GROUNDWATER MONITORING PLAN

PLANT HAMMOND – ASH POND 1 (AP-1)
5 YEAR PERMIT REVIEW
FLOYD COUNTY, GEORGIA

FOR

Georgia Power

DECEMBER 2024 (REVISION 2)

Geosyntec consultants

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I. CERTIFICATION

This *Groundwater Monitoring Plan, Georgia Power Company - Plant Hammond Ash Pond 1 (AP-1)* has been prepared by a qualified groundwater scientist or engineer with Geosyntec Consultants, Inc. (Geosyntec) to meet the requirements contained in Chapter 391-3-4-.10 of the Georgia Environmental Protection Division Rules of Georgia, Solid Waste Management, Coal Combustion Residuals (i.e., State CCR Rule). References to the appropriate sections of the State CCR Rule are incorporated throughout this document.

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

Signature: _____

Date: 12/18/2024

GEORGIA REGISTERED No. PE036641 PROFESSIONAL ENGINEER WHITNEY B. LAW

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Nabil Murshed Digitally signed by Nabil Murshed Date: 2025.06.20 08:35:32 -04'00'

Signature: _____

Date: 12/18/2024

JOSEPH M. IVANOWSKI GEORGIA REGISTERED PROFESSIONAL GEOLOGIST No. 002140

1. INTRODUCTION

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

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

In accordance with the United States Environmental Protection Agency (USEPA) Coal Combustion Residual (CCR) Rule (§257.90), which is incorporated by Georgia State CCR Rule by reference, a detection monitoring well network for AP-1 has been installed and certified by a qualified professional engineer. This certification has been placed in the facility's operating record and is included in Part B of the permit application. The existing monitoring wells were installed following the guidelines presented herein. Additionally, this plan documents the methods for future monitoring well installation and/or replacement, and procedures for well abandonment. As required by 391-3-4.10(6)(g), a minor modification will be submitted to the EPD prior to the unscheduled installation or abandonment of monitoring wells. Well installation and/or abandonment must be directed by a Qualified Groundwater Scientist.

2. GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

The following section presents the geologic and hydrogeologic conditions for the Site as described in the *Hydrogeologic Assessment Report (Revision 1)* (HAR) (Geosyntec, 2019).

2.1 SITE GEOLOGY

AP-1 is located within the Great Valley and Ridge Physiographic Province (Valley and Ridge) in northwest Georgia which is characterized by Paleozoic sedimentary rocks that have been folded and faulted into the ridges and valleys that gave this region its name. Geologic mapping performed at the Site by Petrologic Solutions, Inc. (Golder, 2018) indicates that the Site is underlain by the middle units of the Cambrian age Conasauga Formation, consisting of mostly shaley limestone. Subsurface investigations at the Site describe the bedrock as limestone or shaley limestone. AP-1 is underlain primarily by five lithologic units; (i) fill, (ii) terrace alluvium, (iii) residuum, (iv) highly weathered/fractured shaley limestone bedrock, and (v) competent shaley limestone bedrock.

Based on subsurface investigations the fill material is composed of lean clay or gravelly lean clay with sand. The terrace alluvium consists of unconsolidated sediments associated with deposition from the Coosa River and Cabin Creek. Alluvium was variously described as well sorted and poorly sorted sand, clayey sand, sandy gravel, clayey gravel, or gravelly clay. The residuum clay layer or native soils have been derived from the in-place weathering of the shaley limestone bedrock. The residuum is generally described as a lean to fat clay, sometimes silty with some sand, and rarely gravel. Just below the residuum clay layer is a gradational zone of varying proportions of clayey residuum and sand, gravel, and cobble-sized angular pieces of partially weathered limestone, grading into a zone of fractured shaley limestone, before grading into unweathered, fresh shaley limestone bedrock. The upper highly weathered zone appears more as residuum with various sized rock fragments. The lower zone becomes less clayey with depth and is estimated to be approximately 10 feet thick. The limestone is described as medium to dark gray, very finely laminated with lighter and darker gray layers, and also contains interbeds of calcareous shale.

2.2 SITE HYDROGEOLOGY

The uppermost aquifer at the Site is a regional groundwater aquifer that occurs in the residuum and the highly weathered and fractured bedrock. Under natural conditions the water table surface would be expected to be a subdued reflection of the surface topography. Groundwater recharge is by precipitation falling onto bedrock outcrop areas and then percolating through alluvial and residual soils to the bedrock. Based on observations of residuum soil types and horizontal conductivity values, the movement of groundwater in the residuum, and to a degree the highly weathered bedrock zone, can be characterized as low-permeability, porous media flow. The shallow bedrock groundwater flow in the underlying bedrock is characterized as fracture flow. The regional groundwater flow direction is expected to be from north to south; however, the head currently maintained in AP-1 influences the groundwater flow in the vicinity of AP-1. The groundwater flow direction is shown on the potentiometric surface map (**Figure A-2**) in Appendix A. The potentiometric surface map represents data recorded in February 2024.

The horizontal hydraulic conductivity (K_h) was estimated by slug testing in wells screened in the alluvium/residuum and the residuum/highly weathered bedrock interface as reported in the HAR (Geosyntec, 2019) and supplemental *Semiannual Remedy Selection and Design Progress Report*

(Geosyntec, 2020). The K_h values for wells screened in the alluvium/residuum ranged from 5.60 x 10^{-4} to 4.32 x 10^{-2} centimeters per second (cm/sec), with a geometric mean of 2.56 x 10^{-3} cm/sec. The K_h values across the residuum/highly weathered bedrock interface ranged from 5.40 x 10^{-4} to 1.49 x 10^{-2} cm/sec, with a geometric mean of 2.06 x 10^{-3} cm/sec. The range of vertical hydraulic conductivity (K_v) values for undisturbed soil samples collected from fill, alluvium, residuum, or highly weathered bedrock layers was from 1.50 x 10^{-8} to 7.98 x 10^{-7} cm/sec, with a geometric mean of 8.75 x 10^{-8} cm/sec (Geosyntec, 2019), presented in **Table A-1** of Appendix A.

2.3 HYDRAULIC GRADIENT AND GROUNDWATER FLOW VELOCITY

The horizontal groundwater hydraulic gradients within the uppermost aquifer beneath AP-1 were calculated using the groundwater elevation data from the February 12, 2024, gauging event. Horizontal hydraulic gradients were calculated along the flow path south of AP-1 between HGWC-13 and MW-7 and between HGWC-8 and MW-20 along the flow path east of AP-1. The general trajectory of the flow paths used in the calculations and associated potentiometric contour lines are shown on **Figure A-2**. The calculated average hydraulic gradient along the southerly and easterly groundwater flow path lines associated with AP-1 for the February 2024 data is 0.009 feet per foot (ft/ft) between HGWC-13 and MW-7, and HGWC-8 and MW-20.

The minimum, maximum, and average groundwater velocities were calculated using: the horizontal hydraulic conductivity (K_h) values derived from slug tests; the average hydraulic gradient discussed above; and an estimated effective porosity of 0.15, based on review of literature (Kresic, 2007), observed site lithology, and professional judgement. Based on these parameters, Darcy's equation for flow velocity in a porous medium was used as follows:

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

where:

V = Groundwater flow velocity (ft/day)
K_h = Horizontal Hydraulic Conductivity (ft/day)
i = Horizontal hydraulic gradient (ft/ft)
h_1 and h_2 = Groundwater elevation at location 1 and 2
L = Distance between location 1 and 2
n_e = Effective porosity

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

3. SELECTION OF WELL LOCATIONS

Groundwater monitoring wells were installed to monitor the uppermost occurrence of groundwater beneath the Site. Locations were selected based on the AP-1 footprint and geologic and hydrogeologic considerations. Georgia Power follows the recommendation as stated in Chapter 2 of the *Manual for Groundwater Monitoring* (EPD, 1991) to establish well spacings based on site-specific conditions. The monitoring well network for AP-1 is depicted on **Figure A-1** included in Appendix A, Monitoring System Details. A more detailed discussion of the hydrogeological investigation conducted in support of monitoring well placement is provided in the HAR (Geosyntec, 2019).

The groundwater detection monitoring well network locations were chosen to monitor upgradient (HGWA), and downgradient (HGWC) conditions at the Site based on groundwater flow direction determined by potentiometric evaluation. The potentiometric surface map, **Figure A-2** in Appendix A, depicts the groundwater flow direction from AP-1, based on February 2024 conditions. Wells are positioned to provide adequate coverage to detect potential impacts from the CCR impoundment. The majority of the wells, both upgradient and downgradient of AP-1, are screened in the uppermost aquifer, in the alluvium, residuum and/or highly weathered bedrock above the competent bedrock. A limited number of wells were installed within the bedrock to characterize both background and downgradient conditions within the bedrock proximal to the unit. Recorded groundwater level data indicate these wells screened within the bedrock have an established hydraulic connected with the surficial aquifer, except for MW-30D and MW-40D. The water elevations in MW-30D and MW-40D indicate that the wells either have limited connection to (i.e., MW-30D) or are disconnected from (i.e., MW-40D) the uppermost aquifer.

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

4. MONITORING WELL DRILLING, CONSTRUCTION, ABANDONMENT AND REPORTING

The AP-1 monitoring well network described in this plan 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. Boring and well construction logs are provided in Appendix A for all wells and piezometers listed in **Table A-1**. Additional wells, if necessary, 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.

4.1 DRILLING

A variety of well drilling methods are available for the purpose of installing groundwater monitoring wells. Drilling methodologies include but are not limited to: hollow stem augers, direct push, air rotary, mud rotary, and rotosonic techniques. The drilling method will be selected to minimize the disturbance of subsurface materials and not cause impacts to groundwater. Borings will be advanced using an appropriate drilling technology capable of drilling and installing a well in the site-specific geology. Monitoring wells will be installed using the most current version of the USEPA SESDGUID-101-R# as a general guide for best practices. Also, drilling equipment will be decontaminated before use and between borehole locations using the procedures described in the most current version of USEPA LSASD's *Operating Procedure for Field Equipment Cleaning and Decontamination* (USEPA, LSASDPROC-205-R4). Well installation will be directed by a Qualified Groundwater Scientist.

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

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

4.2 DESIGN AND CONSTRUCTION

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

<u>WELL CASINGS AND SCREENS</u>

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

WELL INTAKE DESIGN

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

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

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

FILTER PACK AND ANNULAR SEAL

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

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

The annulus above the bentonite seal will be grouted with a cement and bentonite mixture (approximately 94 pounds cement / 3 to 5 pounds bentonite / 6.5 gallons of potable water) placed via tremie pipe from the top of the bentonite seal. During grouting, care will be taken to assure that the

bentonite seal is not disturbed by locating the base of the tremie pipe approximately two feet above the bentonite seal and injecting grout at low pressure/velocity.

PROTECTIVE CASING AND WELL COMPLETION

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

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

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

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

WELL DEVELOPMENT

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

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

Many geologic formations contain clay and silt particles that are small enough to work their way through a well's filter pack over time. Therefore, the turbidity of the groundwater from the monitoring wells may gradually increase over time after initial well development. As a result, monitoring wells may need to be redeveloped periodically to remove the silt and clay that has worked its way into the filter packs of the wells. Each monitoring well should be redeveloped when sample turbidity values have significantly

increased since initial development or since prior redevelopment. The redevelopment should be performed as described above. Well development data will be included in the well installation report.

4.3 ABANDONMENT

Per Georgia Rule 391-3-4-.10(6)(g), monitoring wells require abandonment and replacement after two consecutive dry sampling events, unless an alternate schedule is approved by the EPD. Monitoring wells will be abandoned using industry-accepted practices and using the EPD *Manual for Groundwater Monitoring* (EPD, 1991) and Georgia's Well Water Standards Act of 1985 [Official Code of Georgia Annotated (O.C.G.A.) § 12-5-120, 1985] as guides. The wells will be abandoned under the direction of a Qualified Groundwater Scientist registered in Georgia. Neat Portland cement or bentonite will be used as appropriate to complete abandonment and seal the well borehole. A minor modification shall be submitted in accordance with Rule 391-3-4.02(3)(b)(6) prior to the installation or decommissioning of monitoring wells. Any piezometers or groundwater wells located within the footprint of AP-1 will be over-drilled prior to abandonment.

4.4 DOCUMENTATION

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

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

- Schematic of the well with dimensions for all components (e.g., casing, screen, sump, well pad)

In accordance with the Georgia Water Well Standards Act (O.C.G.A §12-5-134(5)(d)(vii)), at least once every five years, the owner of the property on which a monitoring well is constructed shall have the monitoring well(s) inspected by a Qualified Groundwater Scientist, who shall direct appropriate remedial corrective work to be performed if the well does not conform to standards. Well inspection records and records of remedial corrective work are subject to review by EPD. Additionally, the cost estimate based upon current year cost for the well inspections will be provided as part of the cost calculations for the groundwater monitoring period.

5. GROUNDWATER MONITORING PARAMETERS AND FREQUENCY

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

Table 1, Groundwater Monitoring Parameters and Frequency, presents the groundwater monitoring parameters and sampling frequency. A minimum of eight independent samples from existing compliance monitoring wells were collected between May 2016 and May 2017, except for wells HGWA-43D and HGWA-44D which were installed after 2017, 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-annually during closure activities and the post-CCR removal monitoring period. Pursuant to 391-3-4-.10(6), an assessment monitoring program was initiated for AP-1 in January 2018 based on statistically significant increases documented in the *2017 Annual Groundwater Monitoring and Corrective Action Report* (dated January 31, 2018) (ERM, 2018). Georgia Power will conduct assessment monitoring in accordance with Chapter 391-3-4-.10(6).

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

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

TABLE 1
GROUNDWATER MONITORING PARAMETERS & FREQUENCY

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

TABLE 2
ANALYTICAL METHODS

Parameters	USEPA Method Number
Boron	6010D/6020B
Calcium	6010B/6020B
Chloride	300.0/300.1/9250/9251/9253/9056A
Fluoride	300.0/300.1/9214/9056A
pH	150.1 field
Sulfate	9035/9036/9038/300.0/300.1/9056A
Total Dissolved Solids (TDS)	160/2540C
Antimony	EPA 7040/7041/6010B/6020B
Arsenic	EPA 7060A/7061A/6010B/6020B
Barium	EPA 7080A/7081/6010B/6020B
Beryllium	EPA 7090/7091/6010B/6020B
Cadmium	EPA 7130/7131A/6020B
Chromium	EPA 7190/7191/6010B/6020B
Cobalt	EPA 7200/7201/6010B/6020B
Fluoride	300.0/300.1/9214/9056A
Lead	EPA 7420/7421/6010B/6020B
Lithium	6010D/6020B
Mercury	7470A
Molybdenum	6010D/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. Alternative USEPA accepted sampling techniques may be used when appropriate. The applied groundwater purging and sampling methodologies will be discussed in the groundwater semi-annual monitoring reports submitted to EPD.

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

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

7. CHAIN-OF-CUSTODY

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

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

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

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

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

8. FIELD QUALITY ASSURANCE / QUALITY CONTROL

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

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

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

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

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

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

9. REPORTING RESULTS

A semi-annual groundwater report that documents the results of sampling and analysis will be submitted to EPD. Semi-annual groundwater monitoring reports will be submitted to the EPD within 90 days of receipt and analysis of the groundwater analytical data from the laboratory. At a minimum, semi-annual reports will include:

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

2. A 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.

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 state and, if applicable, federal 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 determine statistical limits. Statistical analysis techniques are consistent with the USEPA document *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance* (Unified Guidance) (USEPA, 2009).

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

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

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

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

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

A site-specific statistical analysis plan that provides details regarding the statistical methods to be used will be placed in the Site's operating record pursuant to 391-3-4-.10(6). **Figure 1**, Statistical Analysis Plan Overview, includes 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 compliance results against those limits.

FIGURE 1. STATISTICAL ANALYSIS PLAN OVERVIEW

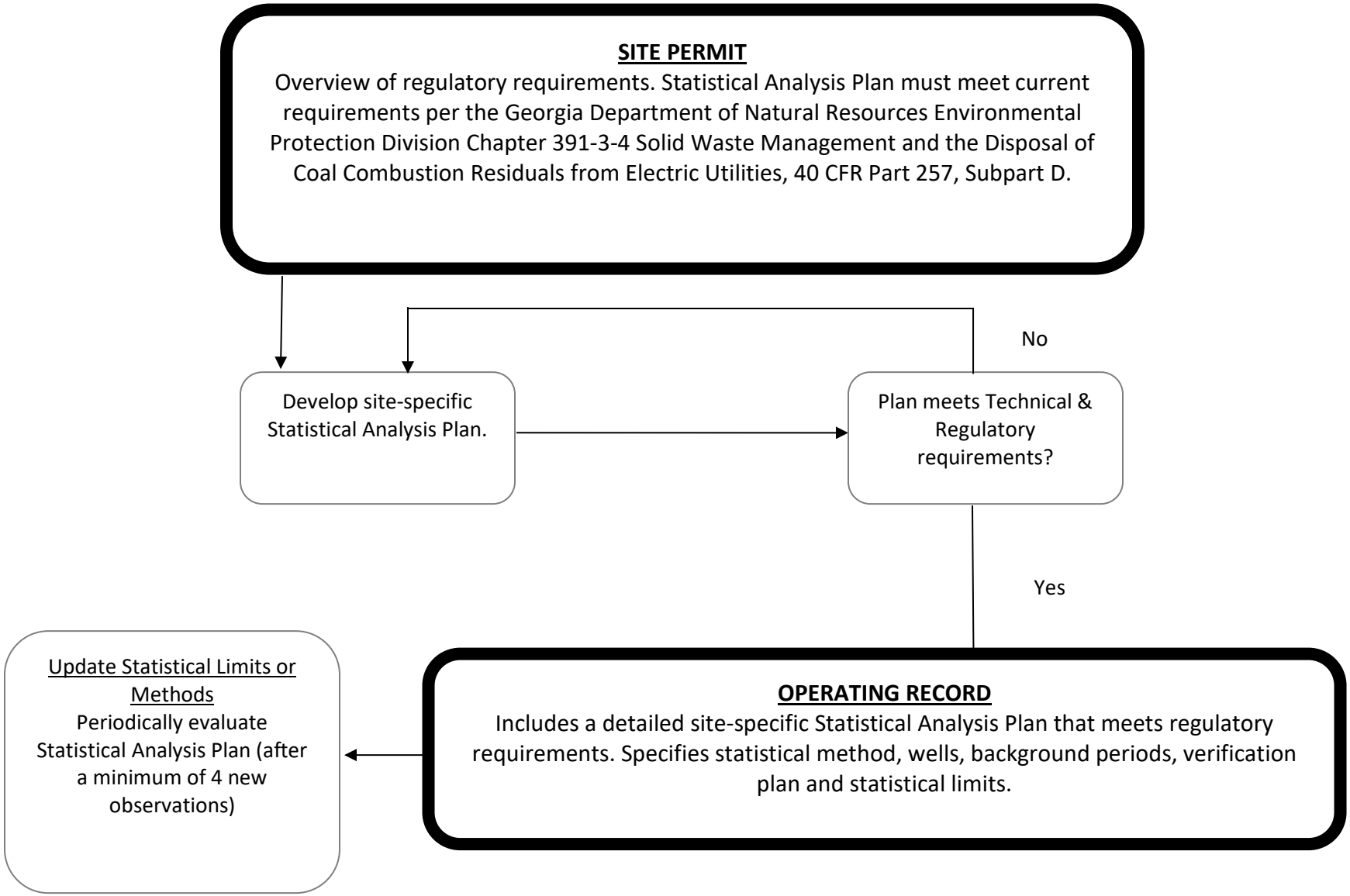
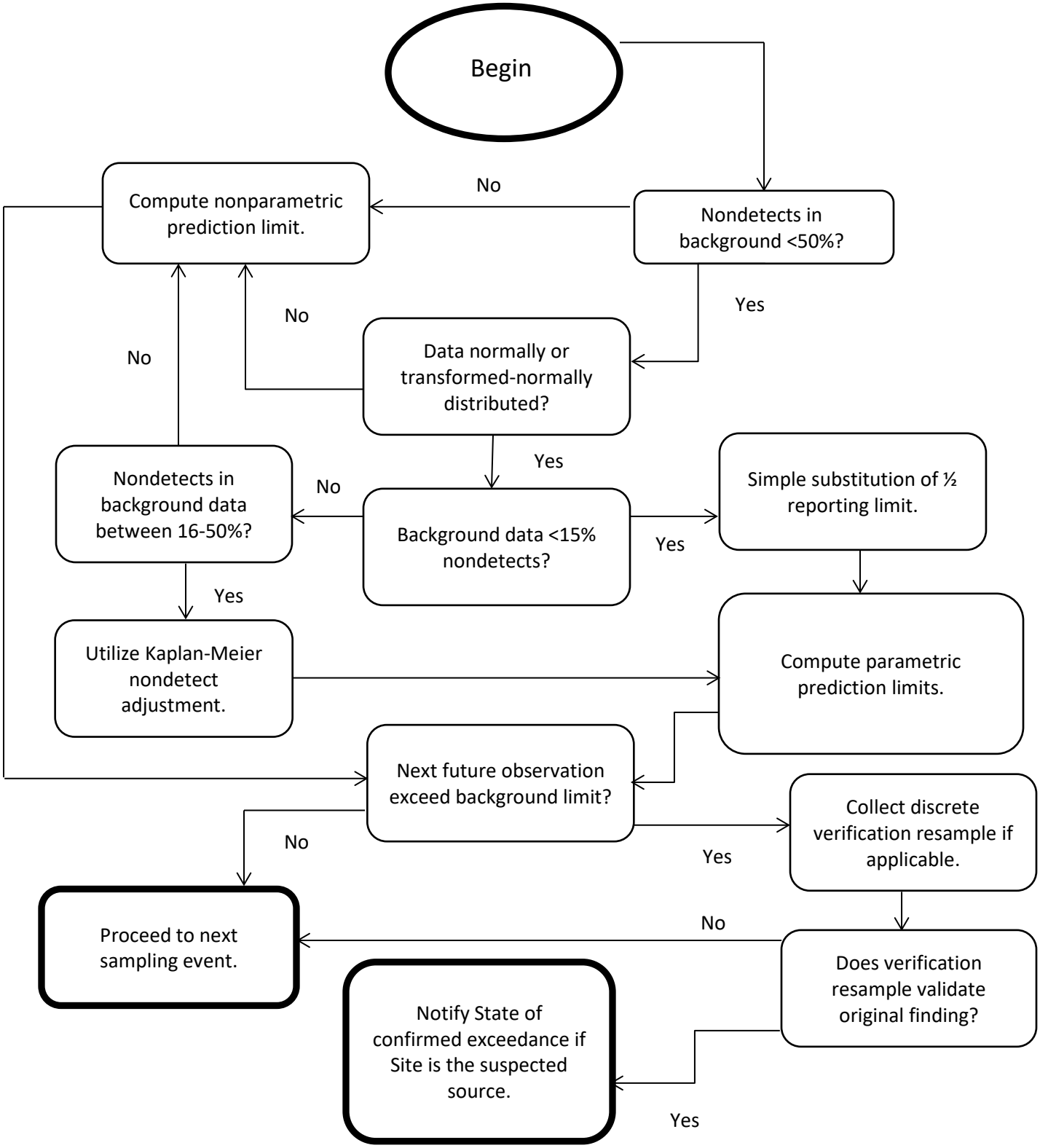


