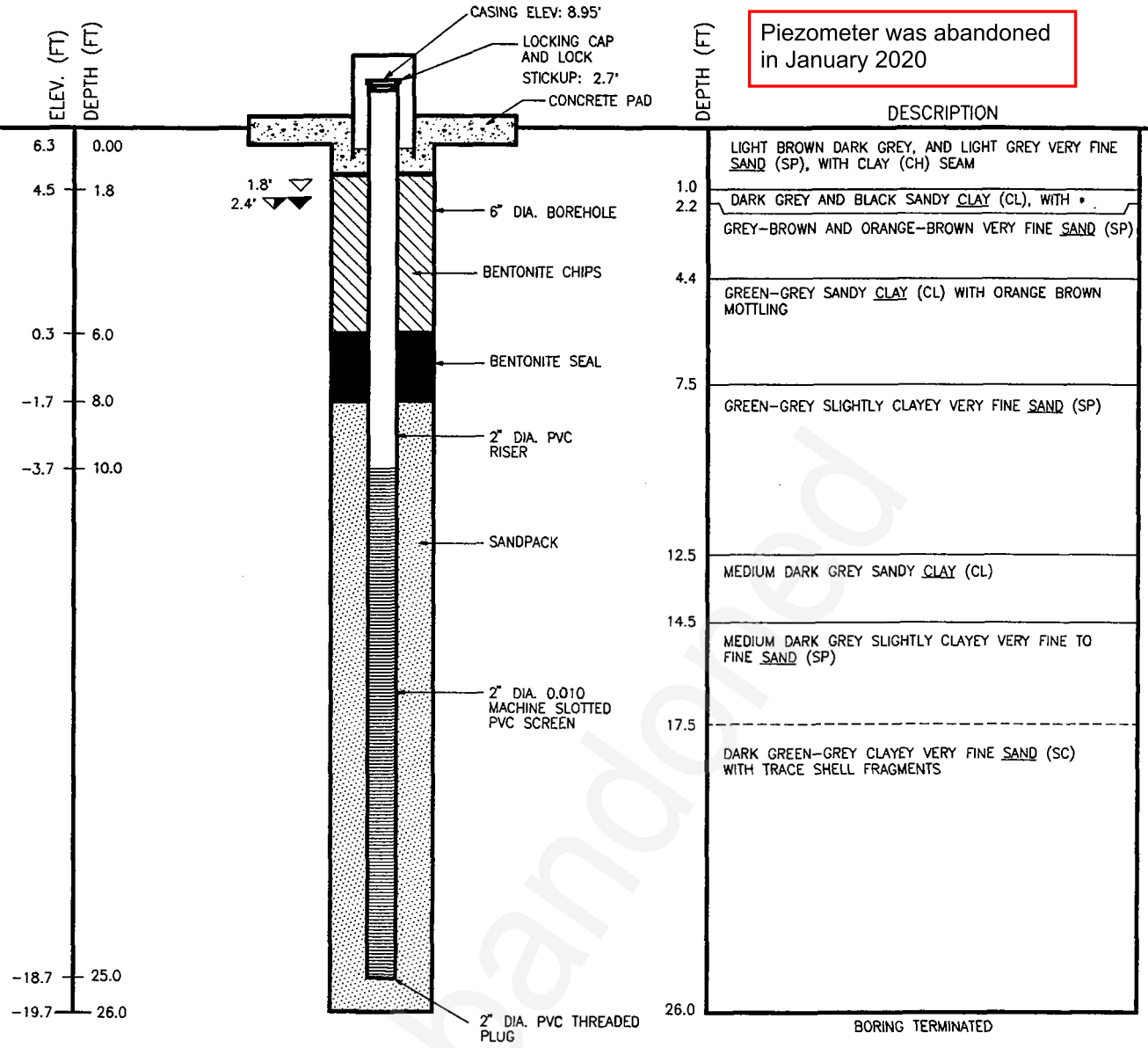


Figure 2

LEGEND

▽ – GROUNDWATER NOTED DURING DRILLING
▽▼ – GROUNDWATER IN WELL AT LOW TIDE
▼ – GROUNDWATER IN WELL AT HIGH TIDE

SCALE: VERTICAL: 1" = 5'
HORIZONTAL: NOT TO SCALE

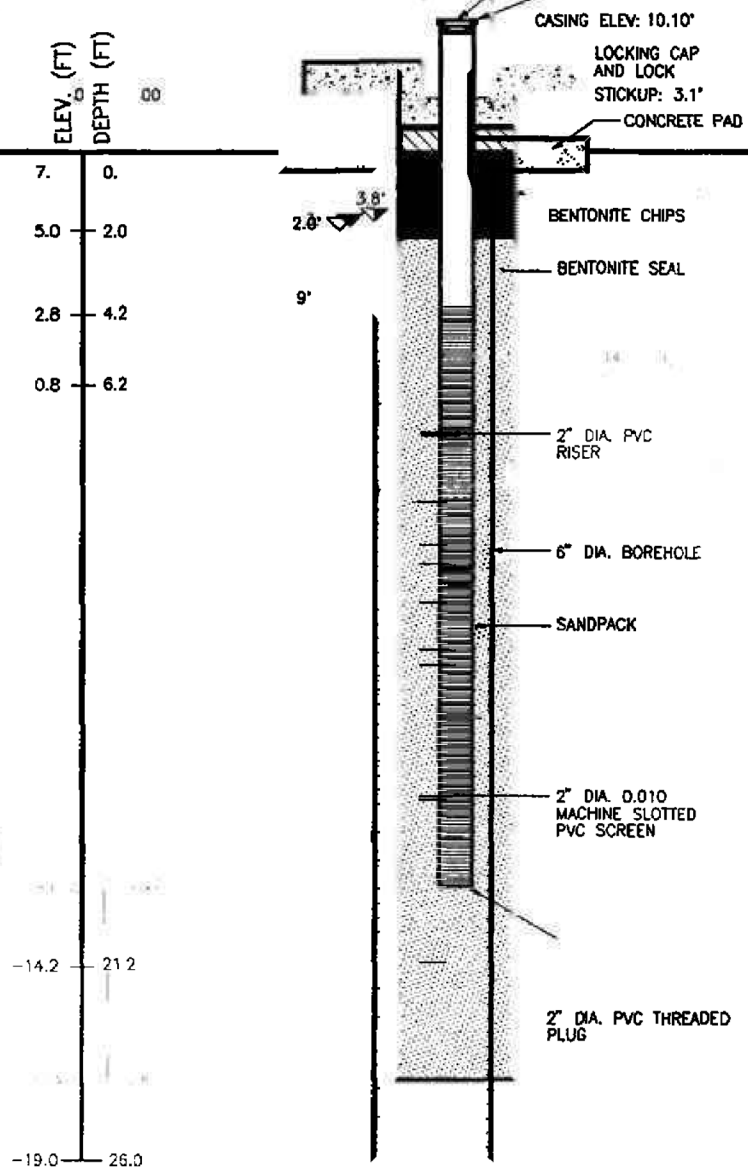
ATC ASSOCIATES INC.
1300 Williams Drive
Marietta, Georgia 30066
(770)427-9456

REFERENCE: 2/26/97 (796-212M) ARC | 1

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW– 9 DATE DRILLED 9/16/96



DEPTH (FT)	DESCRIPTION
0	DARK BROWN, MEDIUM GREY, AND VERY LIGHT GREY VERY FINE SAND (SP)
2.0	VERY DARK BROWN TO MEDIUM ORANGE BROWN SILTY VERY FINE SAND (SP–SM)
7.0	VERY LIGHT GREEN GREY VERY FINE SAND (SP)
12.5	YELLOW–ORANGE VERY FINE SAND (SP) WITH LIGHT GREEN GREY CLAY SEAMS TO 1/8–INCH
17.5	DARK GREY FINE TO MEDIUM SAND (SP), WITH CLAY SEAMS TO 1/2–INCH
19.6	DARK GREEN GREY CLAYEY FINE SAND (SC)
20.6	DARK GREEN GREY CLAY (CH)
26.0	BORING TERMINATED

ATC

LEGEND

- ▽ – GROUNDWATER NOTED DURING DRILLING
- ▽ – GROUNDWATER IN WELL AT LOW TIDE
- ▼ – GROUNDWATER IN WELL AT HIGH TIDE

VERTICAL: 1" = 5'
SCALE: HORIZONTAL: NOT TO SCALE

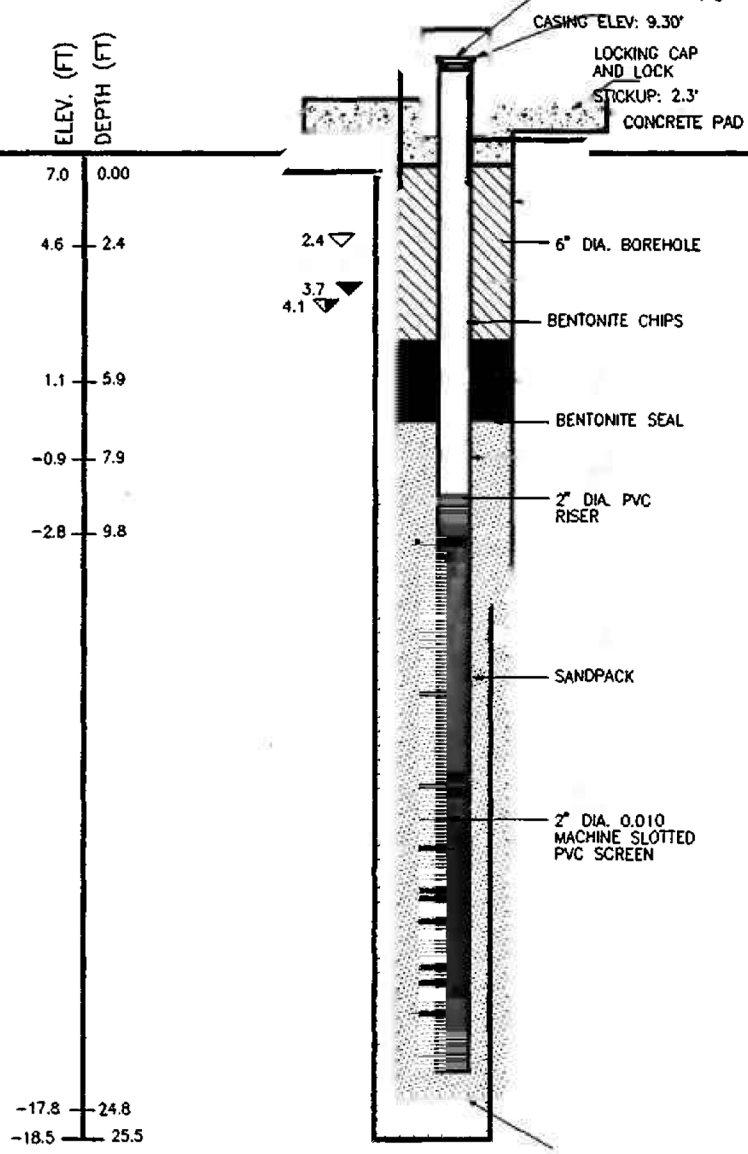
ASSOCIATES INC.
1300 Williams Drive
Marietta, Georgia 30066
(770)427-9456

REFERENCE: 2/26/97 (796–212M) ARC

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW- 10 DATE DRILLED 9/5/96



ELEV. (FT)	DEPTH (FT)	DESCRIPTION
7.0	0.00	FILL: ORNAGE-BROWN AND LIGHT BROWN LAYERED VERY FINE SAND
4.6	2.4	
	4.2	DARK BROWN SILTY CLAYEY VERY FINE SAND (SM-SC)
1.1	5.9	
	5.8	MEDIUM GREY VERY FINE SANDY CLAY (CL) COARSENING DOWN TO CLAYEY SAND
-0.9	7.9	
	8.0	LIGHT GREY TO VERY LIGHT GREY SLIGHTLY SILTY VERY FINE SAND (SP)
-2.8	9.8	
	12.8	MEDIUM DARK GREY SLIGHTLY CLAYEY TO CLAYEY FINE SAND (SP-SC) CLAY SEAMS BETWEEN 17 AND 20 FEET
	20.0	DARK GREEN GREY CLAYEY FINE SAND (SC), WITH CLAY SEAMS
-17.8	24.8	
-18.5	25.5	
	25.0	MEDIUM GREY VERY FINE SAND (SP)
	27.0	GREEN GREY SLIGHTLY SILTY CLAY (CL)
	28.0	GREEN GREY CLAY (CH), WITH SAND SEAMS UP TO ONE-INCH THICK

LEGEND

- ▽ – GROUNDWATER NOTED DURING DRILLING
- ◥▽ – GROUNDWATER IN WELL AT LOW TIDE
- ▼ – GROUNDWATER IN WELL AT HIGH TIDE

SCALE: VERTICAL: 1" = 5'
HORIZONTAL: NOT TO SCALE

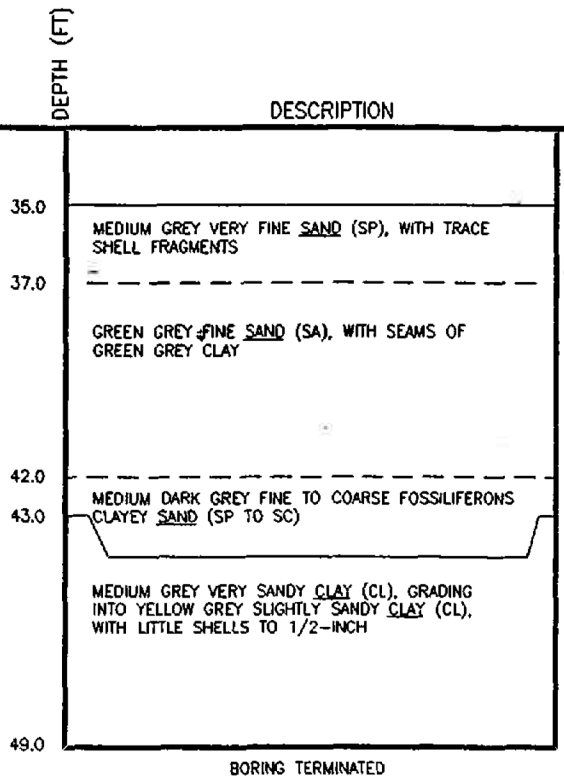
ATC ASSOCIATES INC.
1300 Williams Drive
Marietta, Georgia 30066
(770)427-9456

REFERENCE: 2/26/97 (796-212N) ARC

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW– 10 DATE DRILLED 9/5/96



LEGEND

SCALE: VERTICAL: 1" = 5'
HORIZONTAL: NOT TO SCALE

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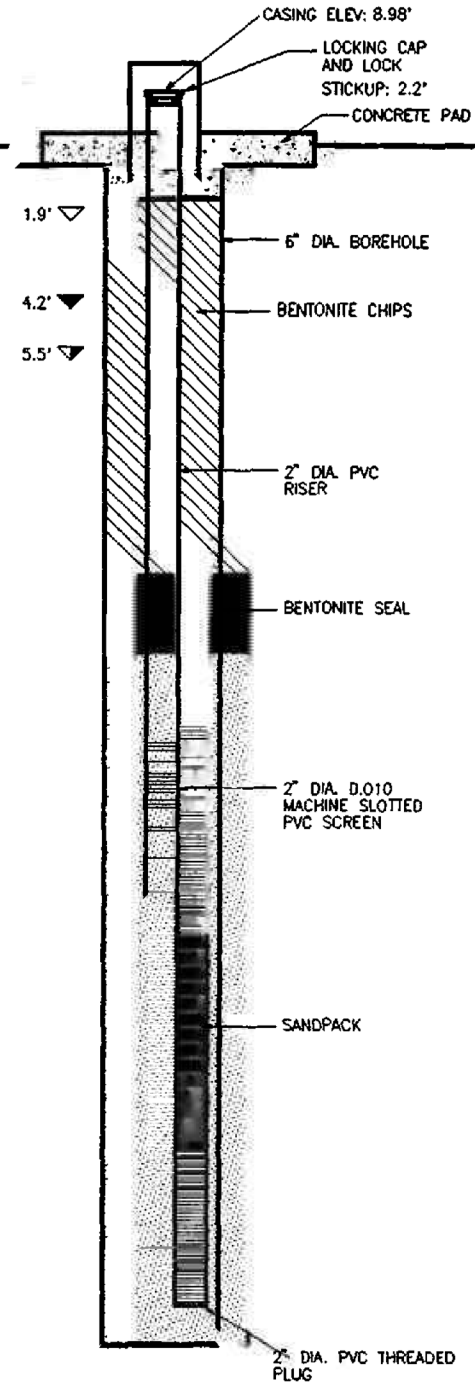
REFERENCE: 2/26/97 (796 212N) ARC

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW-11 DATE DRILLED 9/10/96



ELEV. (FT)	DEPTH (FT)	DESCRIPTION
6.8	0.00	FILL: ORANGE BROWN, BROWN AND GREY BROWN LAYERED VERY FINE SAND
4.9	1.9	
	4.3	DARK BROWN SILTY VERY FINE SAND (SP-SM) WITH TRACE FINE ROOTS
	4.6	LIGHT GREY BROWN SLIGHTLY SILTY VERY FINE SAND (SP)
	9.5	MEDIUM DARK GREY CLAY (CH), WITH LITTLE FINE ROOTS AND TWIGS H_2S ODOR
-4.2	11.0	
	12.5	DARK GREY, DARK GREEN GREY, AND LIGHT GREY VERY FINE SAND (SP). GREEN GREY CLAY SEAMS AND WOOD FRAGMENTS AT 15 FEET
-6.2	13.0	
-8.2	15.0	
		MEDIUM DARK GREY SAND, TRACE SHELLS AND FRAGMENTS
		CLAY SEAMS INCREASING
		SAND COARSENING DOWNWARD
-23.2	30.0	
-24.2	31.0	31.0 BORING TERMINATED

LEGEND

- ▽ – GROUNDWATER NOTED DURING DRILLING
- ▼ – GROUNDWATER IN WELL AT LOW TIDE
- ▼ – GROUNDWATER IN WELL AT HIGH TIDE

SCALE: VERTICAL: 1" = 5'
HORIZONTAL: NOT TO SCALE

ATC ASSOCIATES INC.
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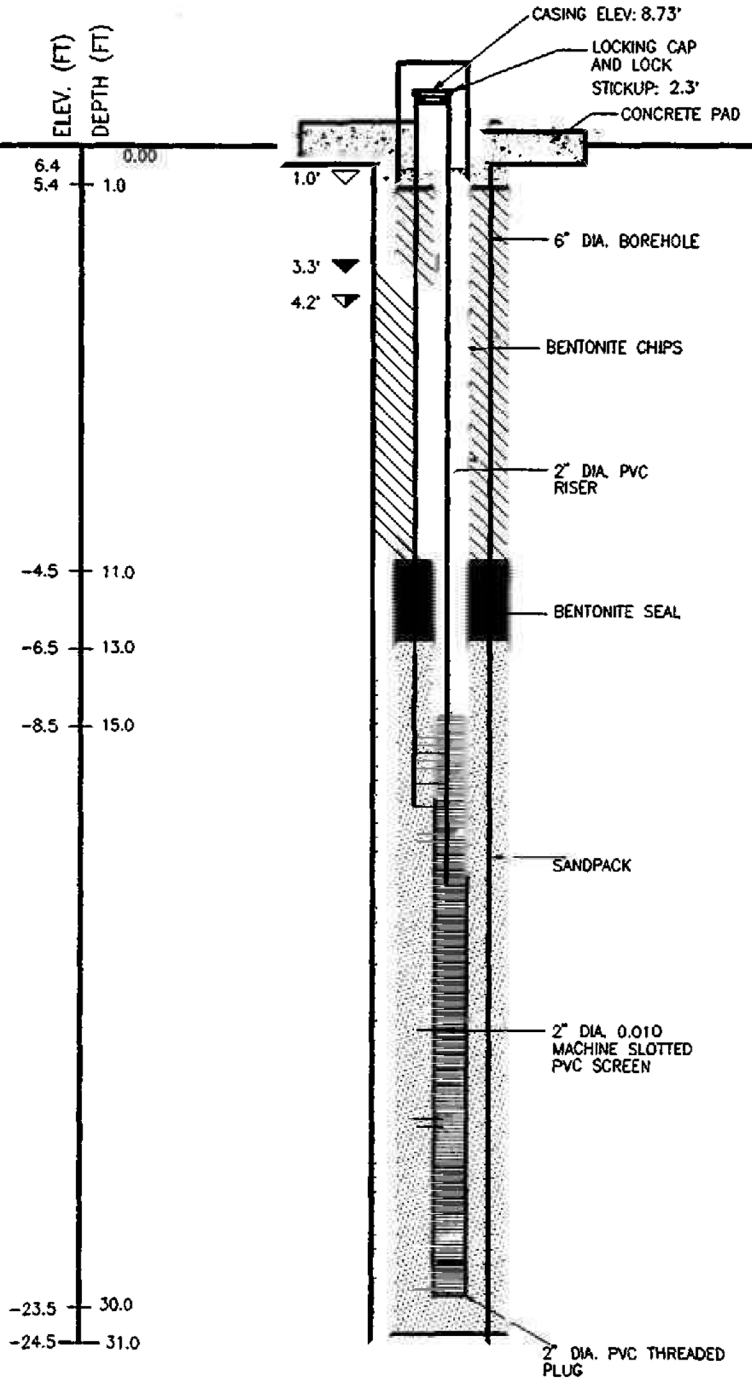
Marietta, Georgia 30066
(770)427-9456

REFERENCE: 2/26/97 (796-212M) ARC

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

MONITORING WELL CONSTRUCTION DRAWING AND SOIL BORING RECORD
MONITORING WELL MW-12 DATE DRILLED 9/10/96



DEPTH (FT)	DESCRIPTION
	FILL: BROWN, ORANGE BROWN, AND GREY BROWN VERY FINE SAND (SP)
5.5	DARK GREY CLAY (CH), H_2S ODOR
12.5	DARK GREEN GREY VERY FINE SAND (SP) WITH GREEN GREY CLAY SEAMS
14.5	MEDIUM LIGHT GREY VERY FINE SAND (SP) WITH GREEN GREY CLAY SEAMS
	NO CLAY SEAMS
31.0	BORING TERMINATED