FIGURE 2. DECISION LOGIC FOR COMPUTING PREDICTION INTERVALS



11. REFERENCES

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APPENDIX

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

A. MONITORING SYSTEM DETAILS

FIGURE A-1 GROUNDWATER MONITORING NETWORK MAP

FIGURE A-2 POTENTIOMETRIC SURFACE CONTOUR MAP – FEBRUARY 2024

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

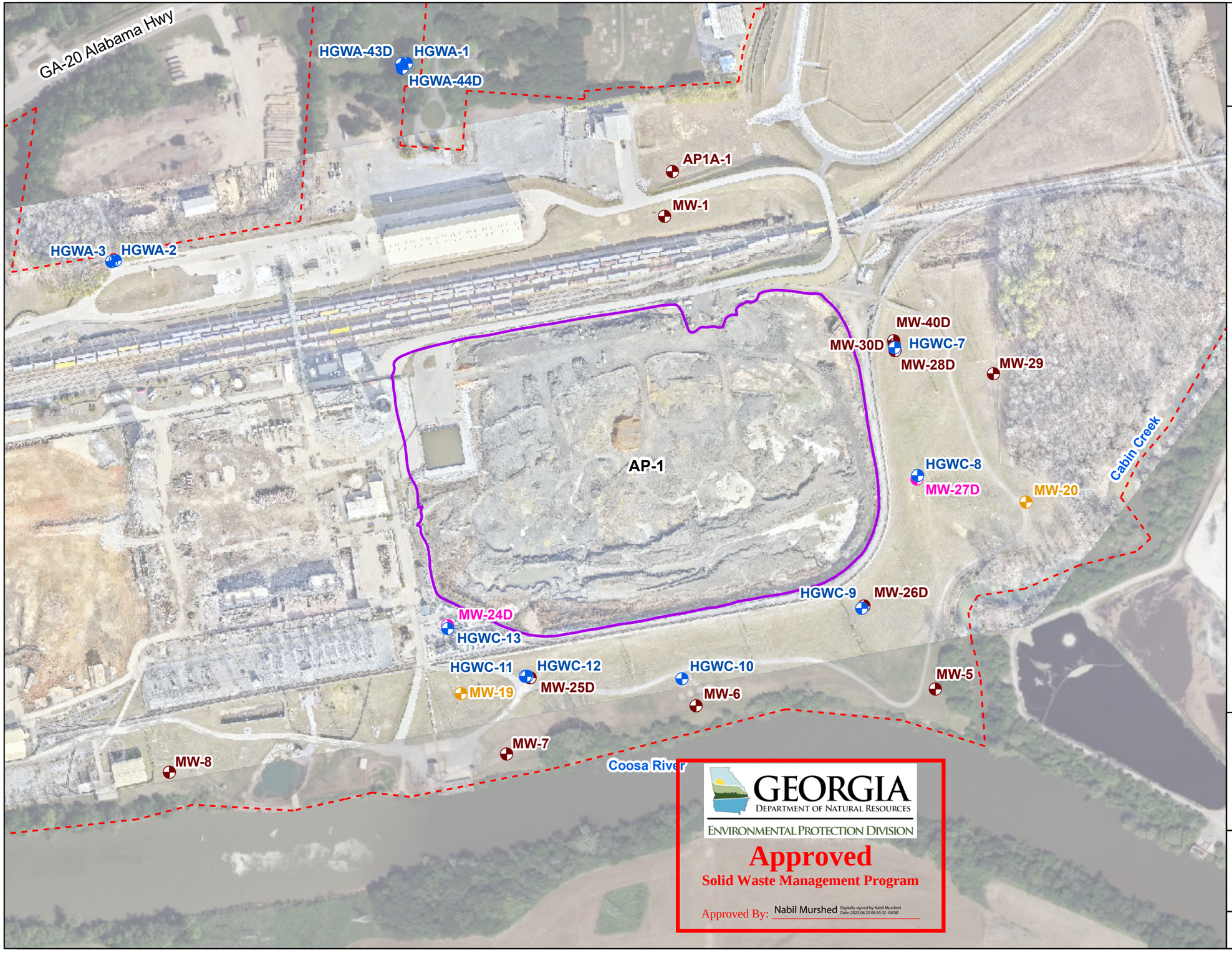
TABLE A-2 HORIZONTAL GROUNDWATER GRADIENT AND FLOW VELOCITY CALCULATIONS

BORING AND WELL CONSTRUCTION LOGS

CERTIFIED WELL NETWORK SURVEY DATA

PERFORMANCE BOND FOR DRILLERS

FIGURES



N

LEGEND

- Detection Monitoring Well
- Horizontal Assessment Monitoring Well
- Vertical Assessment Monitoring Well
- Piezometer
- Approximate AP-1 Boundary
- Plant Hammond Property Boundary

Notes:
1. Piezometers installed in support of corrective action implementation are not shown.
2. Aerial photograph source: 2024 Microsoft Corporation, 2024 Maxar NES, Distribution Airbus DS, and Georgia Power Company, January 2024.

0 150 300 600

SCALE IN FEET

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Approved

Solid Waste Management Program

Approved By: Nabil Murshed Digitally signed by Nabil Murshed Date: 2025.06.20 08:35:32 -04'00'

MONITORING WELL NETWORK AND SAMPLING LOCATION MAP

GEORGIA POWER COMPANY
PLANT HAMMOND AP-1
ROME, FLOYD COUNTY, GEORGIA

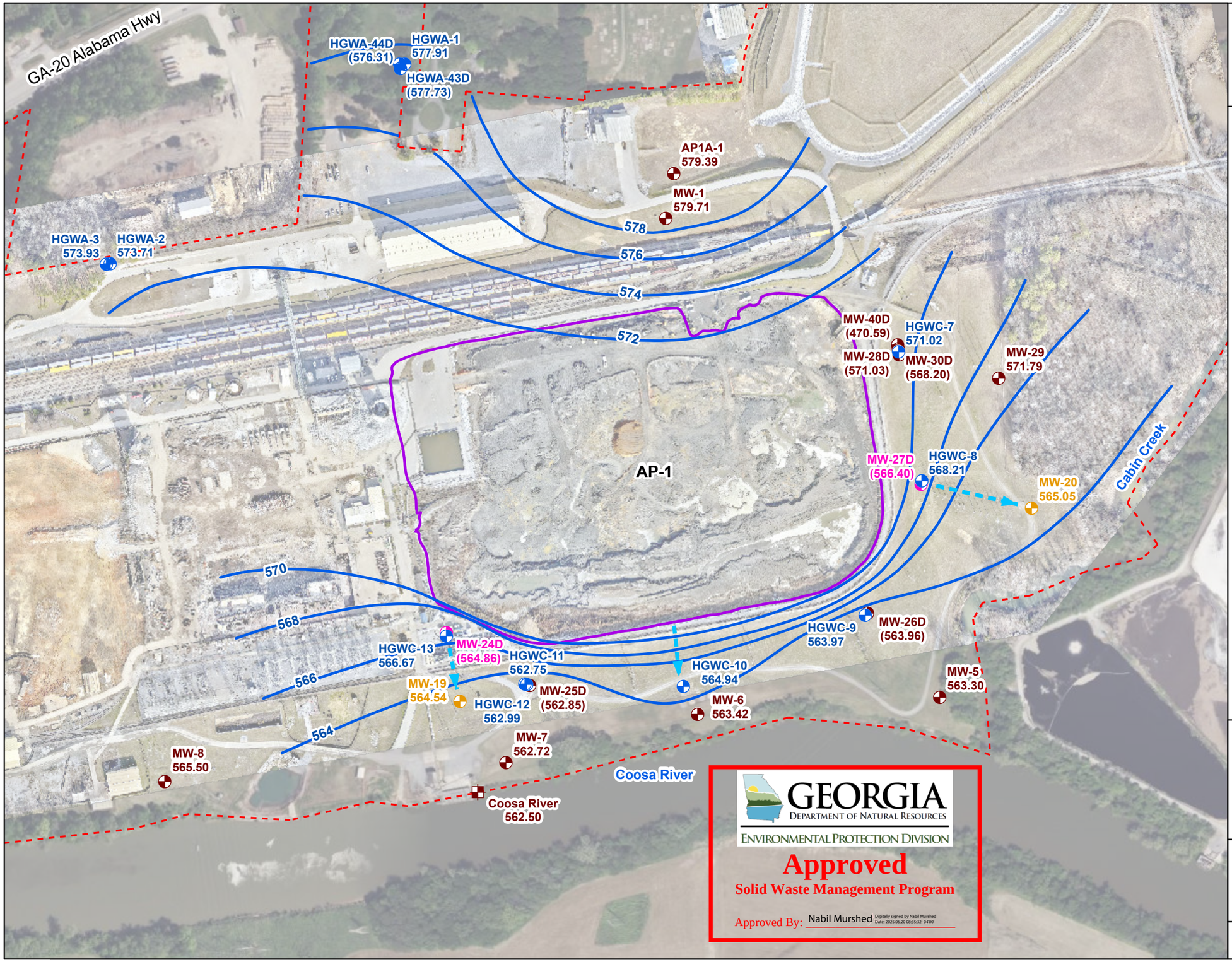
Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | DECEMBER 2024

FIGURE A-1

Groundwater Monitoring Plan, Plant Hammond Ash Pond 1 (AP-1)



N

LEGEND

- Detection Monitoring Well
- Horizontal AssessmentMonitoring Well
- Vertical Assessment Monitoring Well
- Piezometer
- Surface Water Level Gauge Point
- Groundwater Elevation Contour
- Approximate Groundwater Flow Direction
- Approximate AP-1 Boundary
- Plant Hammond Property Boundary

GEORGIA REGISTERED No. PE036510 PROFESSIONAL ENGINEER WHITNEY B. LAW

Notes:
1. Water level elevation recorded on February 12, 2024. Elevation provided in feet (ft) referenced to the North American Vertical Datum of 1988 (NAVD 88).
2. Groundwater elevations in parentheses were not used to make the groundwater contours because these wells are screened at a different elevation in the formation/aquifer.
3. Piezometers installed in support of corrective action implementation are not shown.
4. Aerial photograph source: 2024 Microsoft Corporation, 2024 Maxar NES, Distribution Airbus DS, and Georgia Power Company, January 2024.

0 150 300 600

SCALE IN FEET

POTENTIOMETRIC SURFACE CONTOUR MAP - FEBRUARY 2024

GEORGIA POWER COMPANY
PLANT HAMMOND AP-1
ROME, FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | DECEMBER 2024

FIGURE A-2

Groundwater Monitoring Plan, Plant Hammond Ash Pond 1 (AP-1)

TABLES

Table A-1
AP-1 Well and Piezometer Network Details
Plant Hammond, Floyd County, Georgia

Well ID	Installation Date	Northing [1]	Easting [1]	Ground Surface Elevation [2] (ft)	Top of Casing Elevation [2] (ft)	Top of Screen Elevation [2] (ft)	Bottom of Screen Elevation [2] (ft)	Well Depth [3] (ft BTOC)	Mean Kh, [4] (cm/sec)	Mean Kv, [4] (cm/sec)	Screened Media
Detection Monitoring Well											
HGWA-1	12/3/2014	1550423.32	1940770.00	592.32	595.21	573.12	563.12	32.49	1.41E-03	--	Highly weathered shaley limestone, Competent shaley limestone
HGWA-2	12/2/2015	1549796.87	1939845.15	585.29	587.92	570.29	560.29	27.95	--	--	Terrace alluvium
HGWA-3	12/2/2015	1549794.41	1939833.39	585.23	587.74	553.23	543.23	44.51	--	--	Highly weathered shaley limestone
HGWA-43D	8/26/2020	1550422.85	1940753.81	592.08	595.08	544.08	534.08	61.25	--	--	Shaley, dolomitic limestone
HGWA-44D	8/25/2020	1550409.13	1940756.19	592.01	594.79	491.76	481.76	113.50	--	--	Shaley, dolomitic limestone
HGWC-7	12/3/2015	1549520.67	1942319.75	576.55	579.18	561.55	551.55	27.96	5.40E-04	--	Residuum, Highly weathered shaley limestone
HGWC-8	12/8/2015	1549114.61	1942392.56	577.14	579.82	564.64	554.64	25.51	4.30E-03	6.40E-08	Terrace alluvium
HGWC-9	12/9/2015	1548693.30	1942215.03	577.72	580.36	543.72	533.72	46.97	2.30E-03	1.50E-08	Terrace alluvium, Residuum, Highly weathered shaley limestone, Competent shaley limestone
HGWC-10	12/8/2015	1548469.25	1941644.43	576.76	579.37	566.76	556.76	22.94	--	--	Residuum, Highly weathered shaley limestone
HGWC-11	12/15/2015	1548477.91	1941146.79	578.12	580.67	565.19	555.19	25.78	--	6.10E-08	Residuum, Highly weathered shaley limestone
HGWC-12	12/9/2015	1548476.53	1941152.34	578.14	580.73	555.64	545.64	35.42	8.00E-03	--	Residuum, Highly weathered shaley limestone, Competent shaley limestone
HGWC-13	12/10/2015	1548628.03	1940900.60	592.94	595.76	560.94	550.94	45.15	7.40E-04	--	Terrace alluvium, Residuum
Assessment Well											
MW-19	9/26/2018	1548422.94	1940943.01	577.46	580.65	561.45	551.45	29.53	5.60E-04	--	Alluvium, Poorly-graded sand, Clay
MW-20	9/27/2018	1549029.68	1942736.85	575.96	579.00	554.96	544.96	34.37	--	--	Clay, Sandy clay, Partially weathered rock
MW-24D	11/7/2018	1548638.80	1940900.37	592.91	595.68	532.91	522.91	72.77	--	--	Limestone
MW-27D	11/8/2018	1549103.57	1942390.80	576.84	579.70	526.84	516.84	63.19	--	--	Limestone
Piezometer											
AP1A-1	12/15/2015	1550080.01	1941614.12	584.78	587.44	575.84	565.84	21.93	--	--	Residuum, Silty, clayey sand
MW-1	12/2/2014	1549938.24	1941589.06	585.63	588.66	567.93	557.93	31.06	2.68E-03	3.62E-07	Shaley limestone
MW-5	11/4/2014	1548436.02	1942448.85	578.00	581.14	560.70	550.70	30.84	1.84E-03	1.74E-07	Alluvium, Clayey sand to fat clay
MW-6	11/4/2014	1548383.12	1941689.01	579.18	581.84	559.28	549.28	32.96	1.14E-02	1.22E-07	Alluvium, Fat clay, Shaley limestone
MW-7	10/30/2014	1548230.47	1941087.44	574.94	577.73	561.24	551.24	26.89	2.35E-02	--	Alluvium, Fat clay
MW-8	10/29/2014	1548171.86	1940016.70	584.25	586.93	565.05	555.05	32.72	8.26E-04	--	Alluvium, Well-graded sand, Fat clay
MW-25D	11/6/2018	1548473.00	1941162.20	577.71	580.59	527.71	517.71	63.21	6.60E-05	--	Limestone
MW-26D	11/14/2018	1548699.91	1942222.36	577.63	580.41	512.63	502.63	78.11	--	--	Limestone
MW-28D	11/13/2018	1549510.90	1942321.14	576.20	579.08	531.20	521.20	58.21	--	--	Limestone
MW-29	11/13/2018	1549437.67	1942633.60	572.14	575.06	557.14	547.14	28.25	--	--	Clayey gravel, Partially weathered rock
MW-30D	6/19/2019	1549530.00	1942318.45	576.20	578.59	481.20	471.20	107.72	--	--	Limestone
MW-40D	4/29/2020	1549542.29	1942316.55	576.41	578.92	450.41	440.41	138.84	--	--	Limestone

Notes:
-- = not available
cm/sec = centimeters per second
ft = feet
ft BTOC = feet below top of casing
Kh = Horizontal Hydraulic Conductivity
Kv = Vertical Hydraulic conductivity
(1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet.
(2) Vertical elevations are in North American Vertical Datum (NAVD) 1988.
(3) Total well depth accounts for sump if data provided on well construction logs.
(4) Source: Hydrogeologic Assessment Report, Revision 01 (Geosyntec, 2019); Semiannual Remedy Selection and Design Progress Report Plant Hammond Ash Pond 1 (Geosyntec, 2020)
(5) Survey completed by GEL Solutions on the dates presented in Appendix A of the Groundwater Monitoring Plan.
(6) Piezometers INW-03 through INW-05, MW-53, MW-54, and PT-07 through PT-15 shown on Figures A-1 and A-2 were installed in support of an Assessment of Corrective Measures (ACM) geochemical injections pilot study and are not included in the routine semiannual sampling of the monitoring well network. Therefore these wells are omitted from this well network summary table.

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ENVIRONMENTAL PROTECTION DIVISION

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Solid Waste Management Program

Approved By: Nabil Murshed Digitally signed by Nabil Murshed Date: 2025.06.20 08:35:32 -04'00'

December 2024

Table A-2
Horizontal Groundwater Gradient and Flow Velocity Calculations
Plant Hammond AP-1, Floyd County, Georgia

Flow Path Direction [1]	February 12, 2024				
	h_1 (ft)	h_2 (ft)	L (ft)	i (ft/ft)	Average i (ft/ft)
Southerly Flow Path (HGWC-13 to MW-7)	566.67	562.72	450	0.009	0.009
Easterly Flow Path (HGWC-8 to MW-20)	568.21	565.05	350	0.009	

Flow Path Direction	K_h (ft/d) [2]		n_e	i (ft/ft)	V (ft/d) [3]	
AP-1 Sitewide	Min	2.34	0.15	0.009	Min	0.137
	Max	66.61			Max	3.898
	Avg	11.82			Avg	0.692

Notes:
ft = feet
ft/d = feet per day
ft/ft = feet per foot
h_1 and h_2 = groundwater elevation at location 1 and 2
$i = h_1-h_2/L$ = horizontal hydraulic gradient
K_h = horizontal hydraulic conductivity
L = distance between location 1 and 2 along the flow path
n_e = effective porosity
V = groundwater flow velocity
(1) Flow path direction relative to the orientation of AP-1 and illustrated on Figure A-2 of associated report.
(2) Source of the K_h values *Hydrogeologic Assessment Report (Revision 1)* (Geosyntec, 2019).
(3) Groundwater flow velocity equation: $V = [K_h * i] / n_e$

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BORING AND WELL CONSTRUCTION LOGS

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Solid Waste Management Program

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Log updated with revised survey certified 5/19/2020.

BORING HGWA-1

SOUTHERN COMPANY

LOG OF TEST BORING

ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 12/3/2014 **COMPLETED** 12/3/2014 **SURF. ELEV.** 592.32 **COORDINATES:** N:1550423.32 E:1940770.00
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; HQ Rock Core
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 29.7 ft. **GROUND WATER DEPTH: DURING** _____ **COMP.** _____ **DELAYED** 17.1 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Clayey Gravel (GC)					
5		- brown and light brown, dry, dense		SS -1	3.5-5.0	7-13-18 (**31**)	
			586.32				
		Silty Clay (CL)					
10		- pale gray-brown, dry, very stiff, with red and yellow-brown mottling		SS -2	8.5-10.0	7-10-12 (**22**)	
15		- brown, dry, stiff, with gray mottling		SS -3	13.5-15.0	6-6-6 (**12**)	
			573.82)				
20		**SHALEY LIMESTONE**					Auger refusal at 18.5 ft.
25		- gray and dark gray, not to highly weathered, shale seams less than 1/2 inch, shear/fracture zone fabric, near vertical bedding, water staining		RC -1	18.7-25.2	**95** (23)	
				RC -2	25.2-29.7	**98** (9)	
			562.62				

Bottom of borehole at 29.7 feet.

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

SOUTHERN COMPANY

RECORD OF WELL CONSTRUCTION

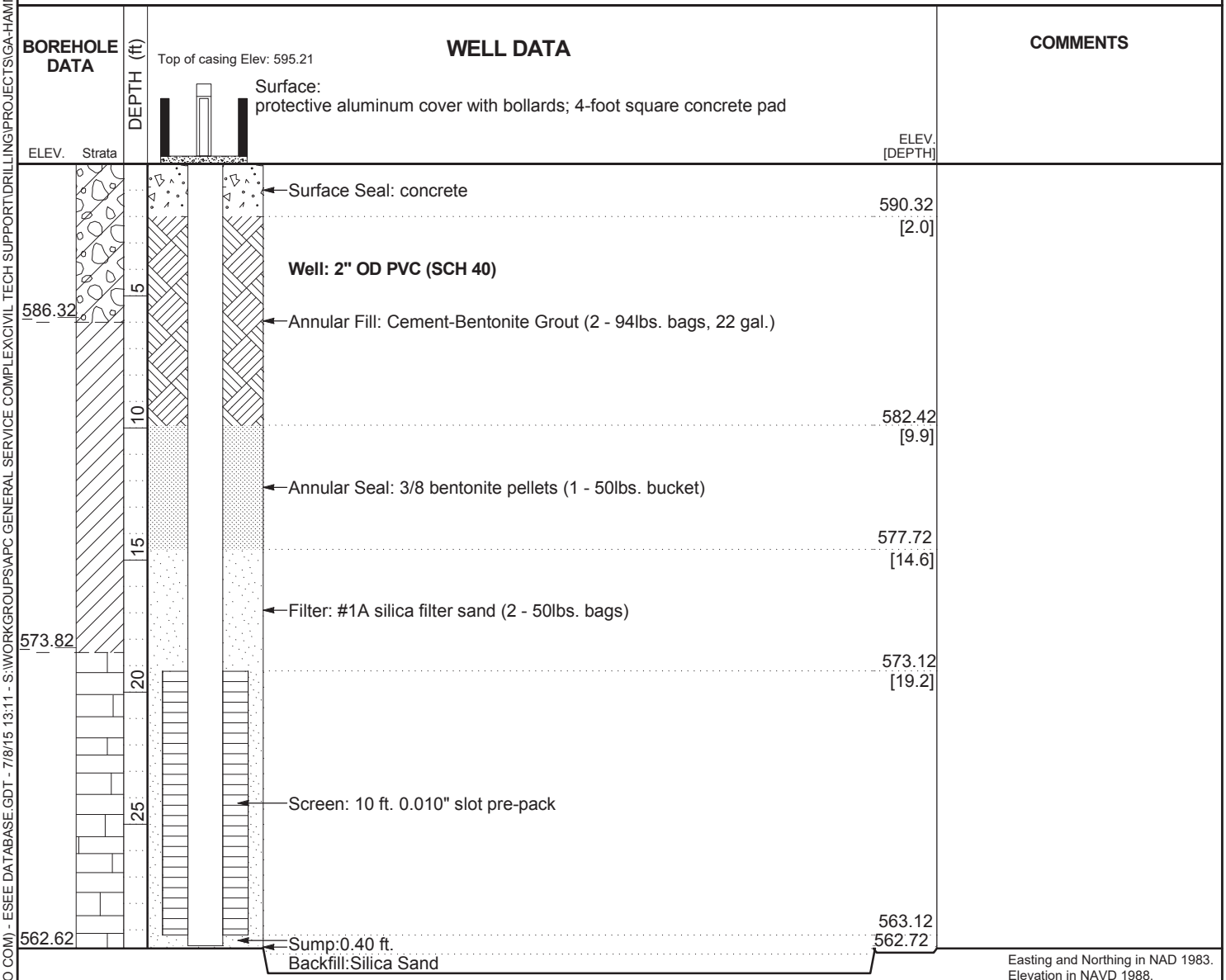
WELL: HGWA-1

ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 12/3/2014 **COMPLETED** 12/3/2014 **SURF. ELEV.** 592.32 **COORDINATES:** N:1550423.32 E:1940770.00
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; HQ Rock Core
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 29.7 ft. **GROUND WATER DEPTH: DURING** **COMP.** **DELAYED** 17.1 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.