LEGEND

- ▽ – GROUNDWATER NOTED DURING DRILLING
- ▼ – GROUNDWATER IN WELL AT LOW TIDE
- ▼ – GROUNDWATER IN WELL AT HIGH TIDE

SCALE: VERTICAL: 1" = 5'
HORIZONTAL: NOT TO SCALE

ATC ASSOCIATES INC.
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Marietta, Georgia 30066
(770)427-9456

REFERENCE: 2/26/97 (796-212M) ARC

PROJECT

GEORGIA POWER COMPANY
PLANT McMANUS
BRUNSWICK, GEORGIA
ATC PROJECT NUMBER: 10379.6212

Resolute Environmental & Water Resources Consulting, LLC
1001 Weatherstone Parkway Suite 410
Woodstock, GA 30188
Telephone: 678.398.9942
Fax: 888.881.8219

BORING NUMBER PZ-1

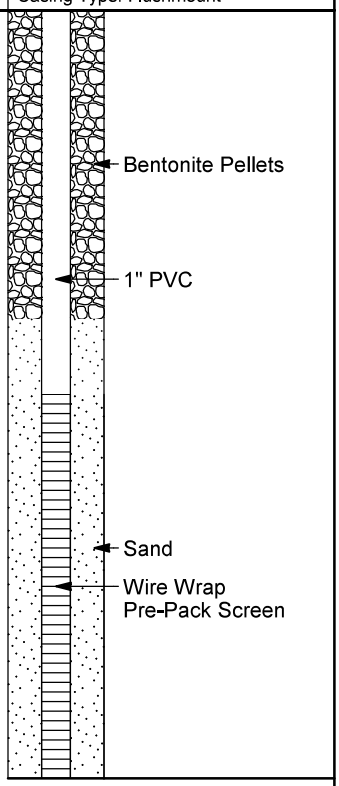
Piezometer was abandoned on August 13, 2019

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/18/17 **COMPLETED** 04/18/17
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Brown fine SAND (SP)
2.0		Light brown fine SAND (SP)
4.0		Gray brown fine SAND (SP)
5		Gray fine SAND (SP); saturated at 6 ft
10		Gray sandy CLAY (CL)
12.0		Gray fine SAND (SP)
15		Gray slightly sandy CLAY with interbedded sand lenses (CL)
16.0		
20		
20.0		Bottom of borehole at 20.0 feet.

WELL DIAGRAM

Casing Top Elev: 6.989 (ft)
Casing Type: Flushmount



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BORING NUMBER PZ-2

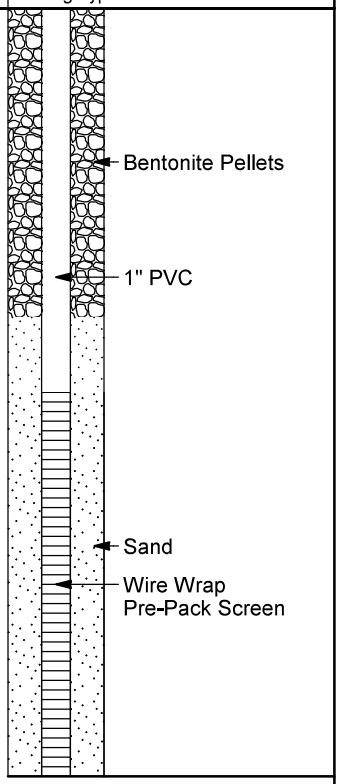
Piezometer was abandoned on August 13, 2019

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/18/17 **COMPLETED** 04/18/17
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Light brown fine SAND (SP)
2.5		Gray brown fine SAND (SP)
4.0		Gray fine SAND (SP); saturated at 5 ft
10.0		Gray green fine SAND (SP)
16.0		Gray green slightly sandy CLAY (CL)
20.0		Bottom of borehole at 20.0 feet.

WELL DIAGRAM

Casing Top Elev: 6.828 (ft)
Casing Type: Flushmount



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BORING NUMBER PZ-3

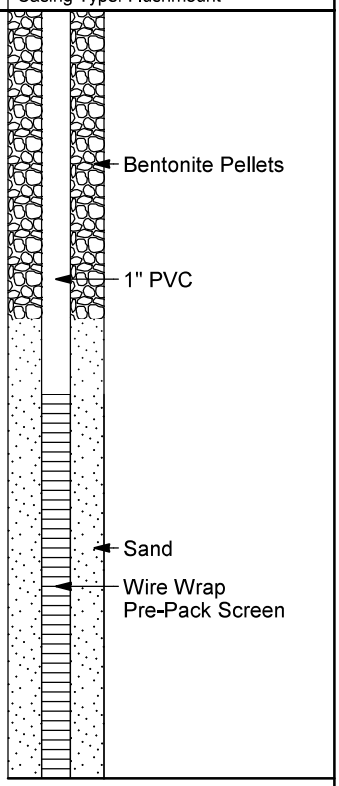
Piezometer was abandoned on August 13, 2019

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/18/17 **COMPLETED** 04/18/17
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Brown fine SAND (SP)
2.5		Brown gray green fine SAND (SP)
5		Gray fine SAND (SP); saturated at 5 ft
10		
12.0		Gray green slightly sandy CLAY (CL)
14.0		Gray green fine SAND (SP)
15		
20		
20.0		Bottom of borehole at 20.0 feet.

WELL DIAGRAM

Casing Top Elev: 6.773 (ft)
Casing Type: Flushmount



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BORING NUMBER PZ-4

Piezometer was abandoned on August 13, 2019

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/18/17 **COMPLETED** 04/18/17
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0			Casing Top Elev: 7.023 (ft) Casing Type: Flushmount
		Brown fine SAND (SP)	
4.5			
5		Gray fine SAND (SP)	Bentonite Pellets
			1" PVC
10			
11.5			
		Sandy CLAY (CL)	
14.5			
15		Gray fine SAND (SP)	Sand
			Wire Wrap Pre-Pack Screen
20			
20.0			

Bottom of borehole at 20.0 feet.

Resolute Environmental & Water Resources Consulting, LLC
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BORING NUMBER PZ-5

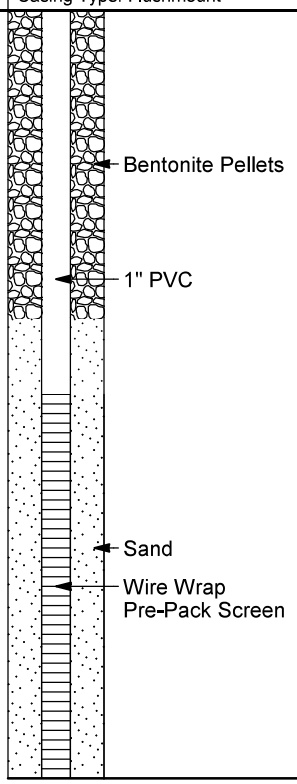
Piezometer was abandoned on August 13, 2019

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/19/17 **COMPLETED** 04/19/17
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Brown fine SAND (SP)
2.5		Gray brown fine SAND (SP)
5		
5.5		Gray fine SAND (SP); saturated at 6 ft
10		
12.0		Gray sandy CLAY (CL)
13.5		Gray fine SAND (SP)
15		
20		
20.0		Bottom of borehole at 20.0 feet.

WELL DIAGRAM

Casing Top Elev: 6.975 (ft)
Casing Type: Flushmount



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BORING NUMBER PZ-6

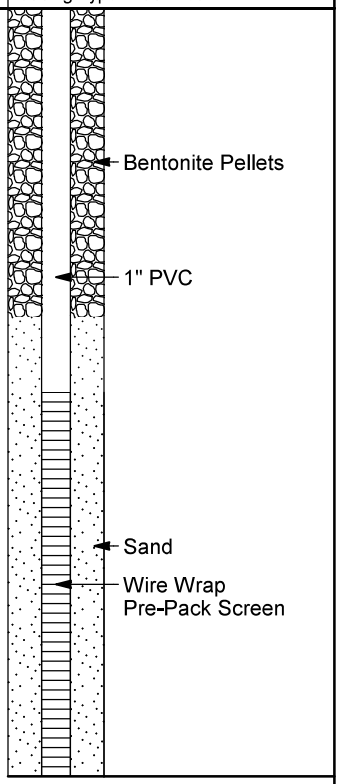
Piezometer was abandoned on August 12, 2019

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/19/17 **COMPLETED** 04/19/17
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Brown fine SAND (SP)
4.0		Gray clayey SAND (SC)
8.0		Gray brown fine SAND (SP)
10.0		Gray sandy CLAY (CL)
11.0		Gray clayey SAND (SC)
13.0		Gray fine SAND (SP)
14.0		Gray slightly clayey SAND with shell fragments (SP-SC)
16.5		Gray sandy CLAY (CL)
17.0		Gray fine SAND (SP)
20.0		Bottom of borehole at 20.0 feet.

WELL DIAGRAM

Casing Top Elev: 6.621 (ft)
Casing Type: Flushmount



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BORING NUMBER PZ-7

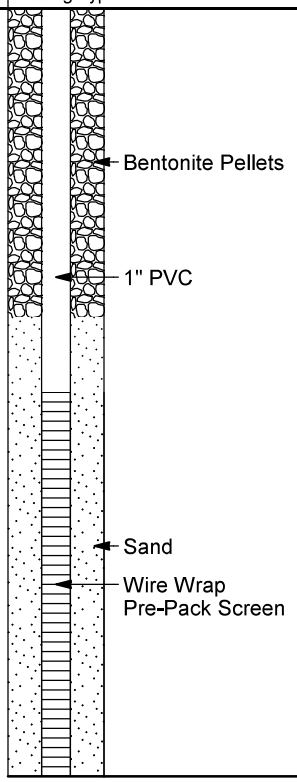
Piezometer was abandoned on August 12, 2019

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/19/17 **COMPLETED** 04/19/17
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Brown fine SAND (SP)
2.5		Gray brown fine SAND (SP)
6.0		Gray fine SAND (SP)
10.0		Gray slightly sandy CLAY (CL)
13.5		Gray slightly clayey SAND (SP-SC)
16.0		Gray fine SAND (SP)
20.0		Bottom of borehole at 20.0 feet.

WELL DIAGRAM

Casing Top Elev: 7.068 (ft)
Casing Type: Flushmount



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BORING NUMBER PZ-8

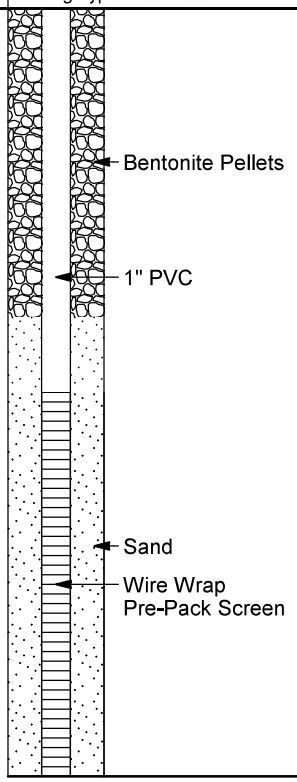
Piezometer was abandoned on August 12, 2019

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/19/17 **COMPLETED** 04/19/17
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Brown fine SAND (SP)
6.5		Gray slightly clayey SAND (SP-SC)
11.5		Gray slightly sandy CLAY (CL)
13.5		Gray fine SAND (SP)
20.0		Bottom of borehole at 20.0 feet.

WELL DIAGRAM

Casing Top Elev: 6.973 (ft)
Casing Type: Flushmount



WELL NUMBER PZ-09

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 10/31/19 **COMPLETED** 10/31/19
GROUND ELEVATION 6.1 ft NAVD 88 **HOLE SIZE** 12 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger (HSA)
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth
AT END OF DRILLING ---
NOTES
AFTER DRILLING 6.22 ft / Elev -0.12 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0						Casing Top Elev: 9.41 (ft) Casing Type: Aluminium
		OL		(OL) Black, organic detritus mixed with very fine sand	1.0 / 5.1	
		SP		(SP) Light brown, very fine sand	1.6 / 4.5	
		SP		(SP) Dark brown, very fine sand	3.8 / 2.4	Bentonite Grout
5		SC		(SC) Light grey, slightly clayey very fine sand. Damp at approximately 2.0' bgs.	5.0 / 1.1	
		SP		(SP) Light brown, fine sand. Saturated at approximately 5.0' bgs.	6.0 / 0.1	30/65 Sand Annular Seal
10		SP		(SP) Light grey, very fine to fine sand		2" PVC Sch. 40
15						20/30 Sand 0.01" Slot U-Pack Screen
20		SC		(SC) Light grey, fine sand with clayey sand lenses	18.5 / -12.4	Cave-in
25					25.0 / -18.9	

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 6.57 ft NAVD 88.

WELL NUMBER PZ-10

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

Piezometer was abandoned on October 15, 2025

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 11/1/19 **COMPLETED** 11/1/19
GROUND ELEVATION 9.7 ft NAVD 88 **HOLE SIZE** 12 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger (HSA)
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth
AT END OF DRILLING ---
NOTES
AFTER DRILLING 10.32 ft / Elev -0.62 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0						Casing Top Elev: 12.17 (ft) Casing Type: Aluminium
		SP		0.4 (SP) Dark grey, very fine sand with rootlets	9.3	
		SP		(SP) Light grey, very fine sand		Bentonite Grout
				4.3	5.5	
5		SC		5.2 (SC) Light grey, orange, slightly clayey, very fine sand	4.5	2" PVC Sch. 40
		SC		(SC) Grey with some orange mottling, clayey sand		
				7.5	2.2	30/65 Sand Annular Seal
10		SP		(SP) Light grey, very fine sand- saturated at 8.75' bgs		
				13.0	-3.3	
		SP		13.8 (SP) Orange, very fine sand	-4.1	
		SC		14.0 (SC) Orange, grey, slightly clayey, very fine sand	-4.3	
15		SP		15.0 (SP) Light grey, very fine sand	-5.3	20/30 Sand 0.01" Slot U-Pack Screen
		SP		16.3 (SP) Orange, grey, very fine sand	-6.6	
				(SP) Dark grey, very fine sand		
20		SP				Cave-in
25				25.0	-15.3	

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 9.74 ft NAVD 88.

WELL NUMBER PZ-11

Resolute Env
1003 Weatherstone Parkway Suite 320
Woodstock, GA 30188

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 11/22/19 **COMPLETED** 11/22/19
GROUND ELEVATION 5.9 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth
AT END OF DRILLING ---
NOTES
AFTER DRILLING 4.77 ft / Elev 1.13 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0					WELL DIAGRAM: Casing Top Elev: 9.37 (ft); Casing Type: Aluminium
		SP		(SP) Brown, very fine sand with dark organic rich layer at 1-1.25' bgs. Groundwater at approximately 2.0' bgs.	
3.0					2.9
		SP		(SP) Dark brown with some orange, very fine sand	Bentonite Grout
5				5.0 ▼	0.9
		SC		(SC) Light grey, clayey, very fine sand with some orange layering	2" PVC Sch. 40; 30/65 Sand Annular Seal
10				10.0	-4.1
		SC		(SC) Light grey, slightly clayey, very fine sand. Clay decreases with depth.	20/30 Sand; 0.01" Slot U-Pack Screen
15				15.0	-9.1
		SC		(SC) Dark grey, very fine sand with thin clay layers	
20				20.0	-14.1
		CL		(CL) Light grey, silty clay	Cave-in
				23.4	-17.5
		SC		24.1 (SC) Dark grey, fossiliferous, slightly- moderately clayey, fine sand	-18.2
		CL		24.3 (CL) Light grey, silty clay	-18.4
25		SP		25.0 (SP) grey, fossiliferous, very fine sand. Shell fragments are medium grained with little coarse grains	-19.1

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 6.57 ft NAVD 88.

WELL NUMBER PZ-12

Resolute Env
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Woodstock, GA 30188

Piezometer was abandoned on October 14, 2025

CLIENT Georgia Power
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 11/22/19 **COMPLETED** 11/22/19
GROUND ELEVATION 4.5 ft NAVD 88 **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Joe Booth
AT END OF DRILLING ---
NOTES
AFTER DRILLING 5.35 ft / Elev -0.85 ft immediately before developing

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0						Casing Top Elev: 7.9 (ft) Casing Type: Aluminium
		SP		(SP) Brown, very fine sand with roots in first 0.75' and brick fragments in bottom portion	3.3	
		SP		(SP) Dark grey, very fine sand with organics at 1.25- 1.4' bgs. Groundwater at approximately 2.0' bgs.	2.0	
		SP		(SP) Light grey, very fine sand	1.5	Bentonite Grout
5		CL		(CL) Light green, sandy clay. Sand is very fine sand.	-0.7	
		SP		(SP) Light green-grey, very fine sand	-4.3	30/65 Sand Annular Seal 2" PVC Sch. 40
10		CL		(CL) Light green, sandy clay. Sand is very fine sand.	-5.5	20/30 Sand
		SP		(SP) Light grey, very fine sand	-6.5	
		CL		(CL) Grey, very fine sandy clay with roots or wood fragments	-7.5	
		SC		(SC) Grey, clayey fine sand with roots or wood fragments	-9.3	0.01" Slot U-Pack Screen
15		CL		(CL) Grey, very fine sandy clay with roots or wood fragments	-10.0	
		SP		(SP) Light grey, very fine sand with infrequent clay lenses ranging from 1 cm- 1 inch	-15.5	
20				No recovery	-20.5	Cave-in
25						

Bottom of borehole at 25.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 5.02 ft NAVD 88.

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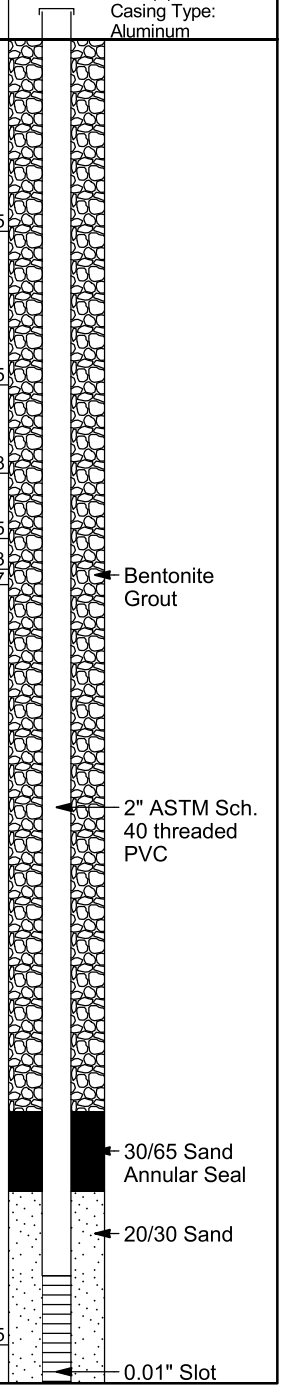
WELL NUMBER DPZ-1

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, Ga
DATE STARTED 3/10/20 **COMPLETED** 3/10/20
GROUND ELEVATION 7.5 ft NAVD 88 **HOLE SIZE** 7 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic Rig
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin
AT END OF DRILLING ---
NOTES
AFTER DRILLING --- Gw Elev. 1.51 ft before development

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				Vacuumed- No intact recovery
5.0				2.5
				No Recovery
9.0				-1.5
10		SP		(SP) Brown, light tan very fine sand
11.3				-3.8
		CH		(CH) Dark grey clay with roots. (Former Marsh)
13.0				-5.5
		SP		13.8 (SP) Tan, grey very fine sand -6.3
		CH		14.2 (CH) Grey, slightly sandy clay. -6.7
15				(SP) Grey, very fine sand with mica flecks and intermittent clay nodules. Clay lenses exist at 28-28.05', 32.1-32.32', 33.1-33.15', and 33.4-33.45' bgs.
20				
25		SP		
30				
34.0				-26.5
35				Drillers "washed"remaining 3.6' to reach desired depth- No Recovery

WELL DIAGRAM



GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 4/1/20 16:16 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINTCL\PROJECTS\MCMANUS STRAT BORINGS AND WELL INSTALLATION.GPJ

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WELL NUMBER DPZ-1

CLIENT Southern Company Services **PROJECT NAME** Plant McManus

PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, Ga

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35				Drillers "washed"remaining 3.6' to reach desired depth- No Recovery *(continued)*	U-Pack Screen
37.6				-30.1	

Bottom of borehole at 37.6 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 7.36 ft NAVD 88.

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WELL NUMBER DPZ-2

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, Ga
DATE STARTED 3/10/20 **COMPLETED** 3/10/20
GROUND ELEVATION 7.7 ft NAVD 88 **HOLE SIZE** 7 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic Rig
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin
AT END OF DRILLING ---
NOTES
AFTER DRILLING --- Gw Elev. is 2.0 ft before development

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0				Vacuumed- No intact recovery	Casing Top Elev: 9.54 (ft) Casing Type: Aluminum
5				5.0 / 2.7	
		SP		(SP) Dark brown, very fine sand — 6.0 / 1.7	
		SP		(SP) Tan, very fine sand — 8.5 / -0.8	
		SP		9.0 / -1.3	
10		SP		(SP) Light Grey, tan very fine sand (SP) SAA with oyster shells at 11.0' bgs — 12.0 / -4.3	
		CH		(CH) Grey, fat clay — 13.0 / -5.3	
		CL		13.5 / -5.8	
15		SP		(CL) Grey, tan sandy clay. Grading from clay to sand. (SP) Grey, tan very fine sand — 16.0 / -8.3	Bentonite Grout
		SP		(SP) Grey, very fine sand with thin interbedded grey, clay lenses — 20.0 / -12.3	
20		SP		(SP) Grey, fossiliferous, very fine sand — 22.8 / -15.1	
		SP		(SP) Grey, slightly fossiliferous, very fine sand with clay lenses at 23.9'- 24.15' and 25.5-25.9' bgs — 26.8 / -19.1	2" ASTM Sch. 40 threaded PVC
25		SP		27.5 / -19.8	
		SP		(SP) Grey, very fossiliferous fine sand with shell and shell fragments. Shell & shell fragments range in size from fine- coarse grains. (SP) SAA, but with clay nodules — 29.0 / -21.3	
30		SP		(SP) Grey, fossiliferous fine sand with shell and shell fragments. Shell & shell fragments range in size from fine- coarse grains. — 33.8 / -26.1	30/65 Sand Annular Seal
35		SP		(SP) Grey, tan, fossiliferous fine sand with interbedded clay lenses	20/30 Sand

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WELL NUMBER DPZ-2

CLIENT Southern Company Services **PROJECT NAME** Plant McManus

PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, Ga

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35		SP		36.0 (SP) Grey, tan, fossiliferous fine sand with interbedded clay lenses *(continued)* -28.3	
		SP		39.0 (SP) Tan, grey, moderately fossiliferous, fine sand -31.3	0.01" Slot U-Pack Screen
40				40.8 Drillers "washed " remaining 1.82' bgs to reach desired depth- No Recovery -33.1	

Bottom of borehole at 40.8 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 7.34 ft NAVD 88.