Easting and Northing in NAD 1983.
Elevation in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

RECORD OF BOREHOLE HGWA-2

SHEET 1 of 1

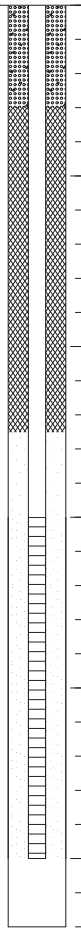
PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 27.00 ft
LOCATION: Rome, GA

DRILL RIG: Pro Sonic 150
DATE STARTED: 12/2/15
DATE COMPLETED: 12/2/15

NORTHING: 1,549,796.87
EASTING: 1,939,845.15
GS ELEVATION: 585.29 ft
TOC ELEVATION: 587.92 ft

DEPTH W.L.:8.19
DATE W.L.:12/2/15
TIME W.L.:11:10

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0	585	0.00 - 3.00 CLAY; light brown/grey silty clay, trace organic material, soft	CL		582.29			
		3.00 - 7.00 SILTY CLAY; grey/orange/light brown silty clay, mottled, stiff to very stiff, some black streaking from 3'-4', moist	CL		3.00 578.29			
5	580	7.00 - 8.00 CLAY; light brown/orange/grey sandy, gravelly clay, mottled, moist	CL		7.00 577.29			
		8.00 - 12.00 SANDY GRAVEL; orange/light brown sandy gravel, coarse grained, sub-angular gravel,	GP		8.00 573.29			
10	575	12.00 - 17.00 light brown/orange sandy gravel, coarse grain, loosely compacted, moist			12.00 568.29			
		17.00 - 18.00 GRAVELLY CLAY; orange/light brown gravelly clay, sub-angular gravel, moist	CLG		17.00 567.29 (567.23)			
15	570	18.00 - 24.00 SANDY GRAVEL; orange/light brown sandy gravel, coarse grained, trace clay lenses, wet	GP		18.00 561.29			
20	565	24.00 - 26.00 SILT; orange/light brown layered silt, soft, wet	ML		24.00 559.29			
		26.00 - 27.00 grey silt with trace limestone shale and clay, foliated, soft, wet			26.00 558.29			
25	560	Boring completed at 27.00 ft						
30	555							
35	550							
40	545							
45								



WELL CASING
Interval: -3'-15'
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Screw/Flush

SURFACE CASING
Interval: N/A
Material: N/A
Diameter: N/A

WELL SCREEN
Interval: 15'-25'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 12.5'-25'
Type: #1 sand/ Prepack Filter

FILTER PACK SEAL
Interval: 3'-12.5'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-3'
Type: Portland Type I/Type II/Gel Mix

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

DRILLING METHODS
Soil Drill: 6-inch diameter Sonic
Rock Drill: 6-inch diameter Sonic

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

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

GA INSPECTOR: James Mullooly
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 2/24/16

Golder Associates

BOREHOLE RECORD HAMMOND BORING LOGS.GPJ PIEDMONT.GDT 3/1/16

Log updated with revised survey certified 5/19/2020.

RECORD OF BOREHOLE HGWA-3

SHEET 1 of 1

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 42.00 ft
LOCATION: Rome, GA

DRILL RIG: Pro Sonic 150
DATE STARTED: 12/1/15
DATE COMPLETED: 12/2/15

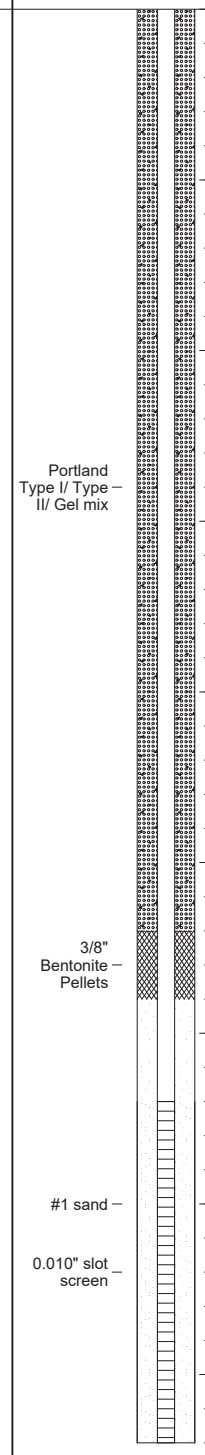
NORTHING: 1,549,794.41
EASTING: 1,939,833.39
GS ELEVATION: 585.23 ff
TOC ELEVATION: 587.74 ft

DEPTH W.L.:2.68
DATE W.L.:12/2/15
TIME W.L.:07:30

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)
0	585	0.00 - 5.00 SANDY CLAY; grey/brown/orange mottled sandy clay, fine grained, medium density, stiff, moist	CLS	580.23
5	580	5.00 - 13.00 CLAYEY GRAVEL; orange/brown clayey gravel with some sand, poorly sorted and angular pieces, gravel becomes more rounded at 9 feet, medium density compaction	GC	5.00 572.23
10	575	13.00 - 14.00 wet around 13.5 feet	GC	13.00 571.23 (571.19)
15	570	14.00 - 17.00 SANDY GRAVEL; brown/grey poorly sorted, well rounded sandy gravel, wet	GP	14.00 568.23
20	565	17.00 - 25.00 orange/brown sandy gravel, well rounded, poorly sorted, wet		17.00 560.23
25	560	25.00 - 26.00 some larger rock fragments and coarse grained sand		25.00 559.23
		26.00 - 31.00 CLAY; brown/grey sandy gravel, changes to grey weathered limestone and clay, medium density, firm, moist	CL	26.00 554.23
30	555	31.00 - 37.00 PARTIALLY WEATHERED ROCK; partially weathered limestone and trace clay, angular rock fragments, clay is mottled light and dark grey, wet	PWR	31.00 548.23
35	550	37.00 - 42.00 partially weathered dark grey shaly limestone, poorly sorted and angular, some gravel, bottom 3 inches are solid limestone, wet (saturated)		37.00 543.23
40	545	Boring completed at 42.00 ft		
45				

SAMPLES: SAMPLE NO., TYPE, REC

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval:
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Screw/Flush

SURFACE CASING
Interval: N/A
Material: N/A
Diameter: N/A

WELL SCREEN
Interval: 32'-42'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 29'-42'
Type: #1 sand/ Prepack Filter

FILTER PACK SEAL
Interval: 27'-29'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-27'
Type: Portland Type I/Type II/Gel Mix

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

DRILLING METHODS
Soil Drill: 6-inch diameter Sonic
Rock Drill: 6-inch diameter Sonic

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

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

GA INSPECTOR: James Mullooly
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 2/24/16

Golder Associates

BOREHOLE RECORD HAMMOND BORING LOGS.GPJ PIEDMONT.GDT 3/1/16

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Kennesaw, GA 30144

HGWA-43D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 8/26/20 **COMPLETED** 8/26/20
NORTHING 1550422.85 ft **EASTING** 1940753.80 ft
DRILLER Cascade Drilling
GROUND ELEVATION 592.08 ft **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 595.08 ft
SAMPLING METHOD 4" core 6" override
GEOPHYSICAL CONTRACTOR ---
RIG TYPE Terrasonic 1051181
LOGGED BY A. Ramsey **CHECKED BY** J. Ivanowski

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	590			Hydro Excavation (0 ft to 10 ft) NO SAMPLE
10	580			582.1 CLAY, Yellowish red and light gray mottling, medium plasticity, trace coarse sand, hard, moist.
15	575			576.6 CLAY, Reddish yellow with light gray mottling, laminated brown, with organic material, trace limestone gravel, hard, moist. 17 ft: Trace of limestone gravel.
20	570			573.1 HIGHLY WEATHERED ROCK, Light brown, recovered as angular gravelly clay with trace limestone cobbles, non plastic to low plasticity, soft, wet.
25	565			569.1 LIMESTONE, Grayish blue to white, some white calcite healed fractures, 1 in clay filled fractures, mostly pulverized by drilling, powder reacts with HCl, hard, dry. 27 ft: Wet. 562.1

CONSTRUCTION DIAGRAM

(Continued Next Page)

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HGWA-43D

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

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
30	560	30 ft to 50 ft: No voids reported.		30 ft to 34.5 ft: No recovery.	
				557.6	
35	555			LIMESTONE, Grayish blue to white, hard, dry, some white calcite healed fractures, 1 in clay filled fractures, 38 ft to 39 ft pulverized by drilling, powder reacts with HCl, wet.	
40	550			40 ft: Up to 1 in thick calcite healed fractures.	Bentonite coated 3/8" pellets
				548.1	
45	545			44 ft to 50 ft: No recovery.	
50	540			542.1	20/40 Silica Sand
				LIMESTONE, Grayish blue to white, hard, dry, up to 1 in thick calcite healed fractures, trace 1 in clay filled fractures, mostly pulverized by drilling, powder reacts with HCl.	0.010 slot size 2" Pre Pack, U-Pack Screen
55	535				Bottom of well: 58.25 ft
				533.8	

Bottom of borehole at 58.3 feet.

Easting and Northing in NAD 1983.
Elevation in NAVD 1988.

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

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HGWA-44D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 8/24/20 **COMPLETED** 8/25/20
NORTHING 1550409.13 ft **EASTING** 1940756.18 ft
DRILLER Cascade Drilling
GROUND ELEVATION 592.01 ft **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 594.79 ft
SAMPLING METHOD 4" core 6" override
GEOPHYSICAL CONTRACTOR ---
RIG TYPE Terrasonic 1051181
LOGGED BY A. Ramsey **CHECKED BY** J. Ivanowski

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	590			Hydro Excavation (0 ft to 10 ft) NO SAMPLE
5	585			
10	580			582.0 CLAY, Red with yellowish red and light gray mottling, medium plasticity, trace coarse sand, hard, moist. 12 ft: Yellowish red and light gray mottling.
15	575			577.0 CLAY, Reddish yellow with light gray mottling, some brown organic matter, trace limestone gravel, medium to low plasticity, hard, moist. 576.0 HIGHLY WEATHER ROCK, Light brown, gravelley clay with some angular cobbles, gravel and cobbles are limestone, non to low plasticity, soft, wet. 573.0
20	570			LIMESTONE, Dark bluish gray, reacts with HCl when powdered, partially pulverized by drilling, hard, dry to moist. 20 ft: With abundant white calcite healed fractures.
25	565			
30	560	Driller reports void between 30 ft and 31 ft. No returns. 31 ft to 33 ft no recovery, but returns coming back. Driller reports 'soft' material, potentially washed away.		562.0 30 ft to 31 ft: Void. 31 ft to 33 ft: No recovery. 559.0 LIMESTONE, Dark bluish gray, wet, hard, reacts with HCl when powdered, abundant white calcite healed fractures, bottom 1 ft is pulverized and dry.

CONSTRUCTION DIAGRAM

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

(Continued Next Page)

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

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
35	555	40 ft: Driller reports no returns.		LIMESTONE, Dark bluish gray, wet, hard, reacts with HCl when powdered, abundant white calcite healed fractures, bottom 1 ft is pulverized and dry. *(continued)*	
40				552.0 40 ft to 42 ft: No recovery.	
	550			550.0 LIMESTONE, Dark bluish gray, wet, hard, reacts with HCl when powdered, abundant white calcite healed fractures, bottom 1 ft is pulverized by drilling.	
45	545				
50				542.0 50 ft to 52 ft: No recovery.	
	540			540.0 LIMESTONE, Dark bluish gray, wet, hard, reacts with HCl when powdered, abundant white calcite healed fractures, bottom 1 ft is pulverized by drilling.	
55	535				Bentonite coated 3/8" pellets
60				532.0 60 ft to 61 ft: No recovery.	
	530			531.0 LIMESTONE, Dark bluish gray, hard, wet, bottom 1 ft pulverized by drilling, reacts with HCl when powdered, abundant white 0.1 in to 2 in thick calcite healed fractures.	
65	525				
70				522.0 70 ft to 71 ft: No recovery.	
	520			521.0 LIMESTONE, Dark bluish gray, hard, wet, bottom 1 ft pulverized by drilling, reacts with HCl when powdered, abundant white hite 0.1 in to 2 in thick calcite healed fractures.	

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

(Continued Next Page)

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

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
75	515			LIMESTONE, Dark bluish gray, hard, wet, bottom 1 ft pulverized by drilling, reacts with HCl when powdered, abundant white hite 0.1 in to 2 in thick calcite healed fractures. *(continued)*	
				512.0	
80	510			80 ft to 84 ft: No recovery.	
				508.0	
85	505			LIMESTONE, Dark bluish gray, hard, wet, bottom 1 ft pulverized by drilling, reacts with HCl when powdered, abundant white 0.1 in to 2 in thick calcite healed fractures.	Bentonite coated 3/8" pellets
				502.0	
90	500			90 ft to 94 ft: No recovery.	
				498.0	
95	495			LIMESTONE, Dark bluish gray, hard, wet, bottom 1 ft pulverized by drilling, reacts with HCl when powdered, abundant white 0.1 in to 2 in thick calcite healed fractures.	
				492.0	20/40 Silica Sand
100	490			100 ft to 102 ft: No recovery.	
				490.0	
105	485			LIMESTONE, Dark bluish gray, hard, wet, bottom 1 ft pulverized by drilling, reacts with HCl when powdered, abundant white 0.1 in to 2 in thick calcite healed fractures.	0.010 slot size 2" Pre Pack, U-Pack Screen
110				480.0	Bottom of well: 110.5 ft

Bottom of borehole at 112.0 feet.

Easting and Northing in NAD 1983.
Elevation in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

RECORD OF BOREHOLE HGWC-7

SHEET 1 of 1

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 27.20 ft
LOCATION: Rome, GA

DRILL RIG: Pro Sonic 150
DATE STARTED: 12/3/15
DATE COMPLETED: 12/3/15

NORTHING: 1,549,520.67
EASTING: 1,942,319.75
GS ELEVATION: 576.55
TOC ELEVATION: 579.18 ft

DEPTH W.L.: N/A (bgs)
ELEVATION W.L.:
(amsl) DATE W.L.: N/A
TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	575	0.00 - 2.50 SILTY SAND; dark grey silty sand, fine to coarse with trace rounded gravel, non-plastic, loose, dry to wet, W<PL	SM		574.05					
		2.50 - 8.00 CLAY/RESIDUUM; yellow/brown clay, moderate to high plasticity, becomes mottled in the last 1 foot, firm to stiff, moist, W~PL	CH		2.50 568.55				Portland Type I/ Type II/ Gel mix	
5	570									
		8.00 - 17.00 CLAY/ALLUVIUM; yellowish brown clay, low to moderate plasticity, mottled, stiff, contains 5-15% sub-rounded to sub-angular gravel, moist, W<PL; wet, grayish brown sandy gravel at 8 feet	CL		8.00 559.55				3/8" Bentonite Pellets	
10	565									
15	560									
		17.00 - 27.20 TRANSITIONALLY WEATHERED ROCK and CLAY; light brown/tan clay, some rock, very soft, moist to wet, W>PL; rock is medium grey limestone, fine grained, wet	TWR		17.00 549.35				#1 sand 0.010" slot screen	
20	555									
25	550								3/8" Bentonite chips	
		Boring completed at 27.20 ft								
30	545									
35	540									
40	535									
45										

WELL CASING
Interval: -3'-15'
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Screw/Flush

WELL SCREEN
Interval: 15'-25'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 13'-25'
Type: #1 sand/ Prepack Filter

FILTER PACK SEAL
Interval: 11'-13'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-11'
Type: Portland Type I/Type II/Gel Mix

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

DRILLING METHODS
Soil Drill: 6-inch diameter Sonic
Rock Drill: 6-inch diameter Sonic

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

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

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

Golder Associates

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

Log updated with revised survey certified 5/19/2020.

RECORD OF BOREHOLE HGWC-8

SHEET 1 of 1

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 23.50 ft
LOCATION: Rome, GA

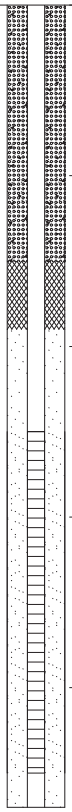
DRILL RIG: Pro Sonic 150
DATE STARTED: 12/8/15
DATE COMPLETED: 12/8/15

NORTHING: 1,549,114.61
EASTING: 1,942,392.56
GS ELEVATION: 577.14
TOC ELEVATION: 579.82 ft

DEPTH W.L.: Ground Surface (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 12/8/15
TIME W.L.: 11:20

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES SAMPLE NO.	SAMPLES TYPE	SAMPLES REC
0	575	0.00 - 1.50 CLAY/RESIDUUM; yellow/orange/brown clay with trace to some coarse sand and fine gravel, low plasticity, soft to firm, wet, W<PL	CL		575.64			
		1.50 - 3.00 dark brown clay, trace silt, low plasticity, dry, firm, W<PL			1.50 574.14			
5	570	3.00 - 7.00 CLAY/SILTY CLAY/RESIDUUM; orange/brown clay to silty clay, low to moderate plasticity, firm to stiff, dry to moist, W<PL	CL-CH		3.00 570.14			
10	565	7.00 - 11.00 SILT/ALLUVIUM; light orange/grey clay with trace fine sand and silt, mottled, moderate to high plasticity, firm to stiff, moist, W=PL SHELBY TUBE: 7'-9'	MH		7.00 566.14		SH	2.00 2.00
		11.00 - 17.00 CLAYEY SAND and GRAVEL/ALLUVIUM; light blue-gray sand and gravel, sand is fine to coarse, sub-rounded to sub-angular, loose, moist to wet; gravel is 80% rounded to sub-rounded, fine to coarse, trace to some clay, appears to be a conglomerate type of soil	SC		11.00 560.14			
15	560	17.00 - 23.50 SANDY GRAVEL/ALLUVIUM; tan brown to dark brown sand and gravel, fine to coarse, loose, non-plastic, rounded to sub-rounded, wet	SP-GP		17.00 553.64			
20	555	Boring completed at 23.50 ft						
25	550							
30	545							
35	540							
40	535							
45								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: -3'-12.5'
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Screw/Flush

WELL SCREEN
Interval: 12.5'-22.5'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 9.5'-23.5'
Type: #1 sand/ Prepack Filter

FILTER PACK SEAL
Interval: 7.5'-9.5'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-7.5'
Type: Portland Type I/Type II/Gel Mix

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

DRILLING METHODS
Soil Drill: 6-inch diameter Sonic
Rock Drill: 6-inch diameter Sonic

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

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

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

Golder Associates

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

Log updated with revised survey certified 5/19/2020.

RECORD OF BOREHOLE HGWC-9

SHEET 1 of 2

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 47.00 ft
LOCATION: Rome, GA

DRILL RIG: Pro Sonic 150
DATE STARTED: 12/9/15
DATE COMPLETED: 12/9/15

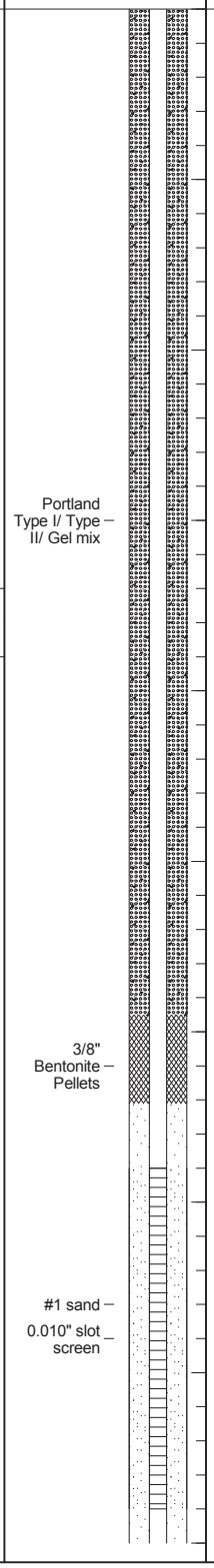
NORTHING: 1,548,693.30
EASTING: 1,942,215.03
GS ELEVATION: 577.72
TOC ELEVATION: 580.36 ft

DEPTH W.L.: 7.2' (bgs)
ELEVATION W.L.:
(amsl) DATE W.L.:
12/9/15 TIME W.L.: 14:15

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0	575	0.00 - 7.00 FILL/RESIDUUM; light to dark brown clay with trace fine sand and silt, low plasticity, soft to firm, moist, W<PL	FILL					
5								
10	570	7.00 - 17.00 CLAY/RESIDUUM; orangish brown and blue grey mottled clay, moderate plasticity, very stiff, moist, W<PL	CL		7.00 570.72			
15	565				560.72			
20	560	17.00 - 19.50 orangish brown and blue grey mottled clay, moderate plasticity, very stiff, moist, W<PL SHELBY TUBE: 17'-19'			17.00 558.22		SH	2.00 2.00
		19.50 - 24.00 SAND/ALLUVIUM; light tan to blue-grey gravelly sand with trace clay and gravel, fine to coarse, rounded to sub-rounded, well graded, pooly sorted, non-plastic, compact, moist, W<PL	SW		19.50 554.72			
25	555	24.00 - 27.00 SAND/RESIDUUM; red/orange sand with trace clay, non-plastic, fine to coarse, wet, W>PL	SP		24.00 550.72			
30	550	27.00 - 37.00 GRAVELLY SAND/ALLUVIUM; tan/pink/brown sand with some gravel and trace clay, non-plastic, sand is fine to coarse, sub-rounded to sub-angular, gravel is medium to coarse with some cobbles containing rock fragments, wet	SP		27.00 540.72			
35	545							
40	540	37.00 - 42.00 TRANSITIONALLY WEATHERED ROCK and CLAY/RESIDUUM; red/orange/brown sandy clay, low plasticity, trace rounded cobbles, sand is fine grain, very soft, wet, W>PL	TWR		37.00 535.72			
45	535	42.00 - 47.00 BEDROCK; medium grey fine grained limestone, calcite veins, dry	ROCK		42.00			

Log continued on next page

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: -3'-34'
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Screw/Flush

WELL SCREEN
Interval: 34'-44'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 32.1'-45'
Type: #1 sand/ Prepack Filter

FILTER PACK SEAL
Interval: 29.5'-32.1'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-29.5'
Type: Portland Type I/Type II/Gel Mix

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

DRILLING METHODS
Soil Drill: 6-inch diameter Sonic
Rock Drill: 6-inch diameter Sonic

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

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

Golder Associates

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

RECORD OF BOREHOLE HGWC-9

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812 DRILLED DEPTH: 47.00 ft LOCATION: Rome, GA

DRILL RIG: Pro Sonic 150
DATE STARTED: 12/9/15
DATE COMPLETED: 12/9/15

NORTHING: 1548693.30
EASTING: 1942215.03
GS ELEVATION: 577.72
TOC ELEVATION: 580.36 ft

DEPTH W.L.: 7.2' (bgs)
ELEVATION W.L.: (amsl) DATE W.L.: 12/9/15 TIME W.L.: 14:15

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45		42.00 - 47.00 BEDROCK; medium grey fine grained limestone, calcite veins, dry *(Continued)*	ROCK		530.72				3/8" Bentonite – chips	**WELL CASING** Interval: -3'-34' Material: Schedule 40 PVC Diameter: 6" Joint Type: Screw/Flush **WELL SCREEN** Interval: 34'-44' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC **FILTER PACK** Interval: 32.1'-45' Type: #1 sand/ Prepack Filter **FILTER PACK SEAL** Interval: 29.5'-32.1' Type: 3/8" Bentonite Pellets **ANNULUS SEAL** Interval: 0'-29.5' Type: Portland Type I/Type II/Gel Mix **WELL COMPLETION** Pad: 4'x4'x4" Protective Casing: Anodized Aluminum **DRILLING METHODS** Soil Drill: 6-inch diameter Sonic Rock Drill: 6-inch diameter Sonic
		Boring completed at 47.00 ft								
50	530									
55	525									
60	520									
65	515									
70	510									
75	505									
80	500									
85	495									
90	490									

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

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

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

Golder Associates

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

Log updated with revised survey certified 5/19/2020.