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WELL NUMBER DPZ-3

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, Ga
DATE STARTED 3/11/20 **COMPLETED** 3/11/20
GROUND ELEVATION 7.6 ft NAVD 88 **HOLE SIZE** 7 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic Rig
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin
AT END OF DRILLING ---
NOTES
AFTER DRILLING --- Gw Elev. is 1.22 ft before development

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0					
				Vacuumed- No intact recovery	
5				5.0	2.6
		SP		(SP) Tan very fine sand with roots	
				7.0	0.6
		SP		(SP) Grey very fine sand	
				9.0	-1.4
10		CL		(CL) Grey, blue-green sandy clay	
				10.0	-2.4
		SP		(SP) Tan very fine sand	
				12.2	-4.6
		SP		(SP) Dark grey very fine sand	
				14.0	-6.4
15		CL		(CL) Blue-green, grey sandy clay with pieces of wood debris that range from 0.1-0.7'	
20				20.0	-12.4
		CH		(CH) Olive green- grey, slightly sandy clay	
25					
30					
				32.4	-24.8
		SC		(SC) Olive green- grey, clayey sand	
35				35.1	-27.5

WELL DIAGRAM
Casing Top Elev: 9.46 (ft)
Casing Type: Aluminum
Bentonite Grout
2" ASTM Sch. 40 threaded PVC

(Continued Next Page)

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WELL NUMBER DPZ-3

CLIENT Southern Company Services **PROJECT NAME** Plant McManus

PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, Ga

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35		CL		(CL) Olive green- grey, sandy clay 37.4 -29.8	30/65 Sand Annular Seal
		SC		(SC) Olive green- grey, clayey sand 39.0 -31.4	20/30 Sand
40		SP		(SP) Grey very fine sand 42.0 -34.4	0.01" Slot U-Pack Screen
		SP		(SP) Tan, fossiliferous, fine sand with shell fragments and whole shells 43.5 -35.9	
		SP		44.0 (SP) Black fine sand -36.4	

Bottom of borehole at 44.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 7.04 ft NAVD 88.

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WELL NUMBER DPZ-4

Piezometer was abandoned on October 14, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, Ga
DATE STARTED 3/12/20 **COMPLETED** 3/12/20
GROUND ELEVATION 8.7 ft NAVD 88 **HOLE SIZE** 7 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic Rig
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin
AT END OF DRILLING ---
NOTES
AFTER DRILLING --- Gw Elev. is 2.45 ft before development

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0				Vacuumed- No intact recovery	Casing Top Elev: 11.45 (ft) Casing Type: Aluminum
5				5.0 / 3.7	
		SP		(SP) Light tan very fine sand	
				6.5 / 2.2	
		SP		7.0 / 1.7 (SP) Dark brown very fine sand with black organics	
10		SP		(SP) Brown very fine sand	
				11.5 / -2.8	
		CL		(CL) Grey sandy clay	
				12.7 / -4.0	
15		SP		(SP) Grey very fine sand with mica flakes. Wood debris exists at 15.5'-15.7' bgs and is spread intermittently from 15.7-18' bgs.	2" ASTM Sch. 40 threaded PVC
20					Bentonite Grout
				22.6 / -13.9	
		SP		(SP) Grey, fossiliferous, fine sand with shells and shell fragments than range from fine grain- fine gravel in size	
25				26.0 / -17.3	
		SP		(SP) Grey very fine sand with mica flakes, interbedded with clay lenses. Clay lenses range from 0.025' -0.5'.	
30				31.8 / -23.1	
		SP		(SP) Light grey very fine sand with mica flakes	
35					

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WELL NUMBER DPZ-4

CLIENT Southern Company Services **PROJECT NAME** Plant McManus

PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, Ga

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
35		SP		35.9 (SP) Light grey very fine sand with mica flakes *(continued)*	-27.2	
		SP		(SP) Grey, fossiliferous, fine-medium sand with shells and shell fragments that range from fine- medium grained with trace coarse grained shells		
				39.0	-30.3	30/65 Sand Annular Seal
40		SP		(SP) Light brown, grey, fossiliferous very fine sand with shells and shell fragments ranging from medium grained to fine gravel		20/30 Sand
45						0.01" Slot U-Pack Screen
				48.0	-39.3	

Bottom of borehole at 48.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 8.96 ft NAVD 88.

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WELL NUMBER DPZ-5

Piezometer was abandoned on October 14, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, Ga
DATE STARTED 3/11/20 **COMPLETED** 3/11/20
GROUND ELEVATION 8.2 ft NAVD 88 **HOLE SIZE** 7 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic Rig
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin
AT END OF DRILLING ---
NOTES
AFTER DRILLING --- Gw Elev. is 1.82 ft before development

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0				Vacuumed- No intact recovery	Casing Top Elev: 11 (ft) Casing Type: Aluminum
5				5.0 / 3.2	
		SP		(SP) Tan, brown very fine sand	
				7.3 / 0.9	
		SP		(SP) Grey very fine sand with mica flecks	
10				9.8 / -1.6	
		SC		10.7 (SC) Grey clayey sand / -2.5	
		CL		11.2 (CL) Grey, fossiliferous, sandy clay. Shells are fine grained- fine gravel in size. / -3.0	
		SP		(SP) Grey very fine sand with interbedded clay lenses at 12.2-12.7' bgs	
				13.8 / -5.6	
15		CL		14.9 (CL) Grey sandy clay with fossiliferous zone at 14.25-14.3' bgs. Shells are fine gravel in size. / -6.7	2" ASTM Sch. 40 threaded PVC
		SP		(SP) Light grey very fine sand with mica flecks	Bentonite Grout
20					
25					
30				30.5 / -22.3	
		SP		(SP) Grey very fine sand interbedded with grey clay	
				32.5 / -24.3	
35		SP		(SP) Dark grey fine sand with clay lenses at 33.1-33.3' & 34.5-34.85' bgs	

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WELL NUMBER DPZ-5

CLIENT Southern Company Services **PROJECT NAME** Plant McManus

PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, Ga

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
35		SP		36.0 (SP) Dark grey fine sand with clay lenses at 33.1-33.3' & 34.5-34.85' bgs *(continued)*	-27.8	
		SC		37.5 (SC) Light grey clayey sand	-29.3	
		SP		(SP) Light grey very fine sand with black mineral flecks		30/65 Sand Annular Seal
40		SP		40.4	-32.2	
		SP		40.5 (SP) Grey cemented concretion	-32.3	20/30 Sand
		SP		(SP) Grey, fossiliferous, very fine sand with black mineral flecks. Shells and shell fragments range in size from fine grained to fine gravel.		0.01" Slot U-Pack Screen
45				47.0	-38.8	

Bottom of borehole at 47.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 8.60 ft NAVD 88.

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WELL NUMBER DPZ-6

Piezometer was abandoned on October 15, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, Ga
DATE STARTED 3/12/20 **COMPLETED** 3/12/20
GROUND ELEVATION 9.4 ft NAVD 88 **HOLE SIZE** 7 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic Rig
AT TIME OF DRILLING ---
LOGGED BY Veronica Fay **CHECKED BY** Trent Godwin
AT END OF DRILLING ---
NOTES
AFTER DRILLING --- Gw Elev. is 2.91 ft before development

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0				Vacuumed- No intact recovery	Casing Top Elev: 12.04 (ft) Casing Type: Aluminum
5				5.0 / 4.4	
		SP		(SP) Tan, orange, mottled, slightly clayey very fine sand	
10				9.7 / -0.3	2"ASTM Sch. 40 threaded PVC
		SP		(SP) Beige very fine sand with very fine black mineral flecks & little mica flakes	
				14.0 / -4.6	Bentonite Grout
15		SP		14.8 (SP) Dark grey very fine sand / -5.4	
		SP		15.3 (SP) Dark grey fine sand / -5.9	
		SP		15.5 (SP) Beige fine sand / -6.1	
		SC		15.9 (SC) Dark grey clayey sand / -6.5	
		SP		16.7 (SP) Beige very fine sand / -7.3	
		SP		18.1 (SP) Dark grey very fine sand with mica flakes with interbedded clay lenses at 16.8-17.1' & 17.9-18' bgs / -8.7	
20		SP		19.6 (SP) Beige, orange very fine sand with very fine black mineral flecks and mica flakes / -10.2	
		SP		(SP) Beige very fine sand with very fine black mineral flecks and mica flakes	
				21.5 / -12.1	
25		SP		(SP) Dark grey very fine sand with mineral flecks with 0.025' clay lenses at 25.1', 25.9', & 28.1' bgs	
30					30/65 Sand Annular Seal
					20/30 Sand
35					

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WELL NUMBER DPZ-6

CLIENT Southern Company Services **PROJECT NAME** Plant McManus

PROJECT NUMBER N/A **PROJECT LOCATION** Brunswick, Ga

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35		SP		(SP) Dark grey very fine sand with mineral flecks with 0.025' clay lenses at 25.1', 25.9', & 28.1' bgs *(continued)*	0.01" Slot U-Pack Screen
				38.0	-28.6

Bottom of borehole at 38.0 feet.

Wells were resurveyed on April 16, 2020.
Ground surface was measured at the mag nail in the concrete pad at 9.59 ft NAVD 88.

Resolute Environmental & Water Resources Consulting, LLC
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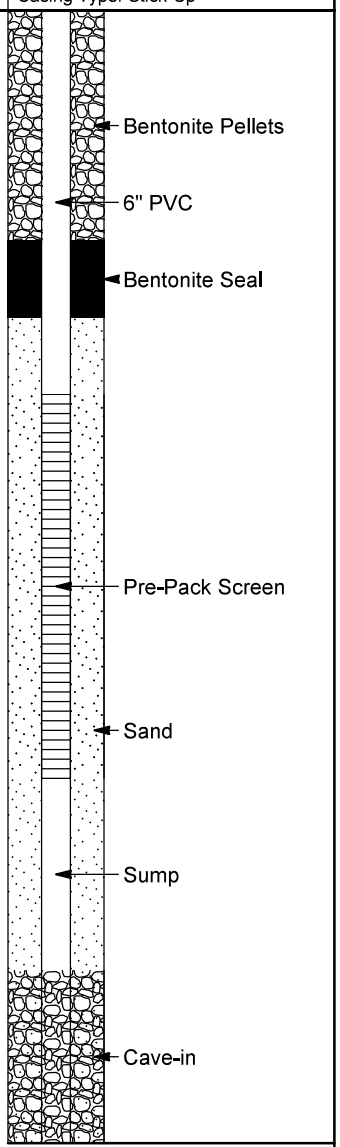
BORING NUMBER RW-1

Piezometer was abandoned on October 15, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/18/17 **COMPLETED** 04/20/17
GROUND ELEVATION _____ **HOLE SIZE** 10 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	MATERIAL DESCRIPTION
0	Brown fine SAND (SP)
7.5	Light brown fine SAND (SP); saturated at 9 ft
13.0	Light brown fine SAND with interbedded clay lenses (SP-SC)
14.0	Gray brown fine SAND (SP)
14.5	Gray green CLAY (CL)
17.0	Gray green clay with wood and shells (CL)
22.0	Sandy CLAY with interbedded fine sand lenses (CL)
24.0	Gray green stiff CLAY (CL)
26.5	Gray green slightly sandy CLAY with interbedded ~4" sandy seams (CL)
29.5	Bottom of borehole at 29.5 feet.