RECORD OF BOREHOLE HGWC-10

SHEET 1 of 1

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 26.50 ft
LOCATION: Rome, GA

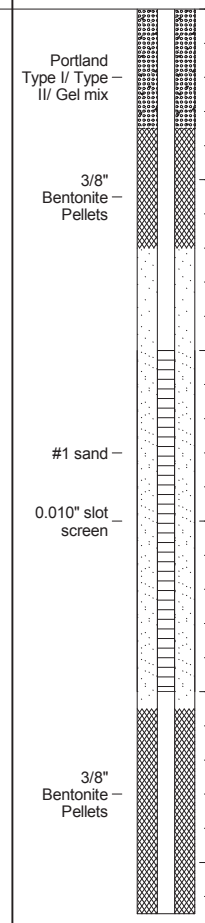
DRILL RIG: Pro Sonic 150
DATE STARTED: 12/8/15
DATE COMPLETED: 12/8/15

NORTHING: 1,548,469.25
EASTING: 1,941,644.43
GS ELEVATION: 576.76
TOC ELEVATION: 579.37 ft

DEPTH W.L.: 4.29' (bgs)
ELEVATION W.L.: (amsl) DATE W.L.: 12/8/15 TIME W.L.: 14:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES SAMPLE NO.	SAMPLES TYPE	SAMPLES REC
0	575	0.00 - 1.50 CLAY/RESIDUUM; dark grey/brown clay with trace to some fine sand, soft trace rounded pebbles and organic material, moist, W<PL	CL		575.26			
		1.50 - 7.00 yellowish medium brown clay with trace to some fine sand, low plasticity, stiff to firm, moist, W<PL			1.50			
5	570				569.76			
		7.00 - 17.00 CLAY/RESIDUUM; yellow orangish clay, mottled with light grey sandy material, trace to some rounded to angular gravel and rock fragments, low to moderate plasticity, hard, dry to moist, W<PL			7.00			
10	565							
15	560				559.76			
		17.00 - 23.00 SANDY GRAVEL/ALLUVIUM; dark brown, fine to coarse sand and gravel, some clay, trace silt, wet	SC		17.00			
20	555				554.76			
		23.00 - 26.50 BEDROCK; limestone rock fragments, grey, powdery, non-plastic, dry	BR		23.00			
25	550				550.26			
		Boring completed at 26.50 ft						
30	545							
35	540							
40	535							
45								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-10'
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Screw/Flush

WELL SCREEN
Interval: 10'-20'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 7'-20.5'
Type: #1 sand/ Prepack Filter

FILTER PACK SEAL
Interval: 3.5'-7'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-3.5'
Type: Portland Type I/Type II/Gel Mix

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

DRILLING METHODS
Soil Drill: 6-inch diameter Sonic
Rock Drill: 6-inch diameter Sonic

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

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

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

Golder Associates

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

Log updated with revised survey certified 5/19/2020.

DRILLING LOG
GEOLOGICAL SERVICES

Hole No. **HGWC-11**
Sheet 1 of 1

SITE **Plant Hammond** HOLE DEPTH **40'** SURF.ELEV. 578.12
LOCATION Pond 1 South COORDINATES N 1548477.91 E 1941146.79
ANGLE _____ BEARING _____ CONTRACTOR SCS DRILL NO. _____
DRILLING METHOD Sonic NO. SAMPLES _____ NO. U.D. SAMPLES 0
CASING SIZE 2" LENGTH _____ CORE SIZE _____ TOTAL % REC. 93
WATER TABLE DEPTH 9.5' BLS ELEV. 732.1' NAVD88 TIME AFTER COMP. 10.5 DATE TAKEN 12/15/2015
TYPE GROUT _____ QUANTITY _____ MIX _____ DRILLING START DATE 12/152015
DRILLER Tommy (Casc RECORDER J. Abraham APPROVED _____ DRILLING COMP. DATE 12/15/2015

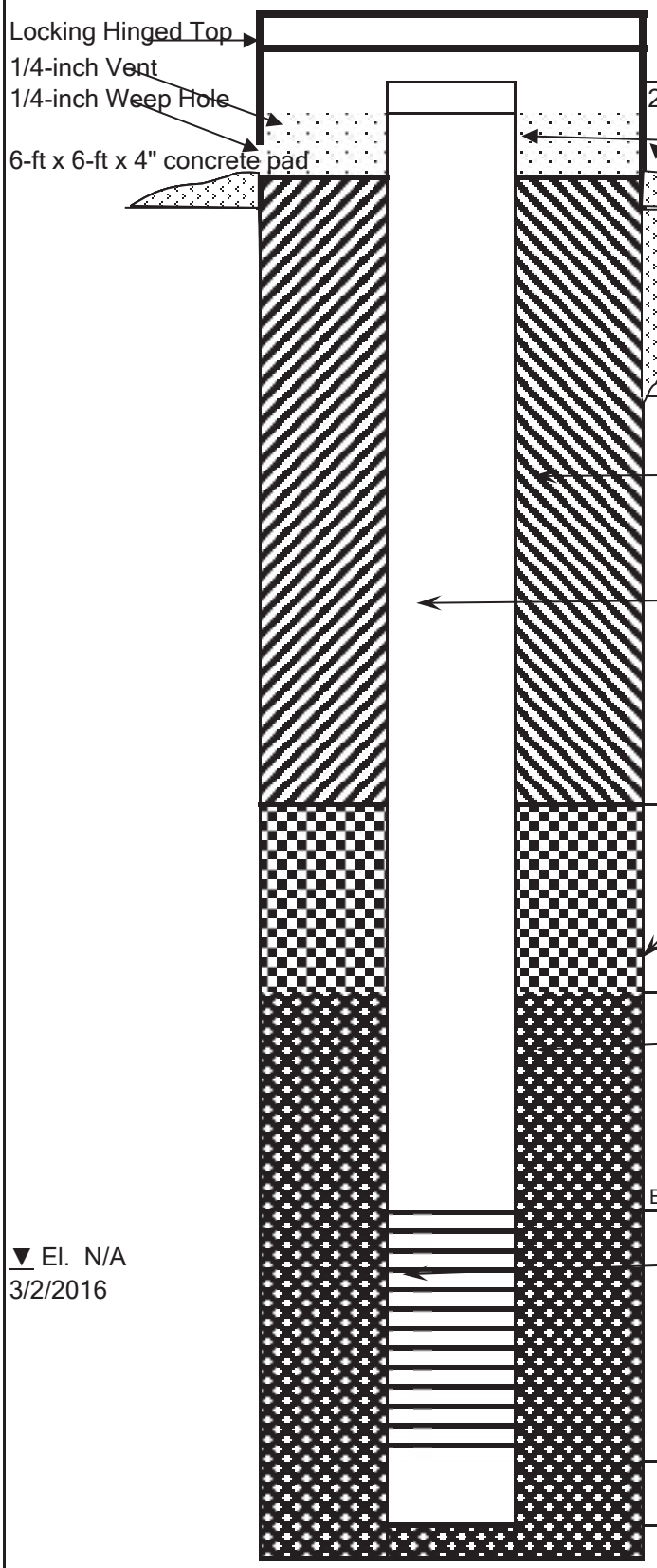
Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
0	578.12	CLAY OVERBURDEN: Dark brown to black clay with minor silt, dry, non-plastic, organic material with roots.							
1									
2									
3	575.12								
4		CLAY OVERBURDEN: Dark brown to black fat clay, dry to moist, low plasticity, blocky texture.						90	
5									
6	572.12								
7		CLAYEY SAND OVERBURDEN: Reddish brown sand, fin dry to moist, low plasticity, blocky texture.							
8	570.12								
9		CLAYEY SAND OVERBURDEN: Reddish brown sand, fin minor gravel, dry to moist, low plasticity.						90	
10									
11	567.12								
12		CLAYEY SAND OVERBURDEN: Reddish brown sand, fin minor gravel, moist,non-plastic.							
13	565.12								
14		CLAY OVERBURDEN: Orange to brown clay, saturated						85	
15									
16	562.12								
17		CLAY OVERBURDEN: Orange to brown clay, saturated trace limestone fragments; shaly limestone.							
18									
19		SHALE-LIMESTONE						85	
20									
21	567.12	END DRILLING							
22									
23									
24									

Form GS9901 7-26-2004

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant Hammond	DRILLING CO.: Cascade	WELL NAME
CCB Storage Facility	DRILLER: Tommy	
LOCATION: AP-1	RIG TYPE: Sonic	HGWC-11
LOGGER: Abraham	DRILLING METHODS: Sonic	
DATE CONSTRUCTED: 12/15/2015		



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-3.08	580.67
2" Threaded Riser Cap Pea Gravel in annular space		
GROUND SURFACE	0.00	577.59
PROTECTIVE CASING SIZE: 4x4-inch TYPE: Anodized Aluminum		
BOTTOM OF PROTECTIVE CASING	3.00	
BACKFILL MATERIAL TYPE: Bentomite Grout mix AMOUNT: 2 x 50lbs		
RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	8.10	569.49
ANNULAR SEAL TYPE: 1/4-inch coated bentonite pellets 5-gal buckets AMOUNT: 0.5 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	10.10	567.49
FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 6 bags PLACEMENT: Tremie; wash with water		
BOTTOM OF RISER / TOP OF SCREEN	12.40	565.19
SCREEN DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch		
BOTTOM OF SCREEN	22.40	555.19
BOTTOM OF CASING	22.70	554.89
Auger refusal at 20.3-ft		

Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

RECORD OF BOREHOLE HGWC-12

SHEET 1 of 1

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 37.00 ft
LOCATION: Rome, GA

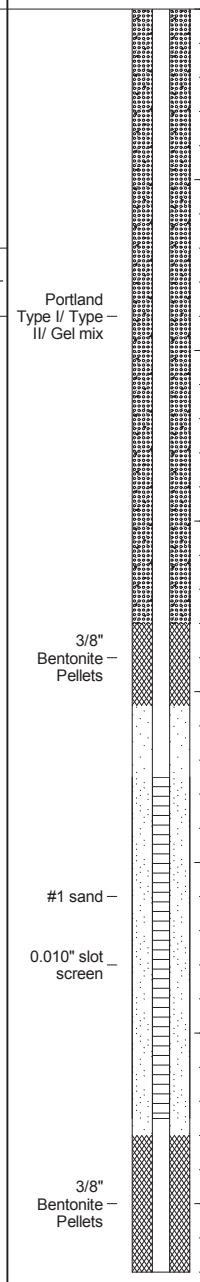
DRILL RIG: Pro Sonic 150
DATE STARTED: 12/8/15
DATE COMPLETED: 12/9/15

NORTHING: 1,548,476.53
EASTING: 1,941,152.34
GS ELEVATION: 578.14
TOC ELEVATION: 580.73 ft

DEPTH W.L.: 10.55' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 12/9/15
TIME W.L.: 10:22

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC
0		0.00 - 1.00 CLAY/RESIDUUM; dark brown clay with trace silt, non-plastic, trace gravel, trace to some organic material, topsoil, soft, dry, W<PL	CL		577.14 1.00 576.14			
	575	1.00 - 2.00 dark brown to black clay with trace fine to coarse sand, trace amounts of coal and rock fragments, soft, non-plastic, dry to moist, W<PL			2.00			
5		2.00 - 7.00 yellow orangish clay with trace fine sand, trace sub rounded gravel, low plasticity, stiff to very stiff, moist, W<PL			571.14 (570.83)			
	570	7.00 - 8.50 CLAYEY SAND/RESIDUUM; red orange and light gray mottled clay with some fine sand, moderate to high plasticity, firm, moist, W=PL SHELBY TUBE: 7'-9'	SC		7.00 569.64 8.50		SH	2.00 2.00
10		8.50 - 10.00 CLAYEY SAND/ALLUVIUM; red orange sand, sub rounded, fine to medium, well sorted, low to non-plastic, moist to wet, W<PL	SC		568.14 10.00			
	565	10.00 - 13.00 CLAYEY SAND; blue grey sand with trace clay, trace rounded to sub rounded pebbles, fine to coarse grain, low plasticity, moist, W<PL	SC		565.14			
15		13.00 - 17.00 SAND; yellowish brown fine to coarse sand with some pea gravel, rounded to sub-rounded, loose, moist to wet	SP		13.00 561.14			
	560	17.00 - 21.00 CLAY/RESIDUUM; red orange and brown mottled clay, low to medium plasticity, soft, moist, W=PL	CL-CH		17.00 557.14			
20		21.00 - 24.00 CLAY; dark red/orange/brown clay with trace rock fragments, soft, wet, W>PL			21.00 554.14			
	555	24.00 - 27.00 BEDROCK; limestone, gravel and sand , fine to coarse, dry, non-plastic, W<PL	BR		24.00 551.14			
25		27.00 - 37.00 brownish grey limestone with calcite veins			27.00			
	550							
30								
	545							
35					541.14			
	540	Boring completed at 37.00 ft						
40								
	535							
45								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: -3'-23'
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Screw/Flush

WELL SCREEN
Interval: 22.5'-32.5'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 20.4'-33'
Type: #1 sand/ Prepack Filter

FILTER PACK SEAL
Interval: 18'-20.4'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-18'
Type: Portland Type I/Type II/Gel Mix

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

DRILLING METHODS
Soil Drill: 6-inch diameter Sonic
Rock Drill: 6-inch diameter Sonic

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

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

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

Golder Associates

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

Log updated with revised survey certified 5/19/2020.

RECORD OF BOREHOLE HGWC-13

SHEET 1 of 1

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 42.00 ft
LOCATION: Rome, GA

DRILL RIG: Pro Sonic 150
DATE STARTED: 12/9/15
DATE COMPLETED: 10/10/15

NORTHING: 1,548,628.03
EASTING: 1,940,900.60
GS ELEVATION: 592.94
TOC ELEVATION: 595.76 ft

DEPTH W.L.: 11.1' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 12/9/15
TIME W.L.: 09:45

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	590	0.00 - 7.00 SILT/RESIDUUM; dark brown silt with some fine sand, loose, soft, dry, W<PL, appears to be fill	ML		585.94					
5	585	7.00 - 16.00 CLAY/RESIDUUM; yellow orange and dark brown clay with trace silt, medium sand and organic material , low plasticity, soft to firm, moist, W<PL	CL		7.00 576.94				Portland Type I/ Type II/ Gel mix	
10	580	16.00 - 17.00 SILT/RESIDUUM; dark grey silt, with trace sand and clay, low to moderate plasticity, soft, moist	ML		16.00 575.94					
15	575	17.00 - 25.00 CLAY/RESIDUUM; red/orange/tan clay with trace fine to coarse sand, mottled, low to moderate plasticity, very soft, dry to moist, W<PL	CL-CH		17.00 567.94					
20	570	25.00 - 27.00 CLAYEY SAND/RESIDUUM; mottled clay with 10-20% medium to coarse sand, moderate plasticity, moist, W<PL	SC		25.00 565.94					
25	565	27.00 - 31.00 CLAY/RESIDUUM; red orange/blue grey clay with trace sand, fine to medium, moderate plasticity, soft to stiff, moist, W=PL	CH		27.00 561.94				3/8" Bentonite Pellets	
30	560	31.00 - 37.00 SAND/ALLUVIUM; reddish brown sand, fine to coarse, poorly sorted, some pebbles and cobble sized rock, rounded, non-plastic, loose, wet to moist	SP		31.00 555.94				#1 sand 0.010" slot screen	
35	555	37.00 - 42.00 CLAY/RESIDUUM; red orange clay with some fine to coarse sand, non-plastic, soft to firm, W>PL	CL		37.00 550.94					
40	550	Boring completed at 42.00 ft								
45										

WELL CASING
Interval: -3'-32.5'
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Screw/Flush

WELL SCREEN
Interval: 32'-42'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 29.5'-42'
Type: #1 sand/ Prepack Filter

FILTER PACK SEAL
Interval: 27.1'-29.5'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-27.1'
Type: Portland Type I/Type II/Gel Mix

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

DRILLING METHODS
Soil Drill: 6-inch diameter Sonic
Rock Drill: 6-inch diameter Sonic

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

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

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

Golder Associates

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

Log updated with revised survey certified 5/19/2020.

DRILLING LOG
GEOLOGICAL SERVICES

Hole No. **AP1A-1**
Sheet 1 of 1

SITE **Plant Hammond AP1A-1** HOLE DEPTH **40'** SURF.ELEV. 584.78

LOCATION Pond 1 North COORDINATES N 1550080.01 E 1941614.12

ANGLE _____ BEARING _____ CONTRACTOR SCS DRILL NO. _____

DRILLING METHOD Sonic NO. SAMPLES 6 NO. U.D. SAMPLES 0

CASING SIZE 2" LENGTH _____ CORE SIZE _____ TOTAL % REC. 93

WATER TABLE DEPTH 3.8' BLS ELEV. 574.1' NAVD88 TIME AFTER COMP. 6.37' TOC DATE TAKEN 12/15/2015

TYPE GROUT _____ QUANTITY _____ MIX _____ DRILLING START DATE 12/152015

DRILLER Tommy (Casc RECORDER J. Abraham APPROVED _____ DRILLING COMP. DATE 12/15/2015

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
0	584.78	SILTY CLAY OVERBURDEN: Light brown Silty Clay with organic material with roots.							
1	583.78								
2	582.78								
3	581.78								
4	580.78	SILTY CLAY OVERBURDEN: Tan to medium brown silty block texture; reddish oxidation stains; minor blackish red moist conditions.						90	
5	579.78								
6	578.78								
7	577.78								
8	576.78								
9	575.78	SILTY CLAY OVERBURDEN: Tan to medium brown silty block texture; reddish oxidation stains; minor blackish red moist to wet.						85	
10	574.78								
11	573.78								
13	572.78								
9	575.78	CLAYEY SAND OVERBURDEN: Reddish brown sand, fine non-plastic; saturated clayey sand.						85	
10	574.78								
11	573.78								
13	571.78								
9	575.78	SILTY CLAYEY SAND OVERBURDEN: Reddish brown sa non-plastic; saturated clayey sand.						85	
10	574.78								
11	573.78								
13	572.78	END DRILLING							

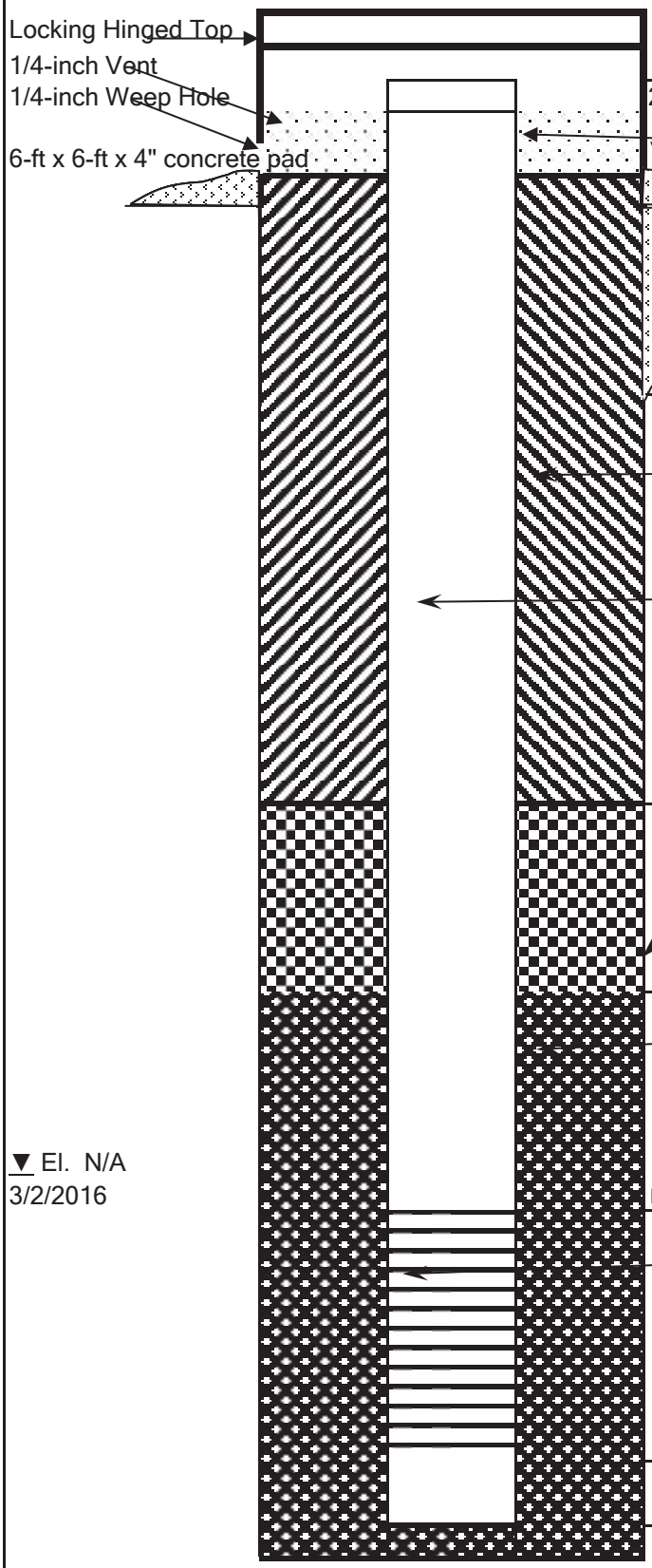
Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

Southern Company Generation

PROJECT: Plant Hammond	DRILLING CO.: Cascade	WELL
CCB Storage Facility	DRILLER: Tommy	NAME
LOCATION: AP-2	RIG TYPE: Sonic	
LOGGER: Abraham	DRILLING METHODS: Sonic	AP1A-1
DATE CONSTRUCTED: 12/15/2015		

WELL CONSTRUCTION LOG



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.66	587.44
2" Threaded Riser Cap Pea Gravel in annular space		
GROUND SURFACE	0.00	584.78
PROTECTIVE CASING SIZE: 4x4-inch TYPE: Anodized Aluminum		
BOTTOM OF PROTECTIVE CASING	3.00	
BACKFILL MATERIAL TYPE: Bentomite Grout mix AMOUNT: 2 x 50lbs		
RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	3.80	580.98
ANNULAR SEAL TYPE: 1/4-inch coated bentonite pellets 5-gal buckets AMOUNT: 0.5 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	6.50	578.28
FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 6 bags PLACEMENT: Tremie; wash with water		
BOTTOM OF RISER / TOP OF SCREEN	8.94	575.84
SCREEN DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch		
BOTTOM OF SCREEN	18.94	565.84
BOTTOM OF CASING	19.24	564.84
Auger refusal at 20.3-ft		

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

BORING MW-1

SOUTHERN COMPANY

LOG OF TEST BORING

ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 12/2/2014 **COMPLETED** 12/2/2014 **SURF. ELEV.** 585.63 **COORDINATES:** N:1549938.24 E:1941589.06
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; HQ Rock Core
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 28.1 ft. **GROUND WATER DEPTH: DURING** 5 ft. **COMP.** _____ **DELAYED** 7.1 ft. after 48 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Fat Clay (CH)					
5		- brown, wet, very soft, high plasticity, gray mottling, sticky		SS -1	3.5-5.0	2-1-1 (**2**)	
10		- brown, damp, medium stiff, high plasticity, gray mottling, sticky		SS -2	8.5-10.0	3-3-4 (**7**)	
			574.63				
		Lean Clay (CL)					
15		- red-brown, medium stiff, low plasticity		SS -3	13.5-15.0	3-3-3 (**6**)	
			567.63				
		Partially Weathered Rock (PWR) - dark gray to black, very hard, clay and shale		SS -4	18.5-19.6	37-50 (**100+**)	
20			565.53				Auger refusal at 20.1 ft.
		SHALEY LIMESTONE					
25		- dark gray to black, not to moderately weathered, laminar and sheared/folded bedding, few vugs lined with calcite crystals, trace pyrite, strong HCl reaction		RC -1	20.4-25.1	**87** (36)	
				RC -2	25.1-28.1	**93** (17)	
			557.53				

Bottom of borehole at 28.1 feet.

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Drilling log revised with survey data dated 5/19/2020.

SOUTHERN COMPANY

RECORD OF WELL CONSTRUCTION

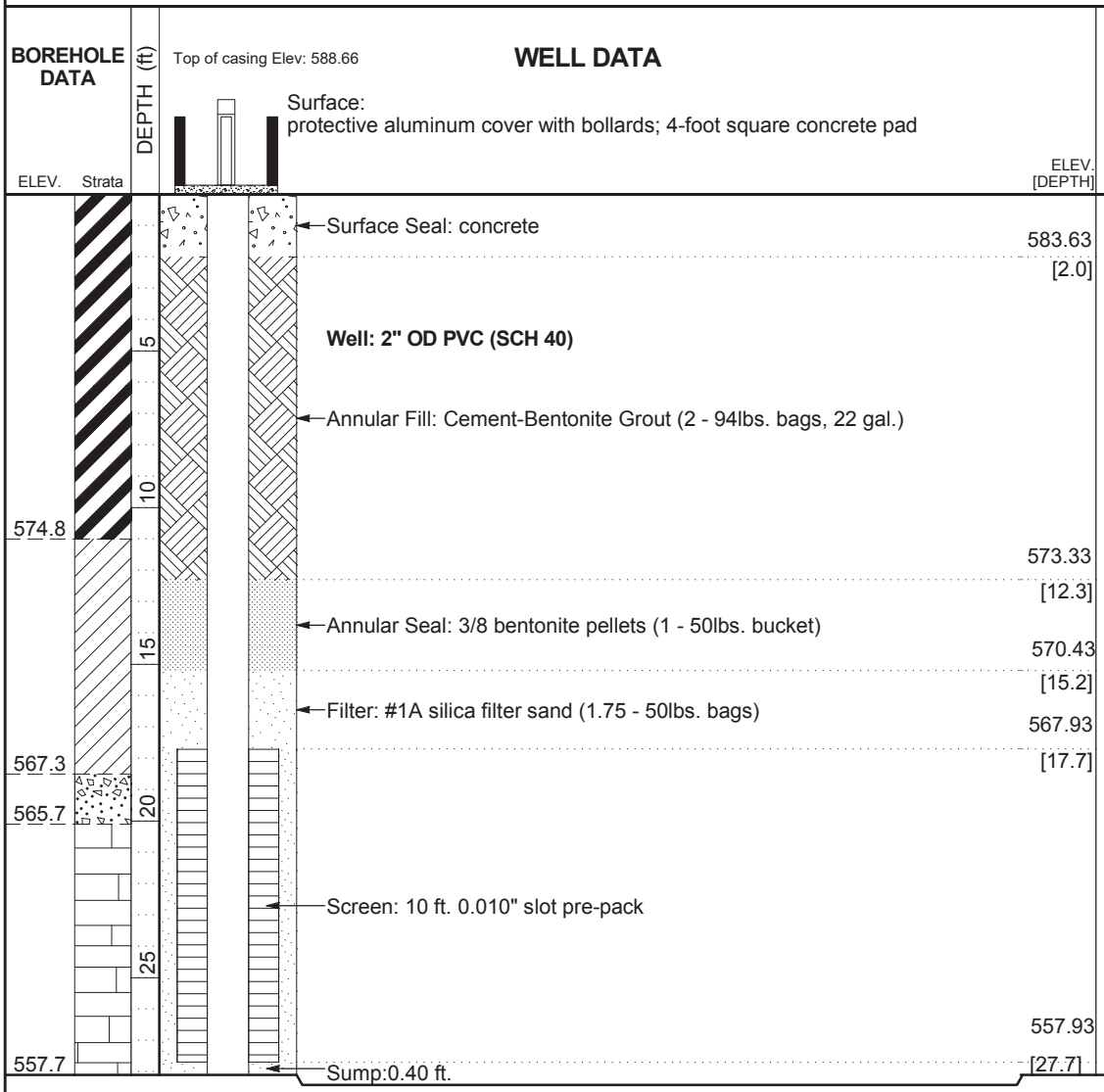
WELL: MW-1

ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 12/2/2014 **COMPLETED** 12/2/2014 **SURF. ELEV.** 585.63 **COORDINATES:** N: 1549938.24 E: 1941589.06
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; HQ Rock Core
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 28.1 ft. **GROUND WATER DEPTH: DURING** 5 ft. **COMP.** **DELAYED** 7.1 ft. after 48 hrs.
NOTES Well installed. Refer to well data sheet.



Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

SOUTHERN COMPANY

LOG OF TEST BORING

BORING MW08
PAGE 1 OF 1
ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/29/2014 **COMPLETED** 10/29/2014 **SURF. ELEV.** 584.25 **COORDINATES:** N: 1548171.86 E: 1940016.70
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 30 ft. **GROUND WATER DEPTH: DURING** 20 ft. **COMP.** _____ **DELAYED** 10.8 ft. after 200 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Fill (CL)					
		- gray-brown, dry, stiff, with yellow-red mottling, some silt		SS -1	3.5-5.0	4-6-9 (**15**)	
			578.25				
		Clayey Sand (SC)					
		- yellow-brown, dry, medium dense, with red-yellow mottling		SS -2	8.5-10.0	4-9-11 (**20**)	
			573.25				
		Poorly-graded Sand (SP)					
		- yellow-brown, dry, loose, fine grain, with yellow-red mottling, some silt and fine well-rounded gravel, trace mica		SS -3	13.5-15.0	4-5-4 (**9**)	
			567.25				
		Well-graded Sand (SW)					
		- red-yellow, wet, loose, fine to coarse grain, some fine well-rounded gravel		SS -4	18.5-20.0	4-5-4 (**9**)	
		- red-yellow, wet, very loose, fine to coarse grain, coarse well-rounded gravel					
			560.25	SS -5	23.5-25.0	8-2-1 (**3**)	
		Fat Clay (CH) - yellow-brown, wet, soft, high plasticity, some coarse sand					
		- gray-brown, wet, very stiff, medium to high plasticity, gravelly					
			554.25	SS -6	28.5-30.0	6-8-11 (**19**)	

Bottom of borehole at 30.0 feet.

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

SOUTHERN COMPANY

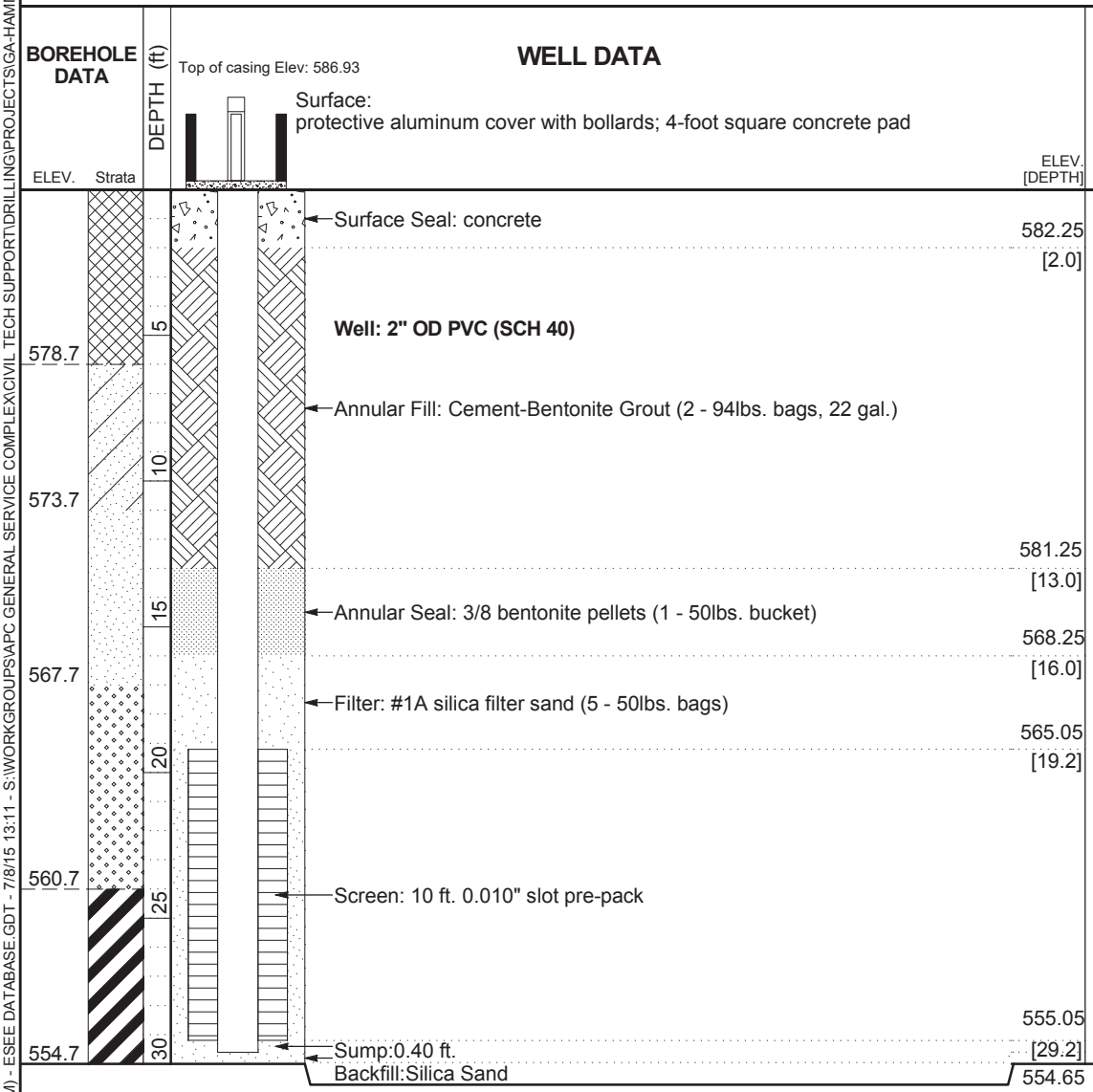
RECORD OF WELL CONSTRUCTION

WELL: MW08
PAGE 1 OF 1
ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/29/2014 **COMPLETED** 10/29/2014 **SURF. ELEV.** 584.25 **COORDINATES:** N: 1548171.86 E:1940016.70
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 30 ft. **GROUND WATER DEPTH: DURING** 20 ft. **COMP.** **DELAYED** 10.8 ft. after 200 hrs.
NOTES Well installed. Refer to well data sheet.



COMMENTS

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

BORING MW-5

SOUTHERN COMPANY

LOG OF TEST BORING

ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 11/4/2014 **COMPLETED** 11/4/2014 **SURF. ELEV:** 578.00 **COORDINATES:** N:31548436.02 E:1942448.85
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 27.7 ft. **GROUND WATER DEPTH: DURING** 20 ft. **COMP.** **DELAYED** 15.3 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Silty Clay (CL)					
		- brown, dry, stiff, no to low plasticity, with mica		SS -1	3.5-5.0	7-4-6 (**10**)	
		- brown, dry, very stiff, no to low plasticity, with mica		SS -2	8.5-10.0	9-7-9 (**16**)	
		- pale gray-brown, dry, very stiff, yellow-brown mottling		SS -3	13.5-15.0	5-7-9 (**16**)	
		- pale gray-brown, dry, very stiff, yellow-brown mottling	559.00	SS -4	18.5-20.0	4-12-13 (**25**)	
		Clayey Sand (SC) - light gray, very moist, yellow-brown mottling					
		- pale gray-brown, very moist to wet, loose, yellow-brown mottling	554.00	SS -5	23.5-25.0	3-3-4 (**7**)	
		Fat Clay (CH) - brown, very moist, high plasticity	550.30				

Bottom of borehole at 27.7 feet.

Auger refusal at 27.7 ft.

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

SOUTHERN COMPANY

RECORD OF WELL CONSTRUCTION

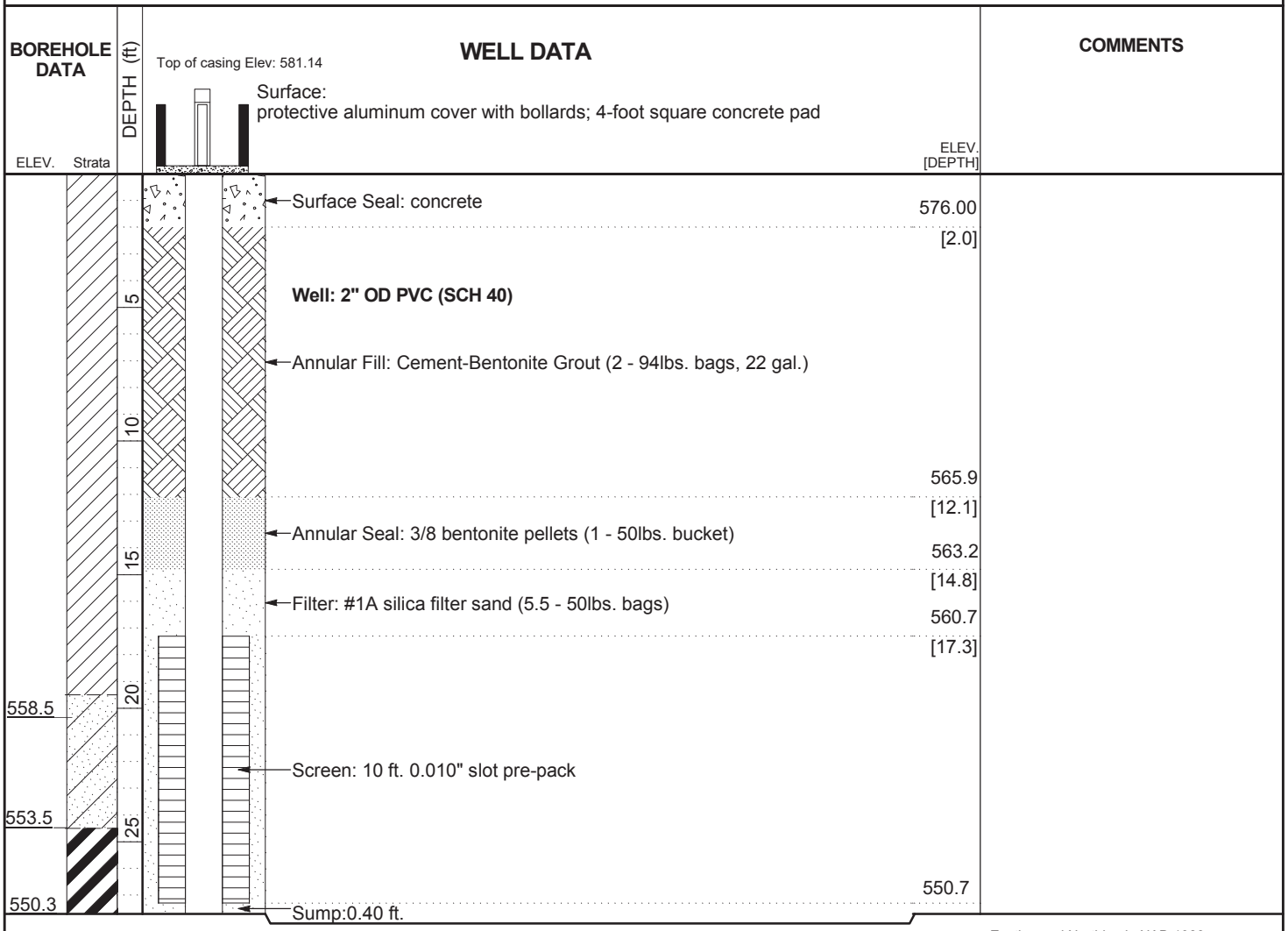
WELL: MW-5

ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 11/4/2014 **COMPLETED** 11/4/2014 **SURF. ELEV.** 578.00 **COORDINATES:** N:31548436.02 E:1942448.85
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 27.7 ft. **GROUND WATER DEPTH: DURING** 20 ft. **COMP.** **DELAYED** 15.3 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.



Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

SOUTHERN COMPANY

LOG OF TEST BORING

BORING MW-6

ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 11/4/2014 **COMPLETED** 11/4/2014 **SURF. ELEV.** 579.18 **COORDINATES:** N:1548383.12 E: 1941689.01
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; HQ Rock Core
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 30.3 ft. **GROUND WATER DEPTH: DURING** 20 ft. **COMP.** _____ **DELAYED** 15.8 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
5		- dark brown, dry, stiff, gravelly, with black and white mottling (possible fill)		SS -1	3.5-5.0	7-5-5 (**10**)	
10		- brown, damp, medium stiff, silty, yellow-brown mottling		SS -2	8.5-10.0	4-4-4 (**8**)	
15		- yellow-brown, dry, stiff, sandy, with gray and black mottling		SS -3	13.5-15.0	4-6-7 (**13**)	
			563.18				
		Fat Clay (CH)					
20		- brown, damp to very moist, medium stiff, silty, with black and light gray mottling		SS -4	18.5-20.0	3-3-3 (**6**)	
			557.18				
		SHALEY LIMESTONE					Auger refusal at 22 ft.
25		- gray, slightly to highly weathered, dark gray filled fractures, mud filled fractures, strong HCl reaction, horizontal and vertical bedding		RC -1	23.9-25.0	**91** (0)	
				RC -2	25.0-30.0	**100** (0)	
30			548.88				

Bottom of borehole at 30.3 feet.

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

SOUTHERN COMPANY

RECORD OF WELL CONSTRUCTION

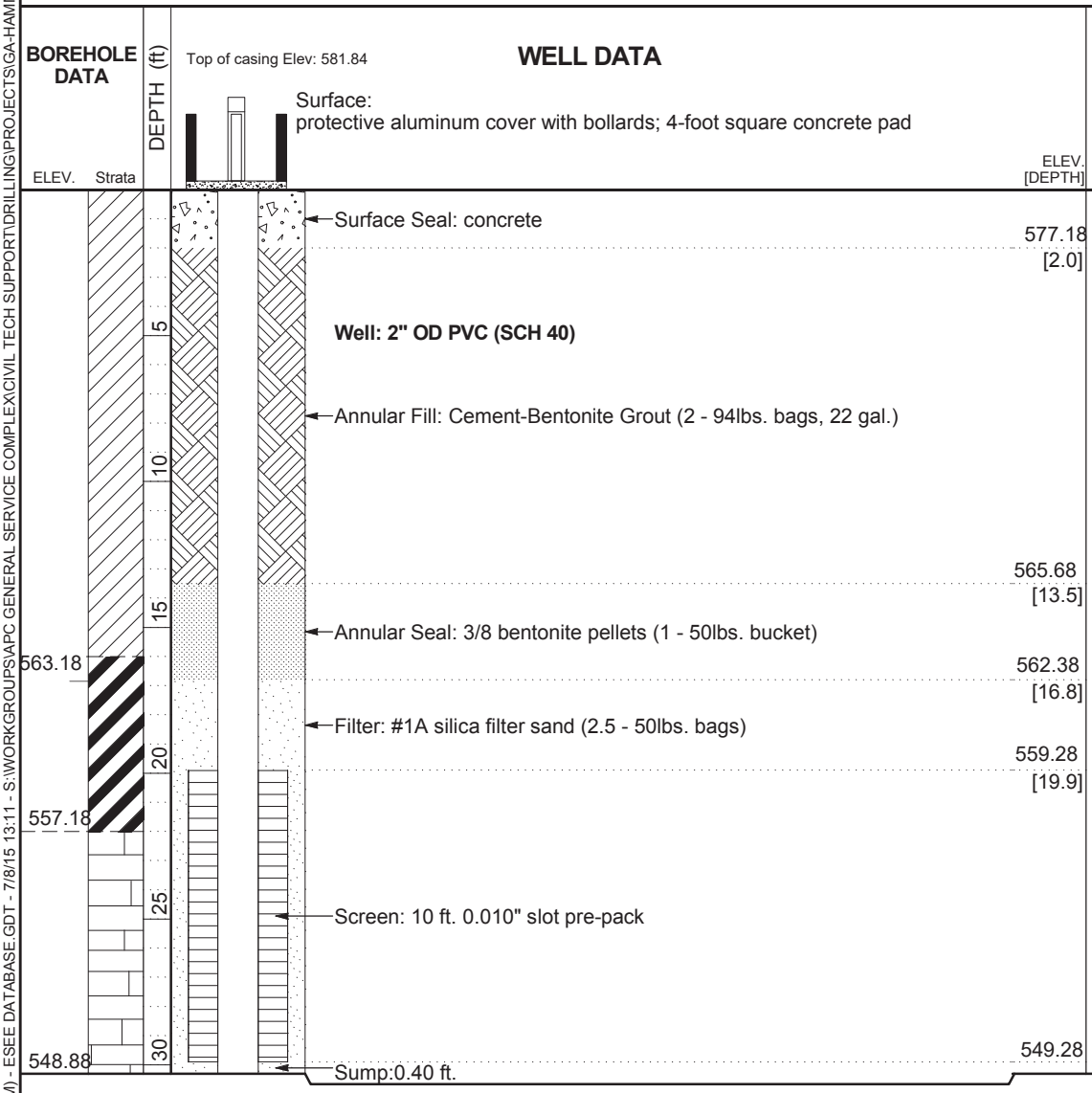
WELL: MW-6

ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 11/4/2014 **COMPLETED** 11/4/2014 **SURF. ELEV.** 579.18 **COORDINATES:** N:1548383.12 E:1941689.01
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; HQ Rock Core
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 30.3 ft. **GROUND WATER DEPTH: DURING** 20 ft. **COMP.** **DELAYED** 15.8 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.