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BORING NUMBER RW-2

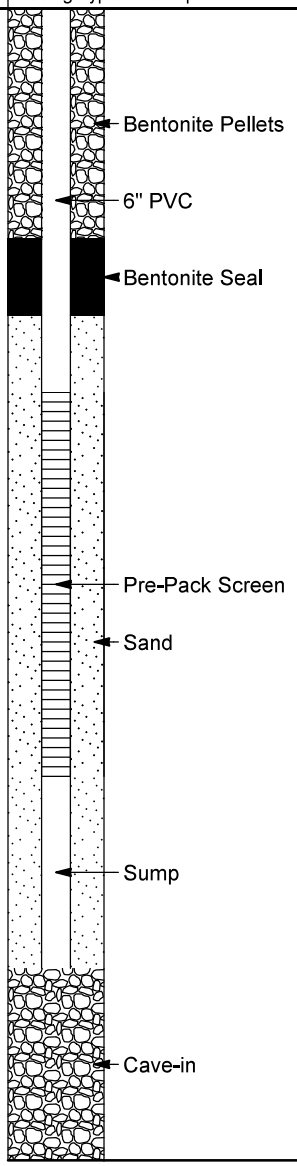
Piezometer was abandoned on October 15, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/20/17 **COMPLETED** 04/20/17
GROUND ELEVATION _____ **HOLE SIZE** 10 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Brown fine SAND (SP)
3.0		Gray fine SAND (SP)
11.0		Gray CLAY (CL)
12.5		Gray clayey SAND (SC)
15.0		Gray CLAY with wood (CL)
19.0		Gray green slightly clayey SAND (SP-SC)
21.5		Gray green CLAY (CL)
26.0		Gray green slightly clayey SAND (SP-SC)
28.0		Gray fine SAND with shell fragments (SP)
30.0		Bottom of borehole at 30.0 feet.

WELL DIAGRAM

Casing Top Elev: 9.963 (ft)
Casing Type: Stick-Up



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BORING NUMBER RW-3

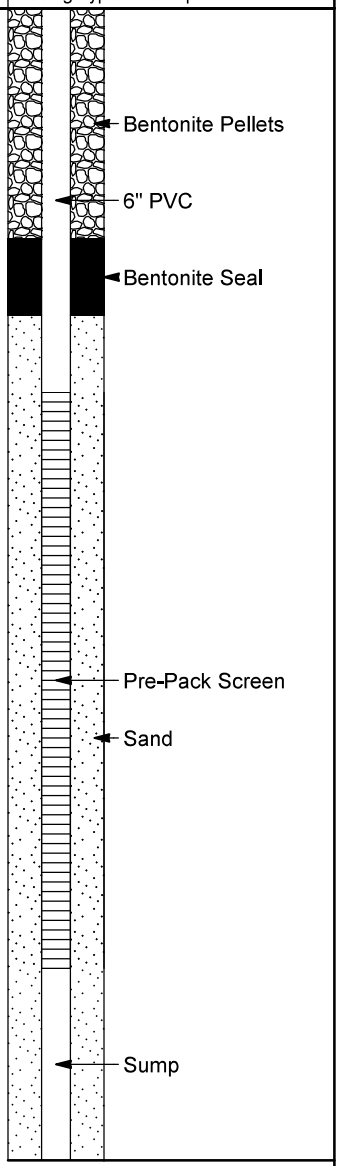
Piezometer was abandoned on October 15, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/21/17 **COMPLETED** 04/21/17
GROUND ELEVATION _____ **HOLE SIZE** 10 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	MATERIAL DESCRIPTION
0	Brown fine SAND (SP)
6.0	Gray fine SAND (SP)
11.5	Gray slightly sandy CLAY (CL)
13.0	Gray clayey SAND (SC)
14.0	Gray fine SAND (SP)
21.0	Gray slightly sandy CLAY (CL)
23.0	
23.5	Gray slightly clayey SAND (SP-SC)
	Gray fine SAND with shell fragments (SP)
30.0	Bottom of borehole at 30.0 feet.

WELL DIAGRAM

Casing Top Elev: 9.888 (ft)
Casing Type: Stick-Up



Resolute Environmental & Water Resources Consulting, LLC
1001 Weatherstone Parkway Suite 410
Woodstock, GA 30188
Telephone: 678.398.9942
Fax: 888.881.8219

BORING NUMBER RW-4

Piezometer was abandoned on October 15, 2025

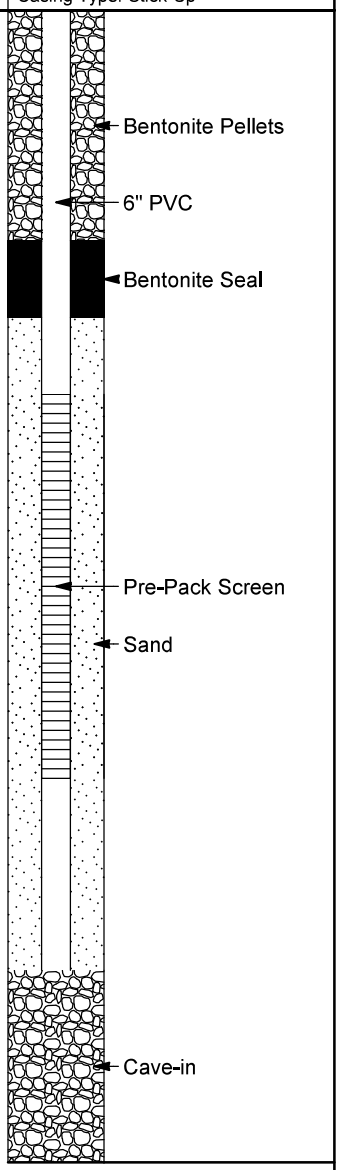
CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/21/17 **COMPLETED** 04/21/17
GROUND ELEVATION _____ **HOLE SIZE** 10 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Brown fine SAND (SP)
5		5.0 Gray fine SAND (SP)
10		
		13.5
15		14.0 Gray CLAY (CL)
		Gray fine SAND (SP); shell fragments at 20 ft
20		20.0 Gray slightly clayey SAND (SP-SC)
		22.0 Gray sandy CLAY with shell fragments (CL)
25		25.0 Gray fine SAND with shell fragments (SP)
30		30.0

Bottom of borehole at 30.0 feet.

WELL DIAGRAM

Casing Top Elev: 9.488 (ft)
Casing Type: Stick-Up



Resolute Environmental & Water Resources Consulting, LLC
1001 Weatherstone Parkway Suite 410
Woodstock, GA 30188
Telephone: 678.398.9942
Fax: 888.881.8219

BORING NUMBER RW-5

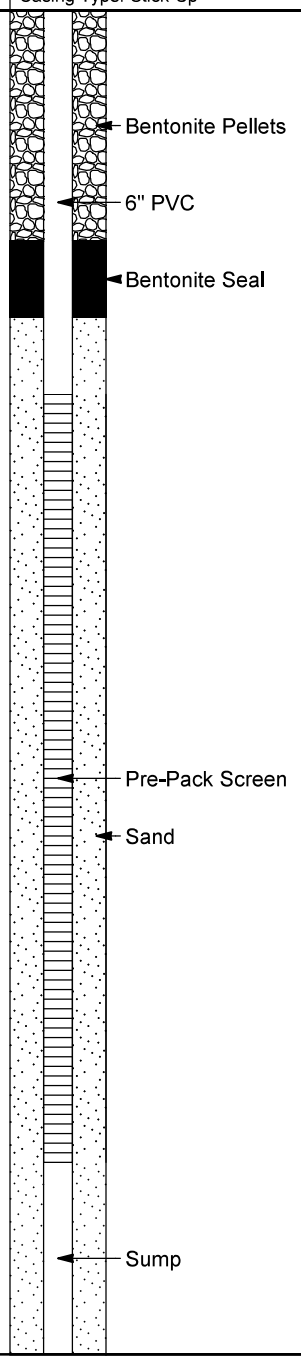
Piezometer was abandoned on October 15, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/22/17 **COMPLETED** 04/22/17
GROUND ELEVATION _____ **HOLE SIZE** 10 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	MATERIAL DESCRIPTION
0	Brown fine SAND (SP)
6.0	Gray fine SAND (SP)
11.5	
12.0	Gray slightly sandy CLAY (CL)
	Gray fine SAND with fines (SM)
14.0	Gray fine SAND (SP)
20.0	Gray fine SAND with shell fragments (SP)
28.0	
29.0	Gray slightly clayey SAND with shell fragments (SP-SC)
	Gray fine SAND (SP)
30.0	

WELL DIAGRAM

Casing Top Elev: 10.109 (ft)
Casing Type: Stick-Up



Bottom of borehole at 35.0 feet.

Resolute Environmental & Water Resources Consulting, LLC
1001 Weatherstone Parkway Suite 410
Woodstock, GA 30188
Telephone: 678.398.9942
Fax: 888.881.8219

BORING NUMBER RW-6

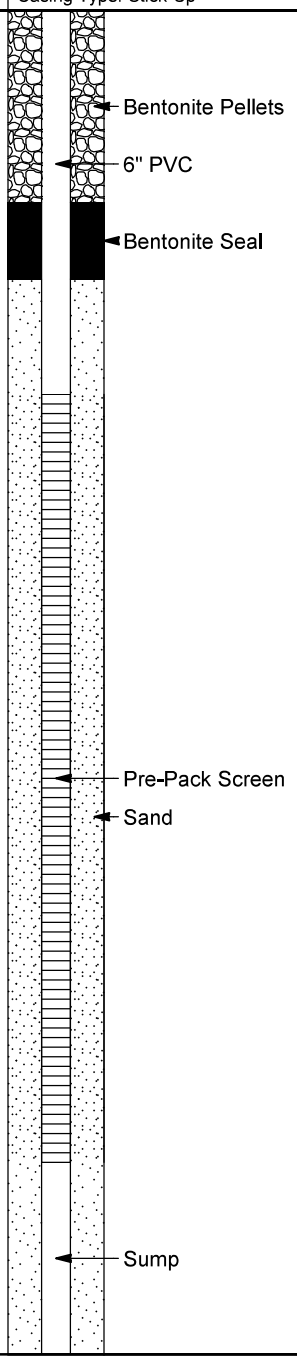
Piezometer was abandoned on October 15, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/22/17 **COMPLETED** 04/22/17
GROUND ELEVATION _____ **HOLE SIZE** 10 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Brown fine SAND (SP)
5.5		Gray fine SAND (SP)
13.0		Gray CLAY (CL)
14.5		Gray fine SAND (SP)
21.0		Gray sandy CLAY with wood and interbedded ~6" sand seams at ~1" intervals (CL)
25.0		Gray fine SAND (SP)
30.0		

WELL DIAGRAM

Casing Top Elev: 10.245 (ft)
Casing Type: Stick-Up



Bottom of borehole at 35.0 feet.