COMMENTS

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

BORING MW-7

SOUTHERN COMPANY

LOG OF TEST BORING

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/30/2014 **COMPLETED** 10/30/2014 **SURF. ELEV.** 574.94 **COORDINATES:** N: 1548230.47 E: 1941087.44
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; HQ Rock Core
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 28.4 ft. **GROUND WATER DEPTH: DURING** 20 ft. **COMP.** _____ **DELAYED** 12.3 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Silty Clay (CL)					
5		- dark yellow-brown, dry, stiff, with pale brown and black mottling		SS -1	3.5-5.0	8-6-6 (**12**)	
10		- dark yellow-brown, dry, stiff, with pale brown and black mottling		SS -2	8.5-10.0	5-5-6 (**11**)	
			562.94				
		Fat Clay (CH)					
15		- yellow-brown, damp, medium stiff, low to medium plasticity, silty, silt seams		SS -3	13.5-15.0	3-3-3 (**6**)	

(Continued Next Page)

Log updated with revised survey certified 5/19/2020.

SOUTHERN COMPANY

LOG OF TEST BORING

BORING MW-7

ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Fat Clay (CH)*(Con't)*					
		- brown, wet, very soft, medium to high plasticity, silty, some coarse well rounded gravel		SS -4	18.5-20.0	0-0-0 (**0**)	
20							
		- wet, very hard, medium to high plasticity, sandy, some coarse well rounded gravel	550.94	SS -5	23.5-24.2	23-50/2" (**100+**)	
		Limestone	550.54	RC -1	22.9-24.9	**75** (25)	Auger refusal at 24 ft.
25		- gray and light gray, calcite filled fractures, mud filled fractures	550.14				
		Cavity - Void, 24.4 to 24.8 ft.					
		Limestone - gray and light gray - calcite filled fractures, mud filled fractures	547.94	RC -2	24.9-28.4	**63** (29)	
		Cavity - Void, 27.0 to 28.4 ft.	546.54				

Bottom of borehole at 28.4 feet.

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

SOUTHERN COMPANY

RECORD OF WELL CONSTRUCTION

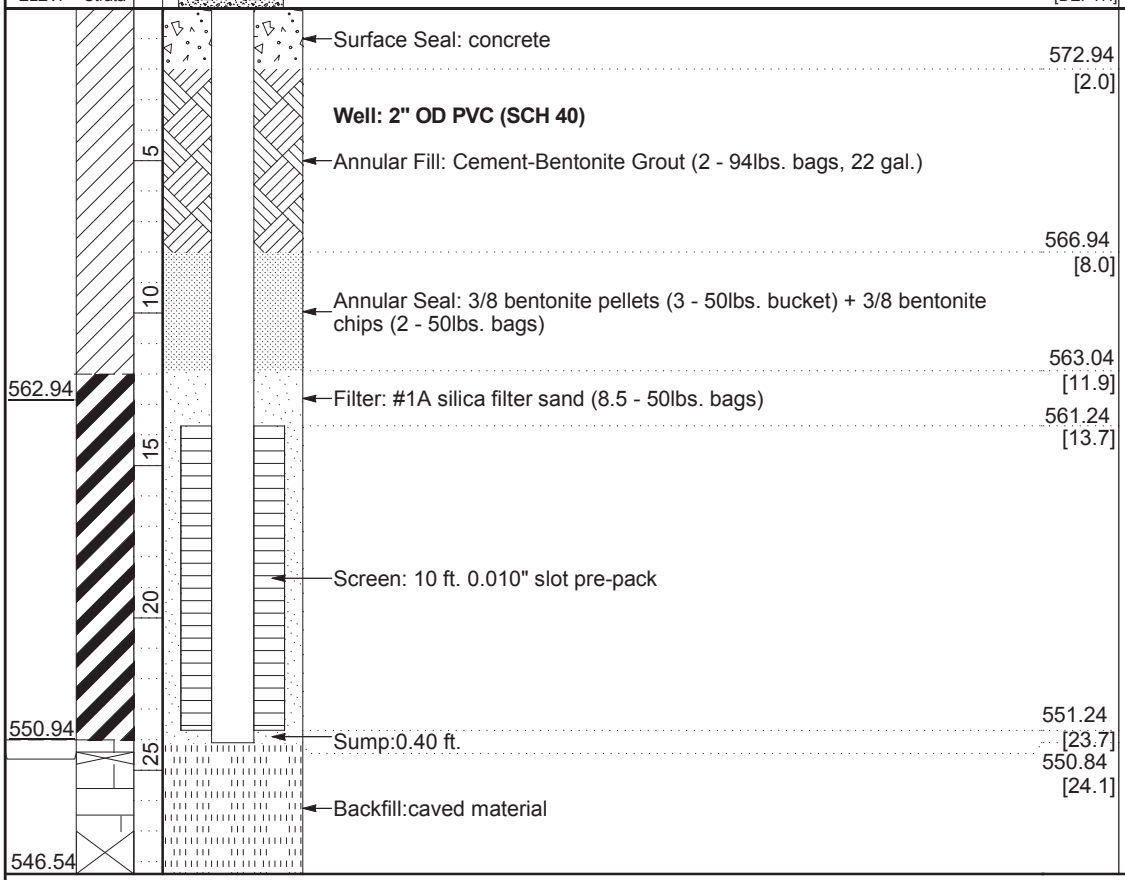
WELL: MW-7

ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/30/2014 **COMPLETED** 10/30/2014 **SURF. ELEV.** 574.94 **COORDINATES:** N:1548230.47 E:1941087.44
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; HQ Rock Core
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 28.4 ft. **GROUND WATER DEPTH: DURING** 20 ft. **COMP.** **DELAYED** 12.3 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.



COMMENTS

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

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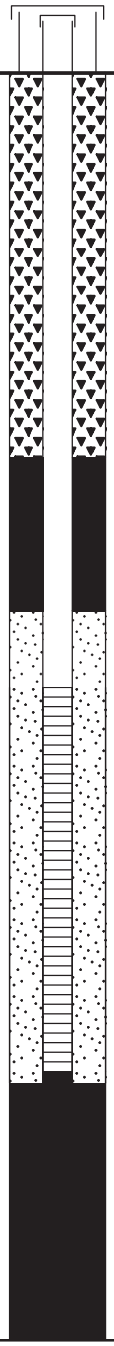
MONITORING WELL MW-19

CLIENT Southern Company Services
PROJECT NAME Plant Hammond DPT Soil Investigation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 9/26/18 **COMPLETED** 9/26/18
NORTHING 1548422.94 **EASTING** 1940943.01
DRILLER Cascade Drilling
GROUND ELEVATION 577.46 **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 580.65
SAMPLING METHOD 4" core 6" overide
GEOPHYSICAL CONTRACTOR ---
RIG TYPE Terrasonic 11-450666
LOGGED BY N.Tilahun **CHECKED BY** J. Ivanowski

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	577			0-10': Utility clearance (Hydrovac)
10	567			CLAY, Pale grey to yellow to reddish brown, trace fine sand and silt, medium to high plasticity, moist, firm.
				CLAYEY SAND, Brownish grey, very fine grained, trace silt, some clay, trace angular to subrounded gravel, moist, medium dense, low plasticity, poorly graded.
15	562			SAND, Yellowish brown, trace silt, trace angular to subrounded gravel, fine to coarse grained, moist to wet, loose, well graded, black layer of sand at 18.5-18.6'.
20	557			SAND, Brown, trace silt, trace rounded cobbles, loose, moist to wet, poorly graded, fine to medium grained.
				SAND with GRAVEL, Yellowish brown, trace clay and silt, non plastic, loose, subrounded to rounded gravel, wet, fine to coarse grained, well graded.
				CLAY, Yellowish brown and dark grey mottled, trace silt, trace fine sand, low to medium plasticity, moist, soft.
30	547			30-33': No recovery (Driller indicates weathered rock based on gauge readings).
33	544			Bottom of borehole at 33.0 feet.

CONSTRUCTION DIAGRAM



Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

SCS PLANT HAMMOND PLANT HAMMOND DPT 2018 AS AND MO.GPJ ACP GINT LIBRARY.GLB 3/18/19

Log updated with revised survey certified 5/19/2020.

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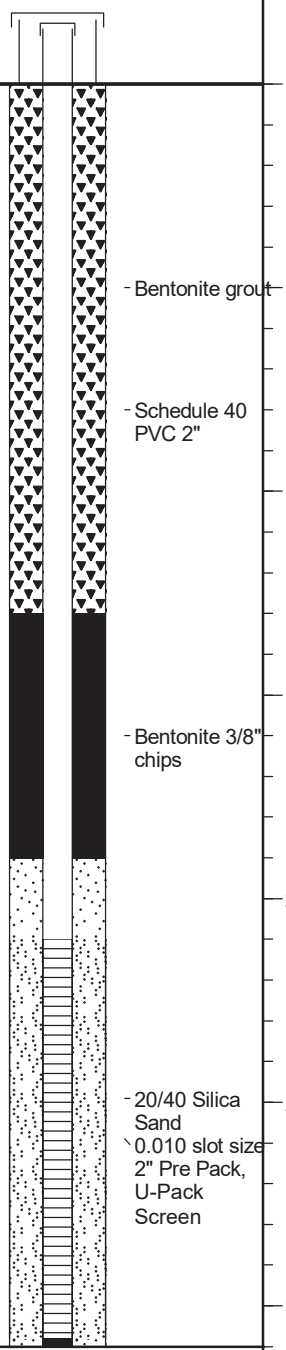
MONITORING WELL MW-20

CLIENT Southern Company Services
PROJECT NAME Plant Hammond DPT Soil Investigation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 9/27/18 **COMPLETED** 9/27/18
NORTHING 1549029.68 **EASTING** 1942736.85
DRILLER Cascade Drilling
GROUND ELEVATION 575.96 **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 579.00
SAMPLING METHOD 4" core 6" overide
GEOPHYSICAL CONTRACTOR ---
RIG TYPE Terrasonic 11-45066
LOGGED BY N.Tilahun **CHECKED BY** J. Ivanowski

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	575			0-10': Utility clearance (Hydrovac)
5	570			
10	565			CLAY (CH); Dark brown, moist, high plasticity, trace rounded gravel, trace silt, medium dense, trace fine sand.
15	560			
20	555			
25	550			Sandy CLAY (CL); Dark grey to brown, few gravel, trace silt, fine to medium sand, soft, wet, pieces of wood, low plasticity.
				SAND (SW); Light grey, trace clay, well graded, loose, wet, fine to coarse grained, anguar to rounded gravel, grading from fine (top) to coarse (bottom).
30	545			SAND (SP); Light grey, fine to coarse grained, trace gravel.
				CLAY (CH); Light grey, wet, high plasticity, soft.
				PARTIALLY WEATHERED ROCK (PWR); Light grey.
				Bottom of borehole at 31.0 feet.

CONSTRUCTION DIAGRAM



Easting andNorthing in NAD 1983.
Elevations inNAVD 1988.

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Log updated with revised survey certified 5/19/2020.

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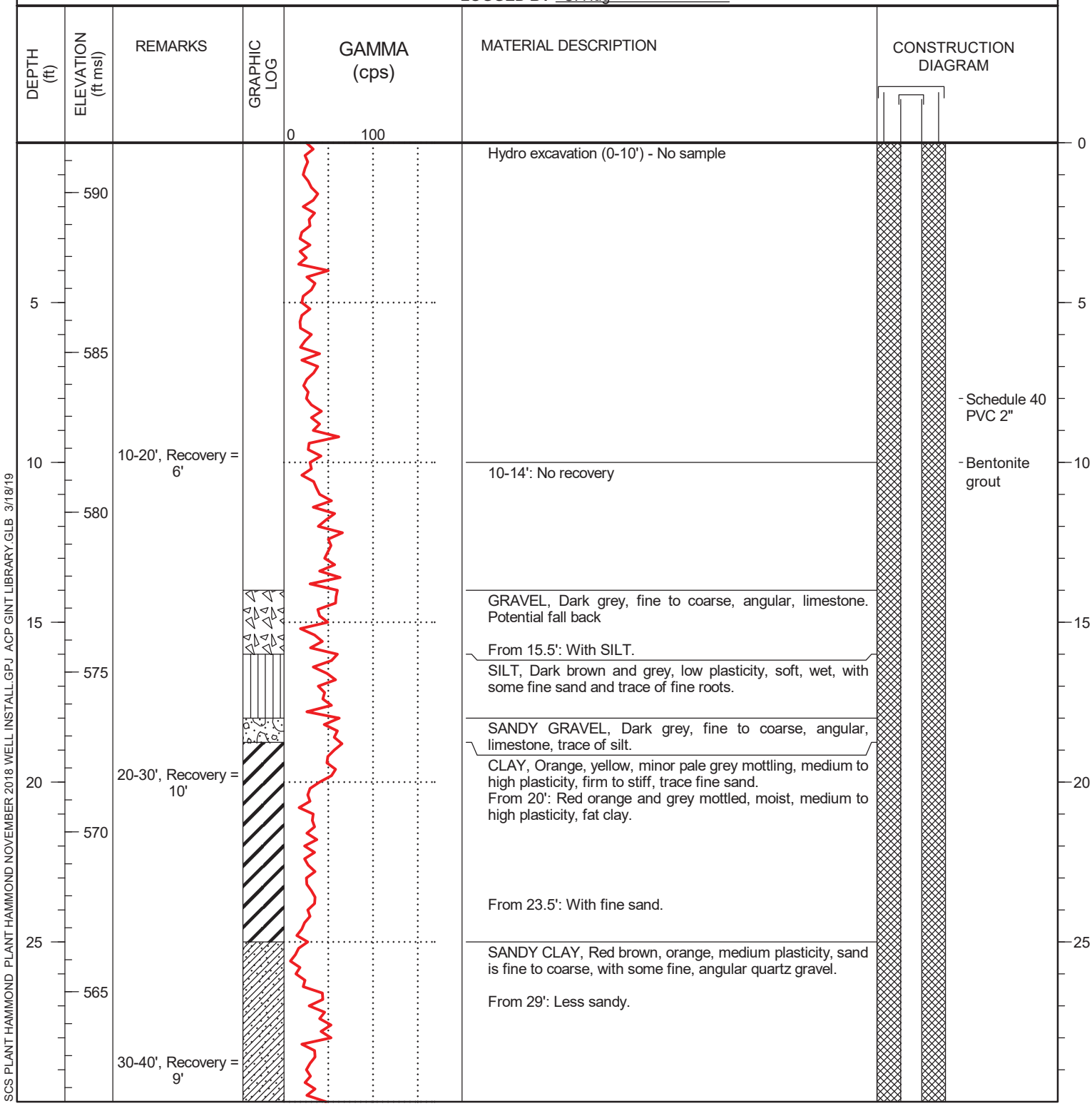
MW-24D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/7/18 **COMPLETED** 11/7/18
NORTHING 1548638.80 **EASTING** 1940900.37
DRILLER Cascade Drilling
SURFACE ELEVATION 592.91 **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 595.68
SAMPLING METHOD 4" core 6" overide
GEOPHYSICAL CONTRACTOR Geosyntec Consultants
RIG TYPE Geoprobe 8140LC
LOGGED BY C. Hug **CHECKED BY** J. Ivanowski



SCS PLANT HAMMOND PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 3/18/19

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CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	GAMMA (cps)	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
				0 100		
					30-31': No recovery	
	560				SANDY CLAY, Grey, orange, medium plasticity, sand is fine to medium grained.	
					CLAYEY SAND, Grey, orange, brown, fine to medium, subrounded, quartz, with some clay lenses.	
					33.75' 34.0': Clay band.	
35					SANDY GRAVEL / GRAVELLY SAND, Brown, grey, fine to coarse, subrounded to rounded, quartz.	
	555				35': SANDY GRAVEL, Gravel are fine to coarse subrounded to rounded, quartz.	
					CLAY, Orange, medium to high plasticity, stiff to soft, with some fine to medium sand. Bordering 'SANDY CLAY' from 38', trace of fine, angular gravel.	
40		40-50', Recovery = 10'			SAND / CLAYEY SAND, Dark brown, fine, subrounded, quartz.	Bentonite uncoated 3/8" chips
	550				SILT, Orange, dark brown, low to medium plasticity, soft, trace fine sand, with some clay.	
		From 45': Driller reports softeer and harder layers throughout drilling.			SANDY CLAY, Dark brown, low to medium plasticity, soft, sand is fine to medium, bordering clayey sand.	
45					LIMESTONE, Dark grey, recovered as silty powder and angular gravel and cobble sized limestone fragments, with calcite veins throughout.	
	545					
50		50-60', Recovery = 5' Driller reports approx 50% returns of added water and layers of softer and harder drilling. No voids reported.			From 50': Larger fragments of limestone, up to 4" length, dark grey with calcite veins.	
	540					
55						Bentonite 3/8" chips
	535					
60		60-70', Recovery = 6'			From 60: Dark grey, calcite veins and calcite healed fractures throughout.	
	530	Driller reports about 40% returns of added water.				20/40 Silica Sand

SCS PLANT HAMMOND PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 3/18/19

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

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	GAMMA (cps) 0 100	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
65	525				LIMESTONE, Dark grey, recovered as silty powder and angular gravel and cobble sized limestone fragments, with calcite veins throughout. *(continued)*	0.010 slot size 2" Pre Pack, U-Pack Screen — 65
70	520				Bottom of borehole at 70.0 feet.	— 70
75	515					
80	510					
85	505					
90	500					
95	495					

Eastingand Northing in NAD 1983.
Elevations inNAVD 1988.

Log updated with revised survey certified 5/19/2020.

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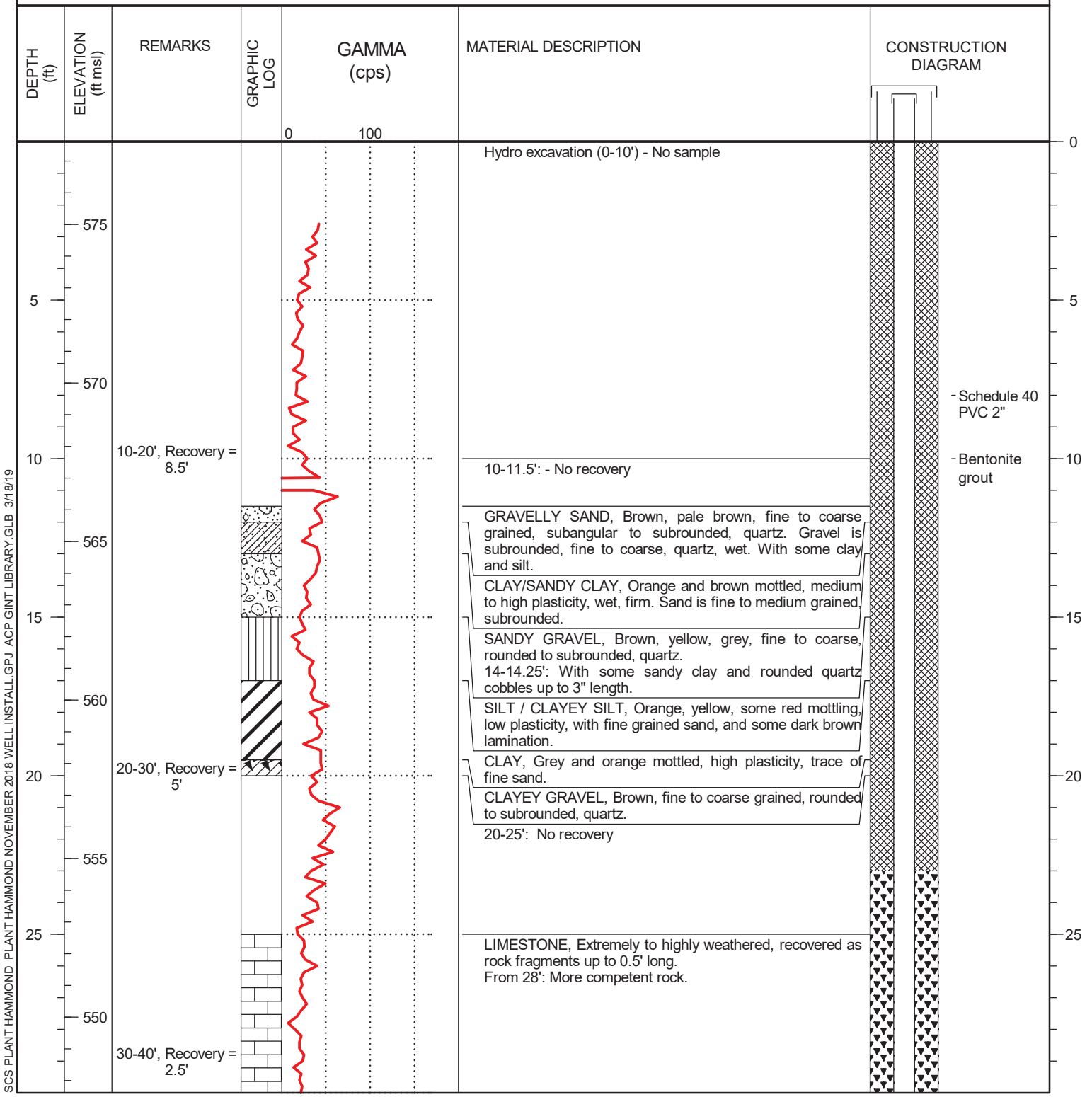
MW-25D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/6/18 **COMPLETED** 11/6/18
NORTHING 1548473.00 **EASTING** 1941162.20
DRILLER Cascade Drilling
GROUND ELEVATION 577.71 **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 580.59
SAMPLING METHOD 4" core 6" overide
GEOPHYSICAL CONTRACTOR Geosyntec Consultants
RIG TYPE Geoprobe 8140LC
LOGGED BY C. Hug **CHECKED BY** J. Ivanowski



SCS PLANT HAMMOND PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 3/18/19

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MW-25D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	GAMMA (cps)	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
30	545	Driller reports 1' drill resistance, 1' dropping rods, 1-2' drill resistance, 0.5' dropping rods, 1' drill resistance, 1' dropping rods, etc. throughout run. Water was added by driller, no returns.		0 100	LIMESTONE, Grey, white, abundance of white calcite veins, brown to red brown iron staining, recovered as angular fragments of rock. 0.5 - 1' wide voids througout run, potential void filling washed away.	
35	540					- Bentonite uncoated 3/8" chips
40	535	40-50', Recovery = 4' Driller reports 'soft' and low resistance drilling between 40' and 50', slightly more competent rock than previous run. Increased competence of rock with depth.			LIMESTONE, Dark grey, grey, with white calcite veining throughout, massive, recovered as angular fragments of rock and fine to coarse gravel sized pieces. Fines washed away. With voids up to 1' throughout.	
45	530					- Bentonite 3/8" chips
50	525	50-60', Recovery = 6' Driller reports 'soft spots' and low resistance throughout run indicating potential void filling. Water added by driller, minimal returns.			LIMESTONE, As before, recovered as fine to coarse, angular gravel and cobbles, slightly more competent with depth, fines washed away.	- 20/40 Silica Sand
55	520					- 0.010 slot size 2" Pre Pack, U-Pack Screen
60	515				Bottom of borehole at 60.0 feet.	

Easting and Northing in NAD 1983. Elevations in NAVD 1988.

SCS PLANT HAMMOND PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 3/18/19

Log updated with revised survey certified 5/19/2020.

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MW-26D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/14/18 **COMPLETED** 11/14/17
NORTHING 1548699.91 **EASTING** 1942222.36
DRILLER Cascade Drilling
GROUND ELEVATION 577.63 **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 580.41
SAMPLING METHOD 4" core 6" overide
GEOPHYSICAL CONTRACTOR Geosyntec
RIG TYPE Geoprobe 8140LC
Consultants **LOGGED BY** N.Tilahun **CHECKED BY** J. Ivanowski

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	GAMMA (cps) 0 100	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
0	575				Hydro excavation (0-10') - No sample	
5	570					
10	565				CLAY, Yellowish brown, medium to high plasticity, trace silt and fine sand, hard, moist.	
15	560				CLAY, Yellowish brown, medium to high plasticity, trace silt and fine sand, hard, moist.	Bentonite grout
20	555				GRAVELLY SAND, Pale grey to reddish brown some clay to 1', trace silt, well graded, fine to coarse sand, subangular to rounded gravel, wet, loose. 20-21': Hard, moist to wet.	Schedule 40 PVC 2"
25	550	Void between 30 and 35 '				

SCS PLANT HAMMOND PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 3/18/19

(Continued Next Page)

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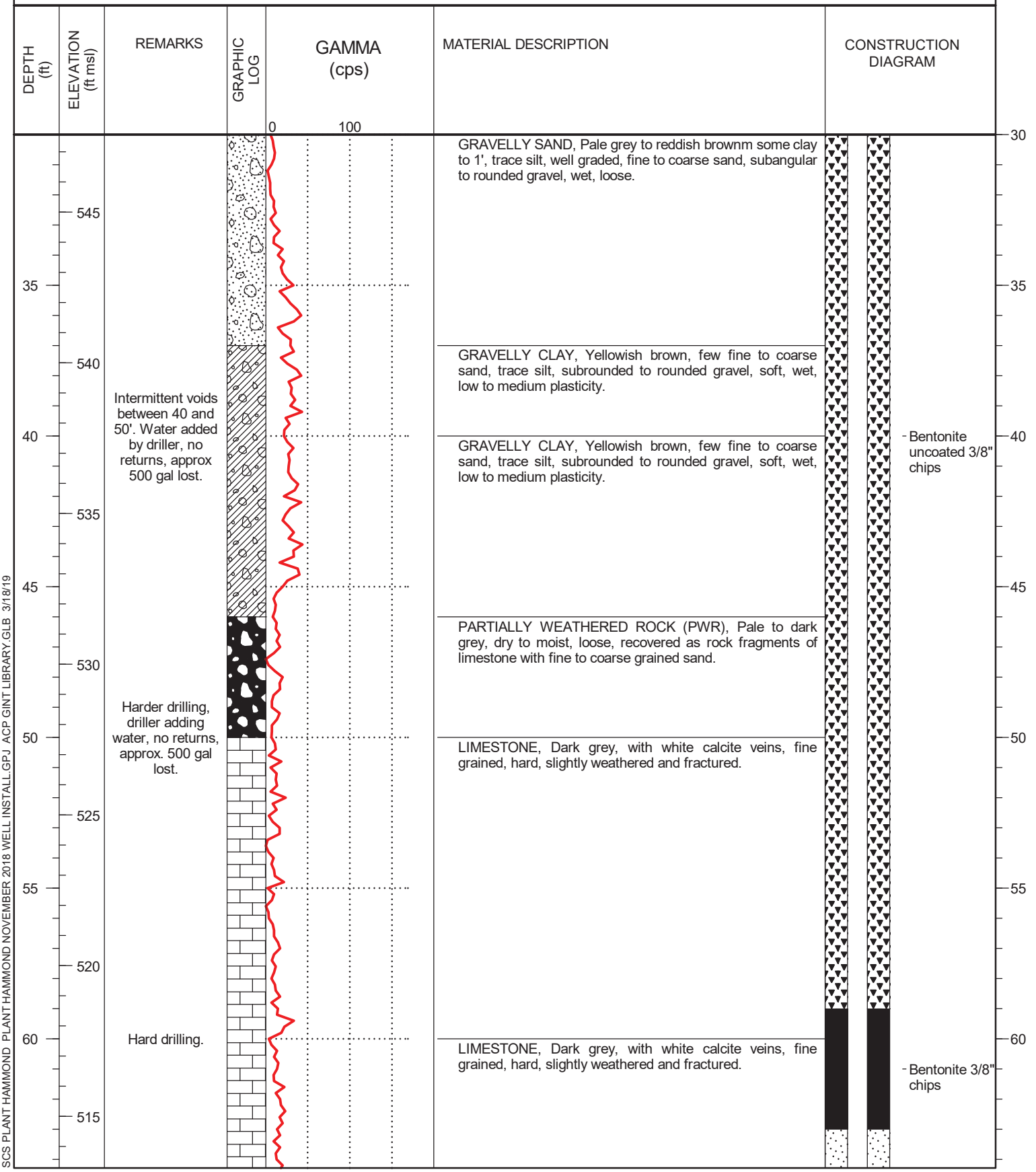
CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond



SCS PLANT HAMMOND PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 3/18/19

(Continued Next Page)

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CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	GAMMA (cps) 0 100	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
65	510				LIMESTONE, Dark grey, with white calcite veins, fine grained, hard, slightly weathered and fractured. *(continued)*	
70	505				LIMESTONE, Dark grey, with white calcite veins, fine grained, hard, slightly weathered and fractured.	20/40 Silica Sand; 0.010 slot size 2" Pre Pack, U-Pack Screen
75	500				Bottom of borehole at 75.0 feet.	
80	495					
85	490					
90	485					
95	480					

Easting andNorthing in NAVD 1983.
Elevations inNAVD 1988.

SCS PLANT HAMMOND PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 3/18/19

Log updated with revised survey certified 5/19/2020.

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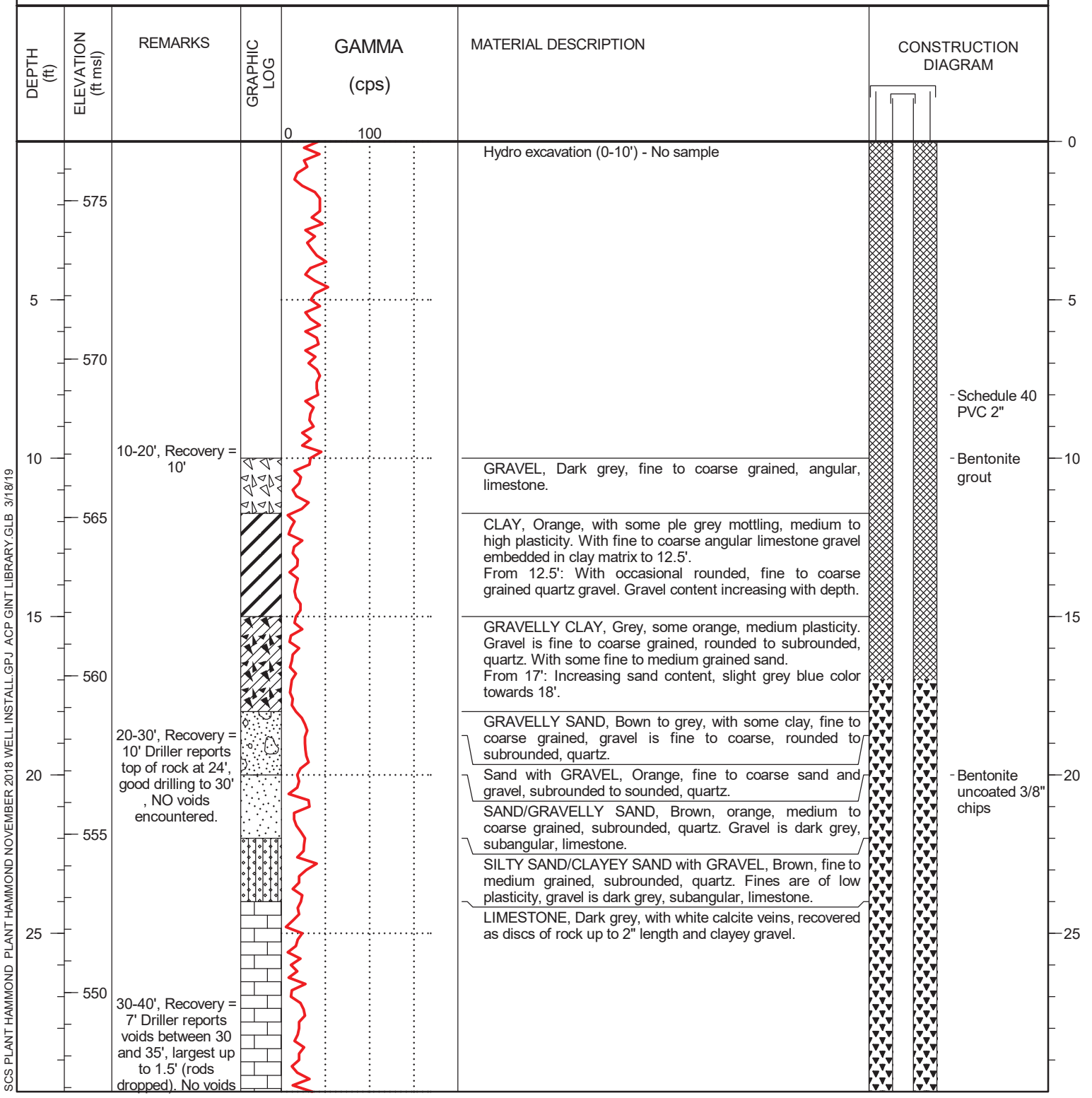
MW-27D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/8/18 **COMPLETED** 11/8/18
NORTHING 1579103.57 **EASTING** 1942390.80
DRILLER Cascade Drilling
GROUND ELEVATION 576.84 **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 579.70
SAMPLING METHOD 4" core 6" overide
GEOPHYSICAL CONTRACTOR Geosyntec
RIG TYPE Geoprobe 8140LC
Consultants **LOGGED BY** C. Hug **CHECKED BY** J. Ivanowski



SCS PLANT HAMMOND PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 3/18/19

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CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	GAMMA (cps)	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
		reported betwee 35 and 40 ft'.		0 100	LIMESTONE, Dark grey, with white calcite veins, recovered as discs of rock up to 2" length and clayey gravel. *(continued)*	
	545				Between 30 and 35': Voids up to 1.5' length.	
35					From 35': No voids reported. Recovered material is dark grey, with calcite mineralization and veins, moderate strength.	
	540					
		40-50', Recovery = 4' Driller reports softer drilling at top of run, solid drilling from approx 42'.				
40					Dark grey, 'softer drilling', potential filled voids between 40 and 42'. Solid drilling and no voids from 42'.	
	535					
45						- Bentonite 3/8" chips
	530					
50		50-60': No voids recorded.			Increased calcite mineralization.	
	525					
						- 20/40 Silica Sand
55						- 0.010 slot size 2" Pre Pack, U-Pack Screen
	520					
		60-70', Recovery = 7' No voids reported.				
60					Dark grey and white, with white calcite veins and secondary mineralization along fracture planes.	
	515					

(Continued Next Page)

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

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	GAMMA (cps) 0 100	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
65	510				LIMESTONE, Dark grey, with white calcite veins, recovered as discs of rock up to 2" length and clayey gravel. *(continued)*	20/40 Silica Sand
70	505				Bottom of borehole at 70.0 feet.	
75	500					
80	495					
85	490					
90	485					
95	480					

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

Log updated with revised survey certified 5/19/2020.

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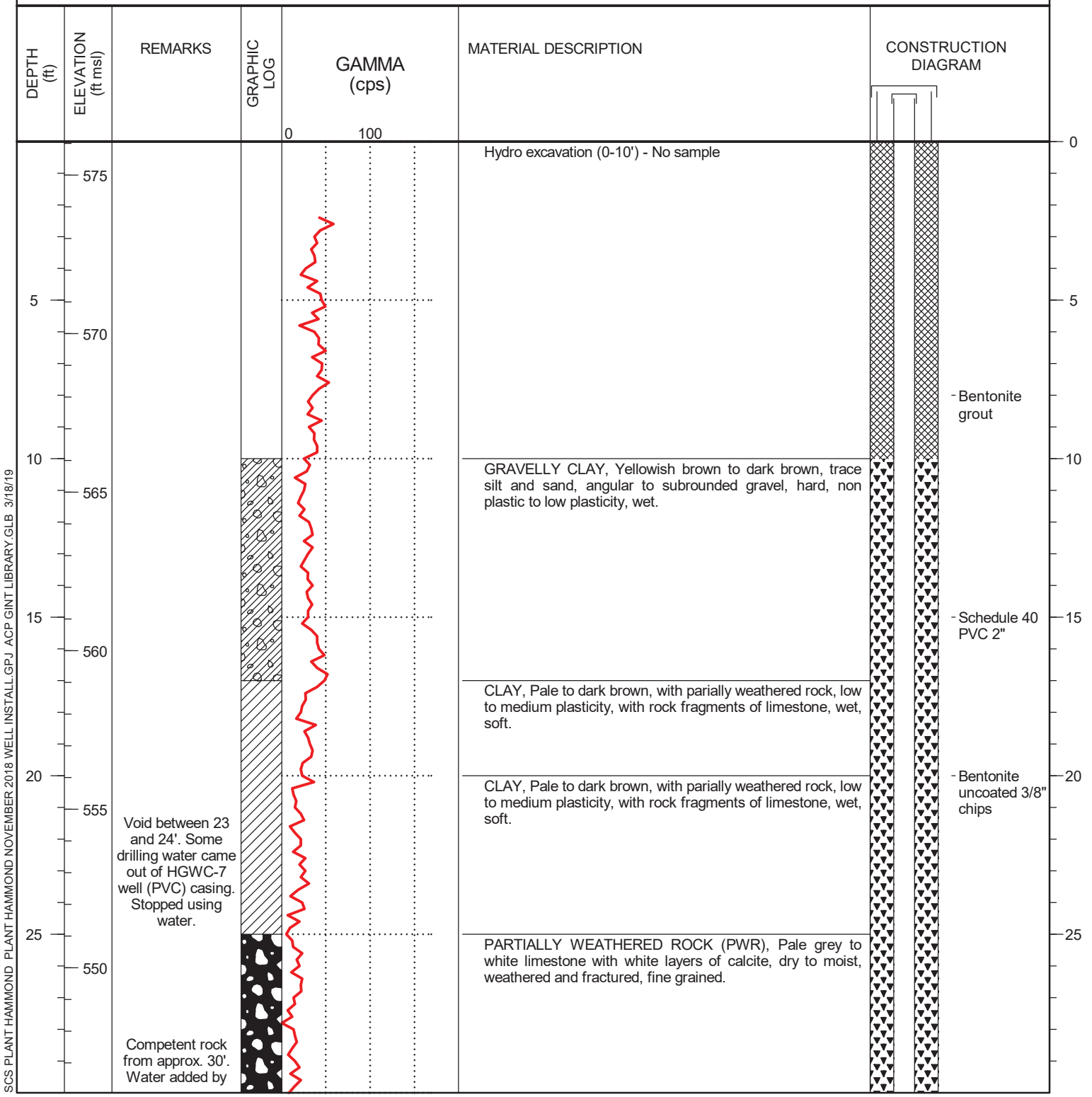
MW-28D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/13/18 **COMPLETED** 11/13/18
NORTHING 1549510.90 **EASTING** 1942321.14
DRILLER Cascade Drilling
GROUND ELEVATION 576.20 **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 579.08
SAMPLING METHOD 4" core 6" overide
GEOPHYSICAL CONTRACTOR Geosyntec
RIG TYPE Geoprobe 8140LC
LOGGED BY Consultants N.Tilahun **CHECKED BY** J. Ivanowski



SCS PLANT HAMMOND PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 3/18/19

(Continued Next Page)

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

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	GAMMA (cps)	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
				0 100		
	545	driller. No more water coming through HGWC-7 casing.			LIMESTONE, Pale to dark grey, white veins of calcite, broken pieces due to drilling, slightly weathered.	
35	540					
40	535				LIMESTONE, Pale to dark grey, white veins of calcite, broken pieces due to drilling, slightly weathered.	Bentonite 3/8" chips
45	530					20/40 Silica Sand
50	525				LIMESTONE, Pale to dark grey, white veins of calcite, broken pieces due to drilling, slightly weathered.	0.010 slot size 2" Pre Pack, U-Pack Screen
55	520				Bottom of borehole at 55.0 feet.	
60	515					

Eastingand Northing in NAD 1983.
Elevationsin NAVD 1988.

SCS PLANT HAMMOND PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 3/18/19

Log updated with revised survey certified 5/19/2020.

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MW-29

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/13/18 **COMPLETED** 11/13/18
NORTHING 1549437.67 **EASTING** 1942633.60
DRILLER Cascade Drilling
GROUND ELEVATION 572.14 **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 575.06
SAMPLING METHOD 4" core 6" overide
GEOPHYSICAL CONTRACTOR Geosyntec
RIG TYPE Geoprobe 8140LC
LOGGED BY Consultants N.Tilahun **CHECKED BY** J. Ivanowski

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	GAMMA (cps)	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
				0 100	Hydro excavation (0-10') - No sample	
5	570					Bentonite grout
10	565				10-15.5': No recovery	Bentonite 3/8" chips
15	560				CLAYEY GRVAVEL, Yellowish to reddish brown, some clay, trace silt, few fine to coartse sand, non plastic, anguular to subrounded rock fragments, hard, wet.	Schedule 40 PVC 2"
20	555				PARTIALLY WEATHERED ROCK (PWR), Pale grey limestone, highly weathered and fractured, dry to moist, trace clay and fine to coarse sand.	20/40 Silica Sand
25	550	25 to 30': Hard drilling, water added by driller, driller indicates competent rock based on drilling rate.			LIMESTONE, Pale to dark grey, some white layers of calcite veins, rock fragments of up to 4 inch in size, slightly weathered, mostly mechanical breaks.	0.010 slot size 2" Pre Pack, U-Pack Screen
	545					Bentonite 3/8" chips backfill

Bottom of borehole at 30.0 feet.

Easting and Northing in NAD 1983.
Elevations in NAVD 1988.

SCS PLANT HAMMOND PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 3/18/19

Log updated with revised survey certified 5/19/2020.

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MW30D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 6/19/19 **COMPLETED** 6/20/19
NORTHING 1549530.00 **EASTING** 1942318.45
GROUND ELEVATION 576.20
BORING DIAMETER 6 in
DRILLER Cascade Drilling
TOP OF CASING ELEVATION 578.59
DRILLING METHOD Sonic
GEOPHYSICAL CONTRACTOR ---
SAMPLING METHOD Core barrel (4")
RIG TYPE Geoprobe 8140LC
LOGGED BY N.Tilahun **CHECKED BY** J. Ivanowski

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	575			Hydro excavation (0-10') - No sample
10	565			GRAVELLY CLAY, Yellowish brown to dark brown, trace silt and fine sand, angular to subrounded gravel, medium dense, wet, low to medium plasticity.
15	560			CLAY, Pale to dark brown, with partially weathered rock, low to medium plasticity, moist, firm to stiff, trace rock fragments.
25	550			PARTIALLY WEATHERED ROCK (PWR), Pale gray to white limestone, trace white calcite, dry to moist, angular rock fragments, weathered and fractured.
30	545			LIMESTONE, Broken pieces due to sonic drilling, calcite veins, pale to white and dark gray, slightly weathered.
35	540			

CONSTRUCTION DIAGRAM
- Bentonite grout
- Schedule 40 PVC 2"
- Bentonite 3/8" chips

SCS GEORGIA PLANT HAMMOND MW21D TO MW30D.GPJ ACP GINT LIBRARY_FROM ASHWIN.GLB 7/1/19

(Continued Next Page)

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

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
40	535			LIMESTONE, Broken pieces due to sonic drilling, calcite veins, pale to white and dark gray, slightly weathered. *(continued)*	
45	530				
50	525				Bentonite 3/8" chips
55	520				
60	515				
65	510				
70	505				
75	500				
80	495				
85					

(Continued Next Page)

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

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
90	490			LIMESTONE, Broken pieces due to sonic drilling, calcite veins, pale to white and dark gray, slightly weathered. *(continued)*	20/40 Silica Sand
95	485				
100	480				0.010 slot size, Schedule 40 PVC 2" screen
105	475				
	470			Bottom of borehole at 105.0 feet.	
110	465				
115	460				
120	455				
125	450				
130					

Easting and Northing in NAD 1983. Elevations in NAVD 1988.

SCS GEORGIA PLANT HAMMOND MW21D TO MW30D.GPJ ACP GINT LIBRARY_FROM ASHWIN.GLB 7/1/19

Log updated with revised survey certified 5/19/2020.