Resolute Environmental & Water Resources Consulting, LLC
1001 Weatherstone Parkway Suite 410
Woodstock, GA 30188
Telephone: 678.398.9942
Fax: 888.881.8219

BORING NUMBER RW-7

Piezometer was abandoned on October 15, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/23/17 **COMPLETED** 04/23/17
GROUND ELEVATION _____ **HOLE SIZE** 10 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	MATERIAL DESCRIPTION
0	Brown fine SAND (SP)
5.5	Gray fine SAND (SP)
9.5	Gray sandy CLAY (CL)
13.0	
13.5	Gray slightly clayey SAND (SP-SC)
	Gray fine SAND (SP)
15.0	
15.5	Gray slightly sandy CLAY (CL)
	Gray fine SAND (SP)
18.5	
19.0	Gray clayey SAND (SC)
	Gray fine SAND (SP)
26.0	
26.3	Gray slightly sandy CLAY (CL)
	Gray fine SAND (SP)
28.0	
28.3	Gray slightly sandy CLAY (CL)
29.5	Gray fine SAND (SP)

WELL DIAGRAM

Casing Top Elev: 10.185 (ft)
Casing Type: Stick-Up

- Bentonite Pellets
- 6" PVC
- Bentonite Seal
- Pre-Pack Screen
- Sand
- Sump

Bottom of borehole at 35.0 feet.

Resolute Environmental & Water Resources Consulting, LLC
1001 Weatherstone Parkway Suite 410
Woodstock, GA 30188
Telephone: 678.398.9942
Fax: 888.881.8219

BORING NUMBER RW-8

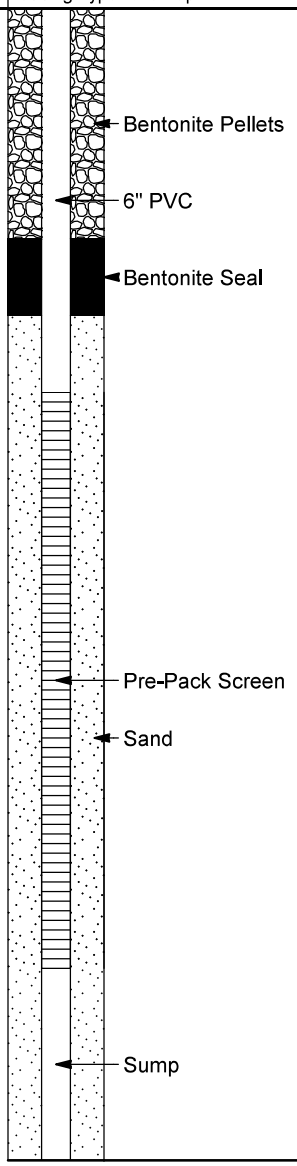
Piezometer was abandoned on October 16, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/23/17 **COMPLETED** 04/23/17
GROUND ELEVATION _____ **HOLE SIZE** 10 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Brown fine SAND (SP)
5.3		Gray fine SAND (SP)
11.0		Gray sandy CLAY with interbedded ~3" sand lens (CL)
12.5		Gray fine SAND (SP); interbedded ~3" clay lens at 15'
17.0		Gray fine SAND (SP)
30.0		Bottom of borehole at 30.0 feet.

WELL DIAGRAM

Casing Top Elev: 10.222 (ft)
Casing Type: Stick-Up



Resolute Environmental & Water Resources Consulting, LLC
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Woodstock, GA 30188
Telephone: 678.398.9942
Fax: 888.881.8219

BORING NUMBER RW-9

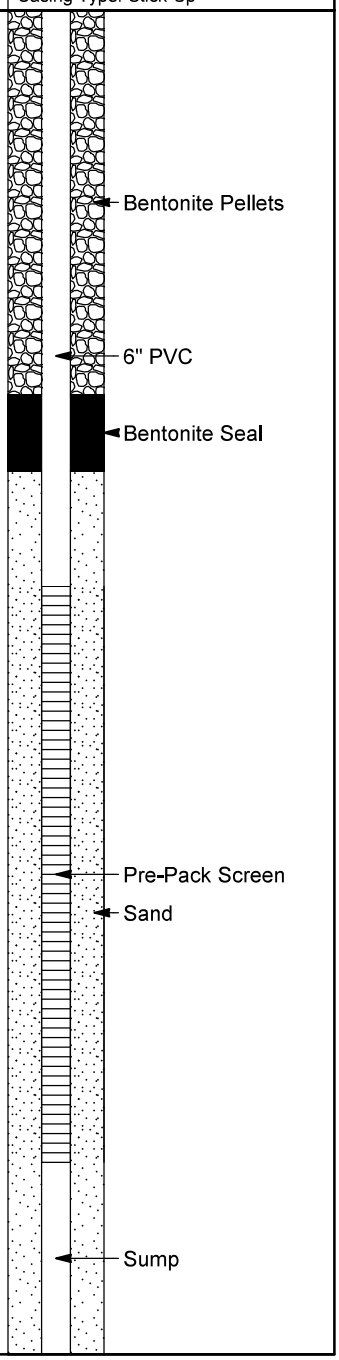
Piezometer was abandoned on October 16, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/23/17 **COMPLETED** 04/23/17
GROUND ELEVATION _____ **HOLE SIZE** 10 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	MATERIAL DESCRIPTION
0	Brown fine SAND (SP)
5.0	Gray fine SAND (SP)
10.5	Gray slightly sandy CLAY (CL)
15.0	Gray slightly clayey SAND (SP-SC)
16.0	Gray slightly sandy CLAY (CL)
16.5	Gray fine SAND (SP)
30.0	
35	

WELL DIAGRAM

Casing Top Elev: 10.264 (ft)
Casing Type: Stick-Up



Bottom of borehole at 35.0 feet.

Resolute Environmental & Water Resources Consulting, LLC
1001 Weatherstone Parkway Suite 410
Woodstock, GA 30188
Telephone: 678.398.9942
Fax: 888.881.8219

BORING NUMBER RW-10

Piezometer was abandoned on October 15, 2025

CLIENT Southern Company Services
PROJECT NAME Plant McManus
PROJECT NUMBER N/A
PROJECT LOCATION Brunswick, GA
DATE STARTED 04/24/17 **COMPLETED** 04/24/17
GROUND ELEVATION _____ **HOLE SIZE** 10 inches
DRILLING CONTRACTOR Cascade Drilling, L.P.
GROUND WATER LEVELS:
DRILLING METHOD Sonic
AT TIME OF DRILLING ---
LOGGED BY Trent Godwin **CHECKED BY** Michael Patinkin
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Brown fine SAND (SP)
5.5		Brown gray fine SAND with wood (SP)
10.5		Gray sandy CLAY (CL)
12.0		Gray slightly clayey SAND (SP-SC)
15.0		Gray fine SAND (SP)
30.0		

WELL DIAGRAM

Casing Top Elev: 10.56 (ft)
Casing Type: Stick-Up

- Bentonite Pellets
- 6" PVC
- Bentonite Seal
- Pre-Pack Screen
- Sand
- Sump

Bottom of borehole at 35.0 feet.

CERTIFIED WELL NETWORK

SURVEY DATA

Certified Well Network Survey Data
Well Construction Details
Groundwater Monitoring Network
Plant McManus
Brunswick, GA

Well ID	Well Function	Nail Northing[1] (ft)	Nail Easting[1] (ft)	Top of Casing Elevation[2] (ft NAVD 88)	Mag Nail Elevation[2] (ft NAVD 88)	Total Depth[3] (ft BTOC)	Top of Screen Elevation[2] (ft NAVD 88)	Bottom of Screen Elevation[2] (ft NAVD 88)
MCM-01	Upgradient Monitoring	443727.31	852732.08	8.63	5.70	27.32	-7.93	-17.93
MCM-02	Upgradient Monitoring	444496.53	852663.64	11.25	8.25	27.35	-5.22	-15.22
MCM-04	Downgradient Monitoring	444804.73	851695.27	12.39	9.50	28.57	-5.18	-15.18
MCM-05	Downgradient Monitoring	444716.63	851309.91	10.04	7.80	28.05	-7.25	-17.25
MCM-06	Downgradient Monitoring	444407.22	850782.11	10.15	7.87	27.20	-6.27	-16.27
MCM-07	Downgradient Monitoring	444059.38	850195.96	10.20	7.52	23.75	-2.76	-12.76
MCM-11	Upgradient Monitoring	442429.80	851072.91	10.23	7.52	24.00	-3.34	-13.34
MCM-12	Sidegradient Monitoring	442821.17	851312.45	11.87	8.99	29.00	-6.12	-16.12
MCM-14	Sidegradient Monitoring	443358.82	852317.59	11.50	8.66	28.11	-6.23	-16.23
MCM-15	Upgradient Monitoring	444825.53	851949.02	12.84	10.18	26.60	-4.53	-14.50
MCM-16	Upgradient Monitoring	444551.32	852716.60	16.02	13.04	28.39	-1.72	-11.93
MCM-17	Sidegradient Monitoring	443074.41	851899.68	11.49	9.09	27.44	-4.81	-14.63
MCM-18	Upgradient Monitoring	442067.07	851698.41	9.00	6.01	27.86	-8.76	-18.76
MCM-19	Upgradient Monitoring	441157.82	852338.86	8.71	5.77	28.32	-9.53	-19.53
MCM-20	Upgradient Monitoring	440944.40	852185.15	10.07	7.07	23.05	-2.98	-12.9

Notes:

1. Georiga State Plane - NAD 83 East Zone.
2. NAVD 88 - North American Vertical Datum of 1988
3. ft BTOC - feet below top of casing

Updated by: VF 5/21/20
Checked by: WL 5/21/20

SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING, AND VERTICAL ELEVATION OF MAG NAIL IN THE CONCRETE PAD FOR THE WELL
DATE OF FIELD SURVEY & INSPECTION: APRIL 16, 2020
FIELD SURVEY TOLERANCE = 0.10 FEET HORIZONTAL - NAD 83 & 0.10 FEET VERTICAL - NAVD88
THE TOP OF THE CASING REFERENCED IN THE TABLE IS CERTIFIED TO BE WITHIN 0.01' OF THE CERTIFICATION ABOVE

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Approved
Solid Waste Management Program

Approved By: Mark Wescott P.G. Digitally signed by Mark Wescott P.G. Date: 2026.04.17 08:30:45 -04'00'

Certified Well Network Survey Data
Well Construction Details
Piezometers and Other Wells
Plant McManus
Brunswick, GA