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MW-40D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 4/28/20 **COMPLETED** 4/29/20
NORTHING 1549542.29 **EASTING** 1942316.55
DRILLER Cascade Drilling
GROUND ELEVATION 576.41 **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 578.92
SAMPLING METHOD 4" core 6" override
GEOPHYSICAL CONTRACTOR ---
RIG TYPE Terra Sonic Full Size Track Mounted Rig
LOGGED BY C. Hug **CHECKED BY** J. Ivanowski

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
0				Hydro Excavation (0 ft to 10 ft) NO SAMPLE	
	570				
10				566.4 CLAY, Brownish yellow (10YR 6/8) and light gray (10YR 7/1) mottled, high plasticity, some fine sand, trace silt, moist. 10.5 ft: Trace of fine, rounded quartz gravel.	Schedule 40 PVC 2"
				562.4 GRAVELLY CLAY, Dark gray (2.5Y 4/1) and pale brown (2.5Y 7/4) mottled, low to medium plasticity, sand is fine to medium grained, trace of fine, angular limestone gravel, moist to wet, increased gravel sized limestone fragments with depth.	Aquaguard Sodium Bentonite Grout
	560				
				557.4 PARTIALLY WEATHERED ROCK, Gray (2.5Y 6/1) and white (2.5Y 8/1), highly weathered, recovered as clayey and silty gravel and cobbles of limestone with fine to coarse sand, dry.	
20					
	550	No cavities or voids reported.			
30				546.4 LIMESTONE, Very dark gray and gray, massive, fine grained, with white calcareous veins and mineralization along healed fracture planes, fresh to slightly weathered, hard, wet.	
	540	Steady drilling, hard drilling in places. No voids reported.		36 ft: Recovered as gravel sized fragments and pieces of core up to 5 inch long. Potential fines washed away.	
40					
	530				

SCS MONITORING WELLS PLANT HAMMOND MW34D TO MW41_MAY 2020.GPJ ACP GINT LIBRARY CH.GLB 5/27/20

(Continued Next Page)

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

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
50				LIMESTONE, Very dark gray and gray, massive, fine grained, with white calcareous veins and mineralization along healed fracture planes, fresh to slightly weathered, hard, wet.*(continued)*	
	520				
60					
	510			From 66 ft: Zones of more competent rock fragments, less gravel sized fragments.	
70					Aquaguard Sodium Bentonite Grout
	500				
80					
	490				
90				From 91 ft: More competent, less fractured, recovered as intact pieces of core up to 6 inch length, with white mineralization along fracture planes.	
	480				
100					Bentonite coated 3/8" pellets
	470			From 106 ft: Very broken core, recovered as angular, gravel sized fragments of core, slightly silty.	

(Continued Next Page)

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

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
110	460			LIMESTONE, Very dark gray and gray, massive, fine grained, with white calcareous veins and mineralization along healed fracture planes, fresh to slightly weathered, hard, wet.*(continued)*	Bentonite coated 3/8" pellets
120	450				20/40 Silica Sand 0.010 slot size 2" Pre Pack, U-Pack Screen
130					440.4

Bottom of borehole at 136.0 feet.

Easting and Northing in NAD 1983.
Elevationsin NAVD 1988.

CERTIFIED WELL NETWORK SURVEY DATA

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Approved

Solid Waste Management Program

Approved By: Nabil Murshed Digitally signed by Nabil Murshed Date: 2025.06.20 08:35:32 -04'00'

Well ID	Casing Northing	Casing Easting	Top of Casing Elevation	Nail on Pad Northing	Nail on Pad Easting	Nail on Pad Elevation
AP1A-1	1550080.0050	1941614.1240	587.44	1550080.5990	1941613.9040	584.78
HGWA-1	1550423.3150	1940770.0000	595.21	1550424.4790	1940770.0550	592.32
HGWA-2	1549796.8670	1939845.1520	587.92	1549796.5130	1939845.2880	585.29
HGWA-3	1549794.4080	1939833.3900	587.74	1549794.0880	1939833.5600	585.23
HGWC-7	1549520.6650	1942319.7510	579.18	1549520.5890	1942320.0850	576.55
HGWC-8	1549114.6050	1942392.5560	579.82	1549114.5020	1942392.8550	577.14
HGWC-9	1548693.3000	1942215.0250	580.36	1548692.9890	1942215.1180	577.72
HGWC-10	1548469.2500	1941644.4320	579.37	1548469.5710	1941644.4340	576.76
HGWC-11	1548477.9080	1941146.7890	580.67	1548477.7080	1941146.7020	578.12
HGWC-12	1548476.5340	1941152.3430	580.73	1548475.9500	1941152.1790	578.14
HGWC-13	1548628.0320	1940900.6010	595.76	1548629.2680	1940900.3490	592.94
MW-1	1549938.2390	1941589.0590	588.66	1549939.5030	1941588.8340	585.63
MW-5	1548436.0170	1942448.8450	581.14	1548436.0640	1942447.5550	578.00
MW-6	1548383.1150	1941689.0050	581.84	1548384.4600	1941688.6600	579.18
MW-7	1548230.4670	1941087.4410	577.73	1548231.8360	1941086.8460	574.94
MW-8	1548171.8630	1940016.6970	586.93	1548173.5170	1940017.0010	584.25
MW-19	1548422.9360	1940943.0110	580.65	1548421.5880	1940943.4040	577.46
MW-20	1549029.6820	1942736.8510	579.00	1549028.9070	1942735.5530	575.96
MW-24D	1548638.7980	1940900.3660	595.68	1548637.3090	1940900.6270	592.91
MW-25D	1548473.0020	1941162.2000	580.59	1548471.7370	1941161.7310	577.71
MW-26D	1548699.9060	1942222.3600	580.41	1548699.0240	1942223.2540	577.63
MW-27D	1549103.5660	1942390.7990	579.70	1549103.6100	1942392.0210	576.84
MW-28D	1549510.9020	1942321.1440	579.08	1549511.1320	1942322.3460	576.20
MW-29	1549437.6710	1942633.5960	575.06	1549437.1050	1942632.4620	572.14
MW-30D	1549530.0040	1942318.4510	578.59	1549530.1910	1942319.7730	576.20
MW-40D	1549542.2900	1942316.5450	578.92	1549542.5160	1942317.8430	576.41

Benchmark	Northing	Easting	Elevation
BM H-3	1548237.4130	1941013.5710	574.63

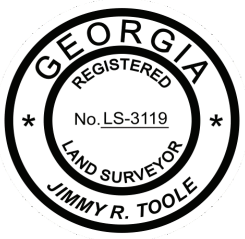
SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING, AND VERTICAL ELEVATION OF THE NAIL IN THE CONCRETE PAD & THE PVC WELL CASING.
DATE OF FIELD SURVEY & INSPECTION: 05/11/2020-05/14/2020.
FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD'88
EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R10 RTK GPS & TRIMBLE S5 ROBOTIC TOTAL STATION.
THE VERTICAL LOCATION OF EACH SURVEYED POINT WAS ESTABLISHED BASED UPON LEVEL RUNS WITH A DIGITAL LEVEL LOOP FROM VERTICAL CONTROL ESTABLISHED BY ON-SITE BENCHMARK BM H-3 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL

5/19/2020

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

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

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



9/10/2020

PERFORMANCE BOND FOR DRILLERS

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Approved
Solid Waste Management Program

Approved By: Nabil Murshed Digitally signed by Nabil Murshed Date: 2025.06.20 08:35:32 -04'00'

CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

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

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

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

(OBLIGEE)

does hereby continue said bond in force for the further period

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

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

Amount of bond **$10,000.00**

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

Premium: **$100.00**

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

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

SAFECO Insurance Company of America

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

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

Certificate No. 6125754

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

POWER OF ATTORNEY

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

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

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

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

By: _____
Gregory W. Davenport, Assistant Secretary

STATE OF WASHINGTON ss
COUNTY OF KING

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

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

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

By: KD Riley
KD Riley, Notary Public

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

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

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

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

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

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

By: _____
David M. Carey, Assistant Secretary

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

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

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY) 11/02/2015

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
Aon Risk Services Southwest, Inc. Houston TX Office 5555 San Felipe Suite 1500 Houston TX 77056 USA	PHONE (A/C. No. Ext): (866) 283-7122	FAX (A/C. No.): (800) 363-0105
	E-MAIL ADDRESS:	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Cascade Drilling, L.P. PO Box 1184 17270 Woodinville-Redmond Road Building "A", #777 Woodinville WA 98072 USA	INSURER A: Zurich American Ins Co	16535
	INSURER B: Aspen Specialty Insurance Company	10717
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. **Limits shown are as requested**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
B	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:			ERAFXLW15	11/01/2015	11/01/2016	EACH OCCURRENCE	$1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$300,000
							MED EXP (Any one person)	$25,000
							PERSONAL & ADV INJURY	$1,000,000
							GENERAL AGGREGATE	$2,000,000
							PRODUCTS - COMP/OP AGG	$2,000,000
							Professional Liability	$1,000,000
A	**AUTOMOBILE LIABILITY** X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS			BAP 0137342-01	11/01/2015	11/01/2016	COMBINED SINGLE LIMIT (Ea accident)	$2,000,000
							BODILY INJURY (Per person)	
							BODILY INJURY (Per accident)	
							PROPERTY DAMAGE (Per accident)	
B	**UMBRELLA LIAB** X OCCUR X **EXCESS LIAB** CLAIMS-MADE DED RETENTION			EXAFXLY15	11/01/2015	11/01/2016	EACH OCCURRENCE	$10,000,000
							AGGREGATE	$10,000,000
A	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N: N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		WC013734402 Workers Comp AOS	11/01/2015	11/01/2016	X PER STATUTE OTH-ER	
A				WC013734502 Workers Comp AR,MA,NE, NY	11/01/2015	12/01/2015	E.L. EACH ACCIDENT	$1,000,000
							E.L. DISEASE-EA EMPLOYEE	$1,000,000
							E.L. DISEASE-POLICY LIMIT	$1,000,000
B	Contractor Poll			ERAFXLW15	11/01/2015	11/01/2016	Aggregate	$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Certificate Holder is included as Additional Insured in accordance with the policy provisions of the Auto, General and Excess Liability policy. A Waiver of Subrogation is granted in favor of Certificate Holder in accordance with the policy provisions of the AL GL WC policy. Insurance evidenced herein is Primary to other insurance available to an Additional Insured, but only in accordance with the policy's provisions.

CERTIFICATE HOLDER

Southern Company Services
Attn: Keith Morgan
42 Inverness Center Parkway
BIN B426
Birmingham AL 35242 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services Southwest, Inc.

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.

CONTINUATION CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. 800033976

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

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

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

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

does hereby continue said bond in force for the further period

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

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

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

Description of bond Performance Bond for Water Well Contractors

Premium: $1200.00

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

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

Atlantic Specialty Insurance Company

By _____
Attorney-in-Fact Andrew P. Larsen

Parker, Smith & Feek, Inc.
Agent

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

425-709-3600
Telephone Number of Agent

S-0157/GE 8/08

XDP

CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

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

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

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

does hereby continue said bond in force for the further period

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

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

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

Description of bond Water Well Contractors & Drillers

Premium: $100.00

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

Signed and dated on 05/06/2021
(MONTH-DAY-YEAR)
SAFECO Insurance Company of America
175 Berkeley Street, Boston, MA 02116

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

McGriff Insurance Services, Inc.
Agent
2211 7th Avenue South, Birmingham, AL 35233
Address of Agent
(205) 252-9871
Telephone Number of Agent

S-0157/GE 8/08

XDP

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

Liberty Mutual. SURETY

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

Certificate No: **8205019-016032**

POWER OF ATTORNEY

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

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

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

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

By: David M. Carey
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

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

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

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

By: Teresa Pastella
Teresa Pastella, Notary Public

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

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

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

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

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

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

By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

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

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

CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

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

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

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

does hereby continue said bond in force for the further period

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

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

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

Description of bond Water Well Contractors & Drillers

Premium: $100.00

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

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

SAFECO Insurance Company of America

175 Berkeley Street, Boston, MA 02116

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

McGriff Insurance Services, Inc.
Agent

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

(205) 252-9871
Telephone Number of Agent

S-0157/GE 8/08

XDP

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

Liberty Mutual. SURETY

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

Certificate No: **8205019-016032**

POWER OF ATTORNEY

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

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

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

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

By: David M. Carey
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

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

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

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

By: Teresa Pastella
Teresa Pastella, Notary Public

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

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

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

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

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

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

By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

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

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

CONTINUATION CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. 800033976

dated effective September 27, 2017
(MONTH-DAY-YEAR)

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

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

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Nabil Murshed Digitally signed by Nabil Murshed Date: 2025.06.20 08:35:32 -04'00'

does hereby continue said bond in force for the further period

beginning on June 30, 2023
(MONTH-DAY-YEAR)

and ending on June 30, 2025
(MONTH-DAY-YEAR)

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

Description of bond Performance Bond for Water Well Contractors

Premium:

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

Signed and dated on April 13, 2023
(MONTH-DAY-YEAR)

Atlantic Specialty Insurance Company

By _____
ATTORNEY-IN-FACT Carlos A. Albelo

intact INSURANCE

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Megan Sivley, Melissa Haddick, Sandra Parker, Orlando Aguirre, Stacy Killebrew, Carlos A. Albelo**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **unlimited** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

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

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

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

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this first day of January, 2023.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Sarah A. Kolar, General Counsel

STATE OF MINNESOTA
HENNEPIN COUNTY

On this first day of January, 2023, before me personally came Sarah A. Kolar, General Counsel of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and she acknowledged the execution of the same, and being by me duly sworn, that she is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.

ALISON DWAN NASH-TROUT
NOTARY PUBLIC - MINNESOTA
My Commission Expires
January 31, 2026

_____
Notary Public

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

Signed and sealed. Dated 13th day of April, 2023.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

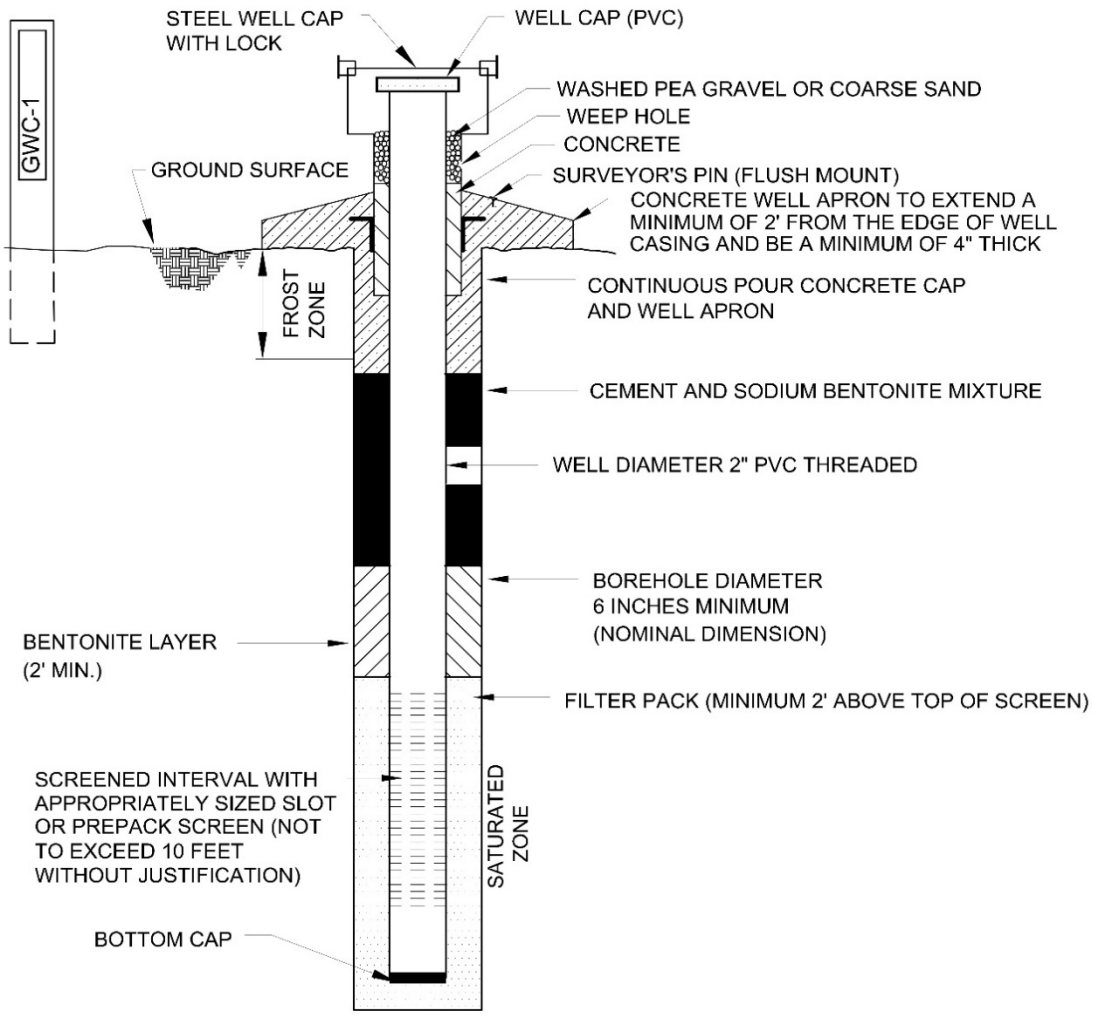
This Power of Attorney expires
January 31, 2025

_____
Kara Barrow, Secretary

Please direct bond verifications to surety@intactinsurance.com

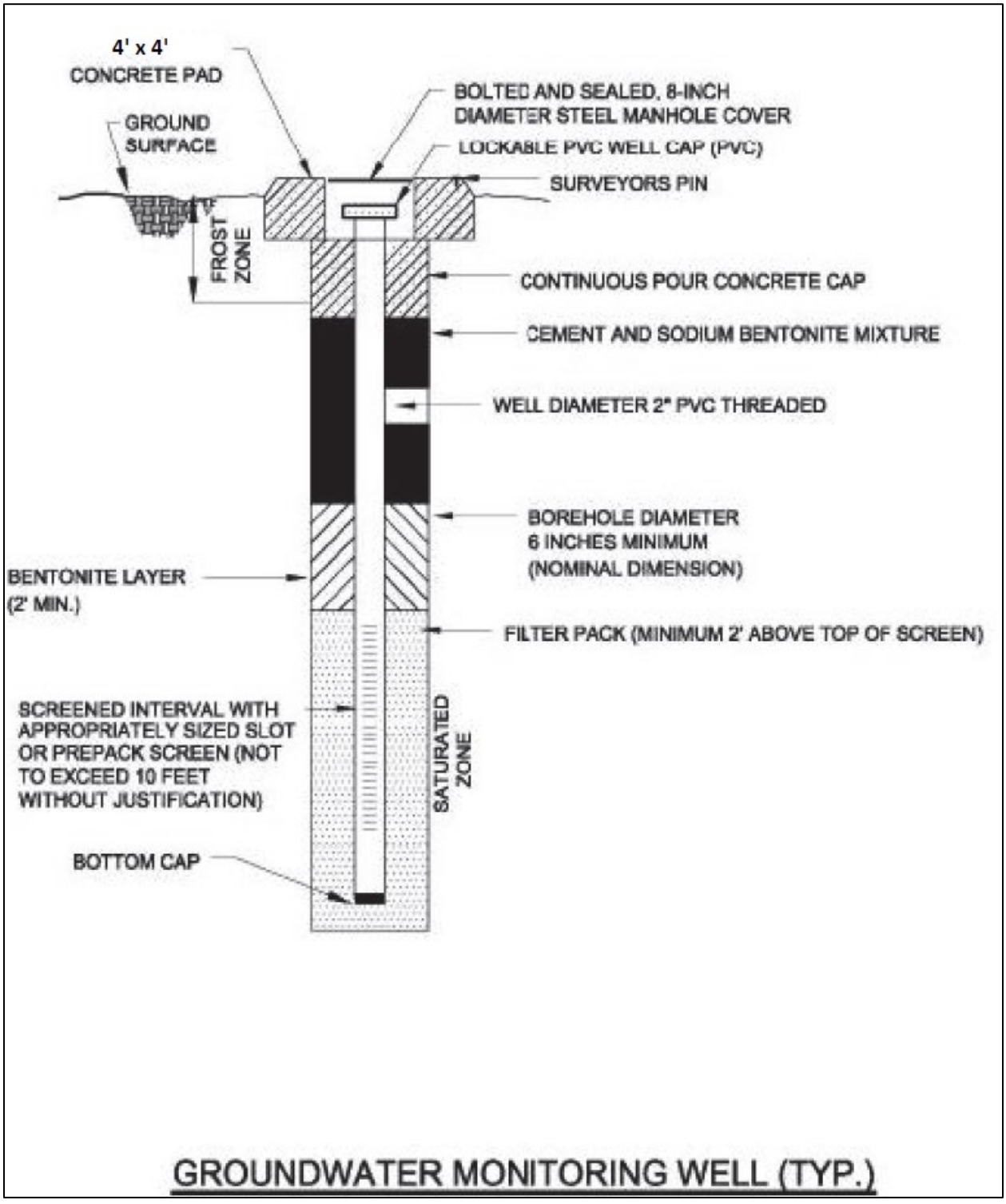
B. GROUNDWATER MONITORING WELL DETAIL

ABOVE-GROUND WELL CONFIGURATION



GROUNDWATER MONITORING WELL (TYP.)

FLUSH-MOUNT WELL CONFIGURATION



C. GROUNDWATER SAMPLING PROCEDURE

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

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

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

2. Measure and record the depth to water in all wells to be sampled prior to purging using a water measuring device consisting of probe and measuring tape capable of measuring water levels with accuracy to 0.1 foot. Static water levels will be measured from each well, within a 24-hour period. The water level measuring device will be decontaminated prior to lowering in each well.

3. Install Pump: If a dedicated pump is not present, slowly lower the pump into the well to the midpoint of the well screen or a depth otherwise approved by the hydrogeologist or project scientist. The pump intake must be kept at least two feet above the bottom of the well to prevent disturbance and suspension of any sediment present in the bottom of the well. Record the depth to which the pump is lowered. All non-dedicated equipment will be decontaminated before use and between well locations in general accordance with USEPA Region 4 LSASD guidance document, *Operating Procedure - Field Equipment Cleaning and Decontamination* (EPA, LSASDPROC-205-R4), or the latest version of the document.

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

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

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

   ±0.1 for pH

   ±5% for specific conductance (conductivity)

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

<5 NTU for turbidity

Temperature – Record only, not used for stabilization criteria

ORP – Record only, not used for stabilization criteria.

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

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

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

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

11. Information contained on sample container labels will include:

    a. Name of facility

    b. Date and time of sampling

    c. Sample description (well number)

    d. Sampler's initials

    e. Preservatives

    f. Analytical method(s)

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

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

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

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

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

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

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