Well ID	Well Function	Nail Northing[1] (ft)	Nail Easting[1] (ft)	Top of Casing Elevation2 (ft NAVD 88)	Mag Nail Elevation2 (ft NAVD 88)	Total Depth[3] (ft BTOC)	Top of Screen Elevation[3] (ft NAVD 88)	Bottom of Screen Elevation[3] (ft NAVD 88)
MW-01R	Piezometer	443632.5586	852715.1308	12.61	NA	27.44	0.17	-14.83
MW-02	Piezometer	443354.3859	852304.1959	11.10	NA	26.80	-0.70	-15.70
MW-03	Piezometer	443081.3356	851904.8549	11.26	NA	27.00	-0.60	-15.60
MW-04	Piezometer	442854.6307	851408.1446	9.20	NA	27.40	-3.00	-18.00
MW-05	Piezometer	442578.1982	850752.3477	13.24	NA	27.60	0.90	-14.10
MW-06R	Piezometer	442378.5335	850499.0375	13.25	NA	20.00	3.25	-6.75
MW-07	Piezometer	442792.9894	850224.3520	9.94	NA	21.50	3.40	-11.60
MW-08	Piezometer	443310.0596	849977.9965	8.95	NA	27.70	-3.70	-18.70
MW-09	Piezometer	443736.7716	849920.8976	10.10	NA	24.20	0.80	-14.20
MW-10	Piezometer	444045.1224	850181.4059	10.24	NA	27.10	-2.80	-17.80
MW-11	Piezometer	444359.5263	850709.3205	10.42	NA	32.20	-8.20	-23.20
MW-12	Piezometer	444667.3620	851186.9003	10.08	NA	32.30	-8.60	-23.60
MCM-03	Piezometer	444414.8800	851984.6700	9.97	7.10	27.70	-7.73	-17.73
MCM-08	Piezometer	443758.8000	849716.9600	9.42	6.55	28.29	-8.39	-18.39
MCM-09	Piezometer	443252.1584	850147.7478	Abandoned				
MCM-10	Piezometer	442791.8800	850453.0500	11.75	8.61	23.96	-1.25	-11.25
MCM-13	Piezometer	443030.2300	851826.1900	12.56	9.79	27.46	-4.90	-14.90
PZ-1	Piezometer for Dewatering	444127.6813	850308.3200	Abandoned				
PZ-2	Piezometer for Dewatering	444196.6588	850423.4598	Abandoned				
PZ-3	Piezometer for Dewatering	444264.8108	850540.0935	Abandoned				
PZ-4	Piezometer for Dewatering	444335.4506	850656.4801	Abandoned				
PZ-5	Piezometer for Dewatering	444471.1060	850888.7994	Abandoned				
PZ-6	Piezometer for Dewatering	444538.4862	851005.4620	Abandoned				
PZ-7	Piezometer for Dewatering	444605.9569	851121.6527	Abandoned				
PZ-8	Piezometer for Dewatering	444674.4265	851238.6722	Abandoned				
PZ-09	Piezometer	444082.13	849471.64	9.41	6.57	24.05	-4.56	-14.56
PZ-10	Piezometer	444949.09	851673.98	12.17	9.74	22.91	-0.66	-10.66
PZ-11	Piezometer	443222.86	849280.51	9.37	6.57	19.08	-4.63	-9.63
PZ-12	Piezometer	443593.34	849396.87	7.90	5.02	18.70	-5.72	-10.72
DPZ-01	Piezometer	444695.71	851277.40	9.71	7.36	40.78	-25.99	-30.99
DPZ-02	Piezometer	444391.02	850757.94	9.54	7.34	43.46	-28.84	-33.84
DPZ-03	Piezometer	444073.16	850218.83	9.46	7.04	47.57	-33.03	-38.03
DPZ-04	Piezometer	443062.60	851881.94	11.45	8.96	51.23	-34.70	-39.70
DPZ-05	Piezometer	443376.32	852342.11	11.00	8.60	51.20	-35.12	-40.12
DPZ-06	Piezometer	444614.79	851846.27	12.04	9.59	40.50	-23.38	-28.38
RW-1	Dewatering for Construction	444094.0012	850251.1636	9.39	NA	26.42	-2.61	-12.61
RW-2	Dewatering for Construction	444161.8377	850367.2034	9.96	NA	27.27	-2.83	-12.83
RW-3	Dewatering for Construction	444228.4307	850479.7659	9.89	NA	32.29	-3.07	-13.07
RW-4	Dewatering for Construction	444299.3305	850599.2604	9.49	NA	26.88	-2.97	-12.97
RW-5	Dewatering for Construction	444369.6765	850714.2378	10.11	NA	37.22	-2.92	-22.92
RW-6	Dewatering for Construction	444436.3732	850831.7225	10.25	NA	36.58	-2.67	-22.67
RW-7	Dewatering for Construction	444504.5857	850949.3512	10.19	NA	38.17	-7.69	-22.69
RW-8	Dewatering for Construction	444572.9068	851064.4671	10.22	NA	31.62	-2.80	-17.80
RW-9	Dewatering for Construction	444641.6045	851181.2956	10.26	NA	37.71	-7.66	-22.66
RW-10	Dewatering for Construction	444706.8701	851295.5011	10.56	NA	37.80	-7.54	-22.54

Notes:
1. Georiga State Plane - NAD 83 - East Zone.
2. NAVD 88 - North American Vertical Datum of 1988
3. ft BTOC - feet below top of casing
4. PZ- 1 through PZ-8 were abandoned in 2019
5. MCM-09 was abandoned in 2020

NA - Not Available
Updated by : VF 5/21/20
Checked by: KB 5/22/20

SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING, AND VERTICAL ELEVATION OF MAG NAIL IN THE CONCRETE PAD FOR THE WELL
DATE OF FIELD SURVEY & INSPECTION: APRIL 16, 2020
FIELD SURVEY TOLERANCE = 0.10 FEET HORIZONTAL - NAD 83 & 0.10 FEET VERTICAL - NAVD88
THE TOP OF THE CASING REFERENCED IN THE TABLE IS CERTIFIED TO BE WITHIN 0.01' OF THE CERTIFICATION ABOVE

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Mark Wescott P.G. Digitally signed by Mark Wescott P.G. Date: 2020.04.17 08:31:27 -04'00'

PERFORMANCE BOND FOR DRILLERS

POLICY NUMBER: ERAFXLW15

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – PRIMARY AND NON-CONTRIBUTORY

It is hereby agreed that the Policy is amended as follows solely as respects Coverage Section 1. , Coverage 1A (Bodily Injury and Property Damage) and Coverage 1B (Personal and Advertising Injury):

SCHEDULE

Name of Person or Organization:
Where required by written contract.

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

The persons or organizations shown in the Schedule above are insureds under § III. WHO IS AN INSURED, paragraph F. of this Policy subject to all the terms and conditions of that paragraph.

With respect to the persons or organizations shown in the Schedule above, this Policy shall be primary and non-contributory with any other valid and collectible insurance available to such persons or organizations.

All other terms and conditions of this Policy remain unchanged.

POLICY NUMBER: ERAFXLW15

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s)
Blanket as required by written contract.

It is hereby agreed that “any person or organization” referred to in the waiver of rights of recovery contained in the last sentence of Section VI. **CONDITIONS**, paragraph O., **Subrogation,** includes the person or organization listed in the above Schedule.

All other terms and conditions of this Policy remain unchanged.

CLIENT'S COPY

SURETY BOND CONTINUATION CERTIFICATE

TO: State of Georgia
Division of Environmental Protection
2 Martin Luther King Jr. Drive SE
Suite 1252
Atlanta, GA 30334

To be attached to and form a part of: Performance Bond for Well Contractors and Drillers

Principal on the Bond: Michael C. Rice/Cascade Drilling, L.P.

Surety Bond Number: K08315607

Bond Amount: Twenty Thousand and 00/100 Dollars ($20,000.00)

In consideration of the agreed premium charged for this bond, it is understood and agreed that the following change shall be made to this obligation:

[x] **CONTINUATION CERTIFICATE**

This certificate extends the life of the bond to June 30, 2017. It is executed upon the express condition that the surety's liability under said bond, together with this and all previous continuation certificates, shall not be cumulative and shall in no event exceed the amount specifically set forth in said bond or any existing certificate changing the amount of said bond.

Signed, sealed and dated this 26th day of May , 2015 .

Westchester Fire Insurance Company

By: Katie J

Katie Snider, Attorney-in-Fact

Surety of Record: Westchester Fire Insurance Company
436 Walnut Street
Philadelphia, PA 19106
Phone: (415) 547-4513

Agent of Record: Kibble & Prentice, a USI Company
601 Union Street, Suite 1000
Seattle, WA 98101
Phone: (206) 441-6300

Power of Attorney

WESTCHESTER FIRE INSURANCE COMPANY

Know all men by these presents: That **WESTCHESTER FIRE INSURANCE COMPANY,** a corporation of the Commonwealth of Pennsylvania pursuant to the following Resolution, adopted by the Board of Directors of the said Company on December 11, 2006, to wit:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into the ordinary course of business (each a "Written Commitment"):

(1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.

(2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such persons written appointment as such attorney-in-fact.

(3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(4) Each of the Chairman, the President and Vice Presidents of the Company 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

Stephen M. Haney

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.

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
KAREN E. BRANDT, Notary Public
City of Philadelphia, Phila. County
My Commission Expires Sept. 26, 2018

Karen E. Brandt

Notary Public

I, the undersigned Assistant Secretary of the **WESTCHESTER FIRE INSURANCE COMPANY,** do hereby certify that the original POWER OF ATTORNEY, of which the foregoing is a substantially true and correct copy, is in full force and effect.

In witness whereof, I have hereunto subscribed my name as Assistant Secretary, and affixed the corporate seal of the Corporation, this 26th day of May, 2015.

William L. Kelly

William L. Kelly, Assistant Secretary

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

COPY

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. **800031223**

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

on behalf of Michael C. Rice and Cascade Drilling, L.P., any and all employees, officers and partners
(PRINCIPAL)

and in favor of State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2019
(MONTH-DAY-YEAR)

and ending on June 30, 2021
(MONTH-DAY-YEAR)

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

Description of bond Water Well Contractor Performance Bond

Premium: $1,200.00

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

Signed and dated on May 9, 2019
(MONTH-DAY-YEAR)
Atlantic Specialty Insurance Company

By _____
Attorney-in-Fact Elizabeth R. Hahn

Parker, Smith & Feek, Inc.
Agent

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

(425) 709-3600
Telephone Number of Agent

S-0157/GE 8/08

XDP

OneBeacon
INSURANCE GROUP

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Deanna M. French, 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.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Paul J. Brehm, Senior Vice President

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.

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

_____
Notary Public

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

Signed and sealed. Dated 9 day of May 2019

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
October 1, 2019

_____
Christopher V. Jerry, Secretary

C. GROUNDWATER SAMPLING PROCEDURES

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

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

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

2. Measure and record the depth to water in the wells to be sampled prior to purging using a water measuring device consisting of a probe and measuring tape capable of measuring water levels with accuracy to 0.01 feet. Static water levels will be measured from each well within a 24-hour period. The water level measuring device will be decontaminated prior to lowering in each well.
3. Install Pump: If a dedicated pump is not present, slowly lower the pump into the well to the midpoint of the well screen or a depth otherwise approved by the hydrogeologist or project scientist. The pump intake must be kept at least two (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. All non-dedicated equipment will be decontaminated before use and between well locations in general accordance with USEPA Region 4 SESD guidance document, *Operating Procedure - Field Equipment Cleaning and Decontamination* (EPA, SESDGUID-205-R3), or the latest version of the document.

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

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

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

±0.1 for pH

±5% for specific conductance (conductivity)

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

<5 for turbidity

Temperature – Record only, not used for stabilization criteria

ORP – Record only, not used for stabilization criteria.

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

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

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

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

11. Information contained on sample container labels will include:

    a. Name of facility

    b. Date and time of sampling

    c. Sample description (well number)

    d. Sampler's initials

    e. Preservatives

f. Analytical method(s)

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

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

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

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

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

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

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